Record of Decision

Operable Unit 1/Operable Unit 2

Anniston PCB Site

Anniston, Calhoun County, Alabama

U. S. Environmental Protection Agency, Region 4

Atlanta, Georgia

November 2017

PART 1: DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

The Anniston PCB Site (the Site) includes residential, commercial/industrial, and public properties located in and around Anniston, Oxford, Hobson City, and areas of Calhoun and Talladega Counties in Alabama. The Site is currently divided into operable units (OUs). OU1/OU2 is a combination of what was originally two OUs representing residential properties (OU1) and non-residential properties (OU2) around the facility currently owned by Solutia Inc., a wholly owned subsidiary of Eastman Chemical Company, and downstream along Snow Creek to Highway 78. OU3 is Solutia's Anniston Facility (the Facility) and its adjacent closed landfills, the South Landfill and the West End Landfill. OU4 is Choccolocco Creek and its floodplains, from its confluence with Snow Creek up to Highway 78, to its discharge at the embayment of Lake Logan Martin on the Coosa River. The Superfund site identification number is ALD000400123.

STATEMENT OF BASIS AND PURPOSE

This decision document, or Record of Decision (ROD), presents the Selected Remedy for OU1/OU2 of the Anniston PCB Site and was developed in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), 42 U.S.C. § 9601 et seq., and, to the extent practicable, the National Contingency Plan (NCP), 40 CFR Part 300. This decision is based on the administrative record for the Site.

The State of Alabama, as represented by the Alabama Department of Environmental Management (ADEM), has received the reports which are included in the Administrative Record for the Site. In accordance with 40 C.F.R. § 300.430, the EPA sought input from ADEM during the remedial selection process. The EPA expects ADEM to concur with the Selected Remedy.

ASSESSMENT OF THE SITE

The response action selected in this ROD is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances from OU1/OU2 of the Anniston PCB Site into the environment.

DESCRIPTION OF THE SELECTED REMEDY

This action is the second remedial action selected for the Anniston PCB Site. The Selected Remedy for OU1/OU2 includes excavation with onsite and offsite disposal of contaminated soil from residential and special use properties (i.e., schools, churches, day-care centers, community centers, playgrounds, and parks). Residential soil and high activity areas, such as playgrounds, on special use properties have been, for the most part, cleaned up such that surface soil PCB concentrations are less than 1 milligram per kilogram (mg/kg) and subsurface soil PCB concentrations are less than 10 mg/kg. The Selected Remedy requires the residential properties

identified for cleanup with access issues or exposure issues (wooded with excessive vegetation) continue to be targeted for cleanup and that low activity areas associated with special use properties be cleaned up to the most stringent non-residential standard for PCBs, 1 mg/kg, which provides the most protection allowable to children. Onsite disposal for soil with PCB concentrations less than 10 mg/kg was approved for previous non-time critical removal actions and will continue to be a disposal option for the few residential cleanups remaining, the special use property cleanups, and for management of residential and special use property soil with residual PCB concentrations in the subsurface or under structures. All other soil from residential and special use properties with PCB concentrations greater than or equal to 10 mg/kg will be disposed of at offsite approved disposal facilities.

The Selected Remedy incorporates as CERCLA remedies all of the interim corrective measures implemented at OU1/OU2 under ADEM's RCRA oversight, as well as the non-time critical removal action and any interim measures implemented under the EPA's CERCLA oversight, prior to issuance of this ROD. Additional excavation and offsite disposal of contaminated soil around the interim measure areas is needed to make the northside area, eastside area, and eastside drainageway interim measures protective over the longterm.

The Selected Remedy requires complete removal and offsite disposal of soil in four (4) dredge spoil piles adjacent to Snow Creek. The spoil piles contain PCBs, and are susceptible to erosion back into the creek. The EPA opted to remove the piles rather than stabilize and/or maintain vegetation on the spoils and the adjacent banks to eliminate their erosion potential.

The Selected Remedy requires containment of contamination in unapproved waste disposal areas at locations west and east of the Facility, where auto fluff waste was found mixed with significant PCB and lead contamination in soil. The low-permeability containment offered by a RCRA Subtitle D cap is typical of what is currently required at waste disposal sites across the country.

On other non-residential properties, such as commercial/industrial properties, the Selected Remedy requires excavation to meet the non-residential surface soil cleanup goals for PCBs (21 mg/kg), chromium (382 mg/kg), polychlorinated aromatic hydrocarbons (PAHs) (153 mg/kg), and dioxins (PCDD/DF/DL-PCBs) (0.73 micrograms per kilogram (µg/kg)). Offsite disposal of contaminated soil at approved facilities is required.

In the general area around groundwater investigation well T-11, the Selected Remedy protects against exposure to PCB contamination in surface soil, as well as, protection for PCB leaching to groundwater and restoration of groundwater to an acceptable PCB concentrations (0.5 micrograms per liter (µg/L)) , through excavation of principal threat waste, installation of a low permeability cap, and groundwater extraction and treatment. Treated groundwater will be discharged to Snow Creek. Offsite disposal of contaminated soil at approved facilities is required.

In Snow Creek, the Selected Remedy requires the excavation of contaminated sediment to meet sediment goals for PCBs (3 mg/kg), barium (322 mg/kg), chromium (111 mg/kg), cobalt (59 mg/kg), lead (128 mg/kg), manganese (1,100 mg/kg), mercury (1 mg/kg), nickel (46 mg/kg), and

vanadium (41 mg/kg). All contaminated sediment will be disposed of offsite. Additionally, 1,400 linear feet of bank area is identified for stabilization, approximately 350 feet are targeted for engineered approaches and approximately 1,050 feet are targeted for a naturalized bank stabilization using the range of potential techniques. No compensatory mitigation for loss of habitat resulting from the cleanup is anticipated as a result of the Selected Remedy.

PCB concentrations in soil will exceed 1 mg/kg in non-residential soil and in subsurface soil on a few residential properties, resulting in ongoing TSCA obligations and the need to provide PCB residual management. The Selected Remedy is estimated to take 2-3 years to construct. As the cleanup is constructed, levels of contamination that migrate to Snow Creek and then to Choccolocco Creek in OU4 during high and low flow events are expected to decline. The Selected Remedy includes short-term monitoring during construction and long-term monitoring of soil and low-permeability caps, groundwater, sediment, and surface water after construction to evaluate long-term effectiveness and ensure the remedies function as designed.

ICs will be implemented to: (1) protect human health and the environment by limiting exposure to PCB impacted soil left in place and (2) protect the long-term integrity of the engineered components of the Selected Remedy. An Institutional Control Implementation and Assurance Plan (ICIAP) will be developed during remedial design which will, at a minimum, set out the specifics of the ICs and measures that will be implemented and who will be responsible for implementing, enforcing, and monitoring each IC. Among others, two types of ICs that will be used are described further below:

- Deed Notices: Deed notices will be requested on residential and special use properties with PCB > 1 in subsurface soil and potentially under structures. Deed notices will be requested on non-residential properties with PCB > 1 in surface soil, subsurface soil, and potentially under structures.

- Environmental Easements/Covenants: Environmental easements or covenants will be implemented in Solutia owned Interim Measures, UWDAs, and the Groundwater at T-11 Area to maintain the integrity of caps from current or future activities.

Since the Selected Remedy will leave contamination in place above levels that allow unlimited use and unrestricted exposure, Five-Year Reviews will be conducted as required by CERCLA. Total estimated net present value cost (discounted at 7 percent) for the Selected Remedy is $36,607,000. The total non-discounted capital costs are $16,649,000 and periodic costs are $756,000 per year.

STATUTORY DETERMINATIONS

This Selected Remedy is protective of human health and the environment; complies with (or waives) federal and state requirements that are legally applicable or relevant and appropriate to the action, and is cost-effective. Because this Selected Remedy will result in hazardous substances remaining onsite above levels that allow for unlimited use and unrestricted exposure, a statutory review is required within five years after initiation of the first remedial action to ensure that the remedy is, or will be, protective of human health and the environment. The first

five-year review was triggered by the OU3 remedial action start, and it is required by the end of June 2020.

ROD DATA CERTIFICATION CHECKLIST

The following information is included in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record file for this Site.

- Contaminants of Concern (COCs) and their respective concentrations are in Section 5, "Summary of Site Characteristics."
- Baseline risks for human health and the environment represented by the COCs are in Section 7, "Summary of Site Risks."
- Cleanup levels established for COCs and the basis for these levels are in Section 8, "Remedial Action Objectives."
- How source materials or highly toxic materials that are PTW are addressed is in Sections 5, "Summary of Site Characteristics", and 12, "Selected Remedy".
- Current and reasonably anticipated future use assumptions used in the baseline risk assessment and ROD are in Section 6, "Current and Potential Future Site and Resource Uses."
- Estimated capital operation and maintenance (O&M) and total present value costs, discount rate, and the number of years over which the remedy cost estimates are projected are in Section 12.3. "Summary of Estimated Remedy Costs."
- Key factors that led to selecting the remedy (i.e., how the Selected Remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decisions) are in Section 9, "Comparative Analysis of Alternatives, and Section 13, "Statutory Determinations."

AUTHORIZING SIGNATURE

Franklin E. Hill, Director
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11/8/2017
Date

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ACRONYMS AND ABBREVIATIONS

ADEM	Alabama Department of Environmental Management
AHWMMA	Alabama Hazardous Waste Management and Minimization Act
APCO	Alabama Power Company
ARAR	applicable or relevant and appropriate requirement
AHR	aryl hydrocarbon receptor
ASM	Adaptive Site Management
AWQC	Ambient Water Quality Criteria
BAF	bioaccumulation factor
BaPE	benzo(a)pyrene equivalents
bgs	below ground surface
BMPs	Best Management Practices
CA	characterization area
CAA	Clean Air Act
CAG	Community Advisory Group
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
C.F.R.	Code of Federal Regulations
CO2e	carbon dioxide equivalents
COC	chemical of concern
COI	chemicals of interest
COPC	chemical of potential concern
CSF	cancer slope factor
CSM	conceptual site model
CWA	Clean Water Act
DSP	dredge spoil piles alternative
EA	evaluation area
EECA	engineering evaluation and cost analysis
EPA	United States Environmental Protection Agency
EPC	exposure point concentration
FS	feasibility study
GC/ECD	Gas Chromatography/Electron Capture Detector
GC/MS	gas chromatography/mass spectrometry
gpm	gallons per minute
GW	groundwater
HDPE	high-density polyethylene
HHRA	human health risk assessment
HI	hazard index
HQ	hazard quotient
IC	institutional control
IM	interim measure
IROD	Interim Record of Decision
LOAEL	lowest observed adverse effect level

MCL	maximum contaminant level
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
mg	milligram(s)
mg/kg	milligrams per kilogram
mg/kg-day	milligrams per kilogram per day
mgd	million gallons per day
MMBtu	million British Thermal Units
MNR	monitored natural recovery
mph	miles per hour
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
ng/kg	nanograms per kilogram
ng/m^3	nanograms per cubic meter
NOAEL	no observed adverse effect level
NPL	National Priorities List
NRS	non-residential soil alternative
NTC	Non-Time-Critical
NTCRA	Non-Time-Critical Removal Action
O&M	Operation &Maintenance
OSWER	Office of Solid Waste and Emergency Response
OU	Operable Unit
P/S	Pharmacia Corporation and Solutia Inc.
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCD	Partial Consent Decree
PCDD/DFs	polychlorinated dibenzo-p-dioxin and dibenzofurans
PDI	predesign investigation
PEC	probable effect concentration
pg/m^3	picograms per cubic meter
PNCB	para nitrochlorobenzene
PNP	para-nitrophenol
POTW	Publicly Owned Treatment Works
ppm	parts per million
RG	preliminary remedial goal
RS	residential soil alternative
PRPs	Potentially Responsible Parties
PUF	Polyurethane Foam
PVC	polyvinyl chloride
QAPP	Quality Assurance Project Plan
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RfC	reference concentration
RfD	reference dose
RGs	Remedial Goals
RGOs	Remedial Goal Options

RI	remedial investigation
RME	reasonable maximum exposures
ROD	Record of Decision
RSL	Regional Screening Level(s)
SAA	Superfund Alternative Approach
SED	sediment and creek bank alternative
SERA	Streamlined Ecological Risk Assessment
SESD	Science and Ecosystem Support Division
Site	Anniston PCB Site
SLERA	Screening-Level Ecological Risk Assessment
SSAP	Site Sampling and Analysis Plan
SSRBC	Site-Specific Risk-Based Concentration
SSSMA	South Staging and Soil Management Area
SU	special use property alternative
SVOC	semi-volatile organic compounds
SWMU	solid waste management unit
TEC	threshold effect concentration
TEQ	2,3,7,8-tetrachlorodibenzo-p-dioxin equivalent
TOC	total organic carbon
TRV	Toxicity Reference Value
TSCA	Toxic Substances Control Act
TSS	total suspended solids
UCL	upper confidence limit
UWDA	unapproved waste disposal area
VOC	volatile organic compound
VSP	Visual Sample Plan

PART 2: DECISION SUMMARY

This Decision Summary provides a description of the site-specific factors and analyses that led to the selection of the remedial action for OU1/OU2 of the Anniston PCB Site.

1.0 SITE NAME AND LOCATION

The Anniston PCB Site (the Site) consists of residential, commercial/industrial, and public properties located in and around Anniston, Oxford, Hobson City, and areas of Calhoun and Talladega Counties in Alabama, which contain hazardous substances, including but not limited to polychlorinated biphenyls (PCBs). A former PCB production facility is located in the north-central part of Alabama. The facility and areas where PCBs and other contaminants have been distributed off the facility property and downstream from the facility collectively make up the Site.

This Decision Summary describes the remedial alternatives evaluated to address Site contamination, and provides the rationale for the United States Environmental Protection Agency's (the EPA's) Selected Remedy. The EPA in consultation with the Alabama Department of Environmental Management (ADEM) selected the remedy to address Site contamination after reviewing and considering the comments submitted during the public comment period.

The Site is considered to be a Superfund Alternative Approach (SAA) site. An SAA site is a site that needs a remedial action, and where site contaminants are significant enough that the site is eligible for, but not listed on, the National Priorities List (NPL). SAA sites must also have cooperative financially viable and technically capable potentially responsible parties (PRPs) that are willing to perform the cleanup work under a settlement agreement with the EPA. The EPA anticipates entering into a Consent Decree (CD) with the PRPs, Pharmacia Corporation and Solutia Inc. (P/S), and other industrial companies as necessary for performance of the selected remedy. The Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) identification number for the Site is ALD 000400123.

The Site has been divided into several Operable Units (OUs), which were selected based on geographic location and complexity (Figure 1-1). OU1/OU2 is a combination of two OUs representing residential properties (OU1) and non-residential properties (OU2) located around the facility currently owned by Solutia Inc. (Solutia), and downstream along Snow Creek to Highway 78. OU3 is Solutia's Anniston facility (the Facility) and its adjacent closed landfills, the South Landfill and the West End Landfill. OU4 includes Snow Creek and its floodplain downstream of Highway 78 to the confluence of Snow and Choccolocco Creeks, and Choccolocco Creek from the backwater area upstream of Snow Creek to the embayment of Lake Logan Martin on the Coosa River. All operable units are being investigated concurrently. When the Remedial Investigation (RI) for OU4 is complete, the EPA will consider whether an additional downstream investigation of the Coosa River System is warranted.

This Decision Summary is only for OU1/OU2. Residential properties sampled and cleaned up for PCB contamination outside of the floodplain are also part of OU1/OU2. An interim decision document was signed for OU3 in September 2011, and an additional decision document is planned for OU4. This Proposed Plan includes background information about OU1/OU2, the

nature and extent of contamination found, the assessment of human health and environmental risks posed by contaminants, and the identification and evaluation of remedial action alternatives. OU1/OU2 encompasses more than 813 acres (Figure 1-2). The current land use in OU1/OU2 is shown on Figure 1-3.

2.0 SITE BACKGROUND

2.1 Manufacturing History

The primary source of PCB contamination to OU1/OU2 is a chemical manufacturing Facility. The Facility is currently active and operates in accordance with a variety of environmental permits. Manufacturing operations began at the Facility in 1917 with the production of ferro-manganese, ferro-silicon, and ferro-phosphorus compounds, and later phosphoric acid by the Southern Manganese Corporation. In 1927, the production of organic chemicals began with the introduction of biphenyl, which remains a major product of the Facility. PCB production began in 1929. In 1930, Southern Manganese Corporation became Swann Chemical Company. Monsanto Company purchased Swan Chemical Company in 1935. Monsanto Company created Solutia as a separate company in 1997. In 2012, Solutia was merged into Eastman Chemical Company. Solutia is a wholly owned subsidiary of Eastman Chemical Company.

A variety of organic and inorganic chemicals have been produced at the Facility during its history, including PCBs, parathion, phosphorus pentasulfide, and 4-nitrophenol [also known as para-nitrophenol (PNP)]. The Facility currently manufactures polyphenyl compounds (utilized in a variety of heat transfer fluid, plasticizer, and lubricant applications). These compounds have been produced for many years using the same raw materials and intermediates, even though there have been several expansions and process modifications. In addition, the manufacture of phosphate ester-based non-flammable hydraulic fluids commenced at the Facility in 2006.

The Facility manufactured PCB mixtures (trade named Aroclor) by reacting chlorine and biphenyl. Chlorine was produced at the Facility between 1952 and 1969 solely for this purpose. The manufacture of PCBs generated miscellaneous production-related wastes which were disposed in the West End Landfill prior to 1960 and in the South Landfill after 1960. The manufacture of PCBs ceased in 1971, and the associated production facilities were dismantled in 1972. Decommissioning included the removal of buildings and plant production equipment. Waste materials generated during these activities were placed into the South Landfill.

2.2 Regulatory History

The Facility is currently operated in accordance with a variety of permits issued under provisions of the Clean Air Act (CAA), Clean Water Act (CWA), Resource Conservation and Recovery Act (RCRA), and their state counterparts. There have been a number of investigations and corrective measures taken over the years to reduce environmental impacts from the Facility. The regulatory history of the Site is described below.

The Facility previously operated two hazardous waste management areas, or WMAs. These WMAs were closed in compliance with provisions contained in the Facility operating permit issued under the Alabama Hazardous Waste Management and Minimization Act (AHWMMA)

and RCRA. In 1991, a RCRA Facility Assessment (RFA) was conducted by the EPA to identify additional solid waste management units (SWMUs) at the Facility that might be subject to potential corrective action. In December 1994, and as amended in July 1995 and May 1996, the Facility applied for the re-issuance, with modifications, of its AHWMMA Permit.

In October 1996, ADEM issued a Draft Hazardous Waste Post-Closure Permit (RCRA Permit) to regulate the Facility's post closure responsibilities for WMA I and WMA II and to address corrective action for SWMUs and potential areas of concern located both on and off the Facility. The RCRA Permit was finalized and issued on January 7, 1997 (No. ALD004019048) and subsequently modified on November 13, 1997, May 3, 2001, December 11, 2003, May 5, 2006, and October 31, 2008.

On April 5, 1995, the Facility entered into a Consent Order with ADEM to develop and implement a sampling plan for sediment in the storm water drainage system. Sediment samples were collected throughout the reach of the drainage ditches. Soil samples were collected extending outward on both sides of the ditches on the Facility's property and related areas. PCBs were reported at varying concentrations in the sediment of drainage ditches that flow from the area of the closed South Landfill and from the production area to an area east of the manufacturing area. PCBs were also reported at various concentrations in soil samples outside of the drainage ditches, but within areas flooded by the drainage ditches during heavy rains.

On March 8, 1996, the Facility entered into a second Consent Order with ADEM that expanded and defined the scope of the ongoing investigation and corrective measure activities close to the Facility. Under this Consent Order, four additional areas were sampled for the presence of PCBs. In addition, other areas potentially affected by PCBs were identified and sampled. The Facility's obligations under the terms of both Consent Orders have been completed, and results of these activities have been reported to ADEM. These results confirm that PCBs are detected in areas adjacent to drainage ditches and in areas affected by storm water flooding from these ditches. The drainage ditches in which PCBs have been detected ultimately flow toward the 11th Street Ditch joining Snow Creek just south of West 11th Street.

Investigation and removal work were also conducted in the vicinity of the Facility under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). The EPA notified P/S of their potential CERCLA liability in a General Notice letter dated August 31, 2000. P/S agreed to enter into negotiations for an Administrative Order on Consent (AOC) on September 12, 2000, for cleanup of certain residential properties. The AOC became effective October 27, 2000. In correspondence dated January 22, 2001, the EPA sought to add removal actions to address both PCB-contaminated soil distributed from the Quintard Mall and PCB-contaminated soil found at the Oxford Lake Softball Complex to the AOC. On October 5, 2001, the previous AOC was rescinded and replaced by a new order (2001 AOC). In addition to sampling and cleanup of residential properties, the 2001 AOC required a removal response for a portion of the 11th Street ditch, sampling of a portion of the West 9th Street creek, and a removal response at off-Facility areas related to activities previously completed at Quintard Mall and the Oxford Lake softball complex.

The EPA invited P/S to begin negotiations to conduct a CERCLA RI and Feasibility Study (FS) for the Site on January 2, 2001, and issued Special Notice Letters on November 19, 2001. After completing negotiations, the United States lodged the draft Partial Consent Decree (PCD) with

the United States District Court for the Northern District of Alabama (the Court) on March 25, 2002. The United States held a public comment period for the draft PCD from April 4, 2002 to June 3, 2002. During this time, the United States received over 370 public comments on the PCD, and after considering the comments, revised the PCD. On October 18, 2002, the United States lodged the Revised PCD with the court. After several hearings, the court entered the Revised PCD on August 4, 2003. When the PCD was entered by the court, the Site, including the Facility, became subject to both RCRA and CERCLA authority.

In December 2005, P/S began slowing the pace of their cleanup under the PCD, in response to an Administrative Agreement and Order on Consent for Removal Action between the EPA and 11 industrial parties with respect to the Anniston PCB and Lead Site. As a result, the EPA assessed stipulated penalties, and in a letter dated December 29, 2005, the EPA demanded the payment of those stipulated penalties from P/S. Between January and July 2006, with the assistance of the court-appointed Special Masters, the United States and P/S negotiated an agreement resolving issues between the EPA and P/S. On July 6, 2006, the United States and P/S entered into a Stipulation and Agreement Clarifying the Partial Consent Decree (Stipulation), whereby P/S agreed to, among other things, waive their right to suspend work under the PCD.

In September 2011, the EPA signed an Interim Record of Decision (IROD) for OU3 (the Facility). P/S agreed to implement the requirements of the IROD in a CD that was approved by the Court on April 17, 2013.

2.3 Previous RCRA / CERCLA Response Actions on Non-Residential Properties

A significant number of actions have also been implemented as Interim Measures (IMs) in OU1/OU2. The IMs were designed to further reduce the potential for migration of PCBs to areas downstream of this OU. These IMs have been implemented on former residential and non-residential properties under the jurisdiction of the RCRA and CERCLA Programs. Figure 2-1 shows the locations where IMs have been implemented in OU1/OU2. The IMs implemented under RCRA are listed below:

- Northside Area
- Eastside Area
- Eastside Drainageway (through the former Miller Property)
- Alabama Power Company (APCO) Drainage Ditch
- Quintard Mall

There have been a number of CERCLA removal actions in OU1/OU2 that were not part of the residential removal program. These removal actions were completed under CERCLA oversight. The locations are listed below:

- 11th Street Ditch
- Hall Street Properties
- Snow Creek Sediment Removal and Dredge Spoil Pile Removal

2.3.1 Northside Area

The Northside Area is located directly north of the Facility (OU3). The Northside Area is bounded to the north by West 10th Street, to the east by Clydesdale Avenue, to the west by West 9th Street, and to the south by the Norfolk Southern railroad tracks. Between 1998 and 2003, three stages of IMs were implemented to address PCB-containing soil on what are now Solutia owned properties in the Northside area. The majority of the structures in the Northside Area were demolished. Storm water management features were installed, including: lining the existing ditch with high-density polyethylene (HDPE) and an Armorform concrete lining system; constructing a 7-foot-diameter drop manhole primary inlet structure; installing a 42-inch-diameter welded HDPE pipeline; installing a concrete box culvert under the intersection of West 10th Street and Parkwin Avenue; and redirecting flow from the new box culvert into an existing box culvert that runs along the north side of West 10th Street, eventually out letting to the east of Clydesdale Avenue into the 11th Street Ditch. Soil caps (nonwoven geotextile marker layer and minimum 14-inch-thick soil isolation cover) were installed over approximately 10.6 acres, while 40-millimeter HDPE geomembrane caps with overlaying soil, concrete, or asphalt surfaces were installed over approximately 0.7 acres. Asphalt and soil (without a geomembrane) were placed over approximately 0.2 acres. Generally, soil caps were used where total PCB concentrations were less than 500 milligrams per kilogram (mg/kg) and geomembrane caps were used where total PCB concentrations were equal to or greater than 500 mg/kg. Chain-link security fence was installed to protect the IM. In 2003, additional concrete cover and a water recycling pond and wash bins were constructed over approximately 2 acres in the Northside Area, as a result of siting a Lafarge North America (Lafarge) concrete plant within the area. The property is owned by Solutia and was leased to Lafarge.

The PCB concentrations in soil under the caps and covers in the Northside Area are shown in Figures 2-2a through 2-2d, and PCB detections range from 0.045 mg/kg to 2,800 mg/kg. Soil excavated from seven nearby properties was also placed beneath the isolation covers. Four of the properties are 721 Zinn Parkway, 1100 Pine Grove Road, 1215 West 10th Street, 901 Clydesdale Avenue. Total PCB concentrations in soil at these four properties were well below 50 mg/kg, and generally below 15 mg/kg, and the soil was placed below the soil cap. The remaining three nearby properties are at the intersection of West 9th Street and Duncan Avenue, the intersection of West 10th Street and Parkwin Avenue, and east of Clydesdale Avenue north of Norfolk Southern railroad tracks. The IM report for the 2000 IM construction work indicates that total PCB concentrations in soil at these three properties were above 5 mg/kg, and the soil was placed primarily below soil caps.

Long-term monitoring consists of quarterly inspections of the Northside Area measures (i.e., security features, isolation covers, berms, ditches and drainage channels, and storm water management features). Maintenance is conducted as needed based on the findings of the quarterly inspections. The Northside Area IMs were intended to reduce potential exposure to, and migration of, PCB-containing soil. The isolation covers impede contact with the underlying PCB-containing soil and reduce the potential for migration of this soil. The installed storm water management features convey storm water in a controlled manner and reduce the potential for erosion and transport of materials from this portion of OU1/OU2.

2.3.2 Eastside Area

The Eastside Area is located directly east of the Facility (OU3). The Eastside Area is bounded by West 10th Street to the north, Clydesdale Avenue to the west, Highway 202 to the south, and Montrose Avenue to the east. Six residential properties are located within the bounds of the eastside area. No residents live on the properties which are isolated and wooded/overgrown. The properties owners were offered an opportunity to sell their property to Solutia when the Eastside Area IMs were being planned and implemented, but the owners declined or were unable to accept due to title issues. These properties are currently being managed in the same way as the non-time-critical (NTC) removal action residential properties that are wooded or where access has not been granted (see Section 5.6.2 and Section 9.1 for further information about management of PCBs on residential properties).

Between 1997 and 2012, IMs were implemented in five stages to address PCB-containing soil within the eastside area. In general, the IMs at the eastside area included: 1) demolishing existing structures, 2)constructing soil caps (including a nonwoven geotextile marker layer and a minimum 14-inch-thick soil isolation cover) over 17.9 acres of PCB-containing soil, constructing geomembrane caps (nonwoven geotextile marker layer, 3) backfill to eliminate the ditch contour, either a 40-millimeter HDPE geomembrane liner or a composite 20-mil HDPE/bentonite liner over the backfilled soil to a minimum 14-inch-thick soil isolation cover) over the existing east drainage ditch within the 17.9 acres area, 4) installing perimeter fencing, and 5) constructing storm water management features. Generally, soil caps were used where total PCB concentrations were less than 500 mg/kg and geomembrane caps were used where total PCB concentrations were equal to or greater than 500 mg/kg. In 2012, the fifth IM at the former Mars Hill Missionary Baptist Church included demolition of the church and installation of a soil cap (nonwoven geotextile marker layer and 12-inch-thick soil isolation cover) over approximately 0.84 acres at the property.

The PCB concentrations in soil in the Eastside Area are shown in Figures 2-3a through 2-3d, and PCB detections originally ranged from 0.098 mg/kg to 200,000 mg/kg. A limited action was conducted to remove the highest PCB concentrations, resulting in the high concentrations of PCBs being reduced in soil under the caps and covers.[1] Storm water management features constructed in the Eastside Area included: construction of a retention basin for storm water from the South Landfill and welded HDPE pipelines to collect and convey storm water runoff to the permitted NPDES discharge point on the south side of West 10th Street. A berm was constructed over the pipe from the Facility, and it aids in isolating the Eastern Area. As part of the IM work, limited quantities of soil excavated from certain offsite residential and commercial properties with undocumented PCB concentrations were consolidated beneath the soil covers constructed at the former location of the Bethel Missionary Baptist Church. The excavated soil was placed within the footprint of the demolished structure and was covered with the soil isolation cover material.

Long-term monitoring consists of quarterly inspections of the Eastside Area measures (i.e., security features, isolation covers, berms, ditches and drainage channels, and storm water

[1] The actual concentrations remaining in the former Eastside Area ditches before they were abandoned and capped cannot be verified with sampling results.

management features). Maintenance is conducted as needed based on the findings of the quarterly inspections. The Eastside Area IMs were intended to reduce potential exposure to and migration of PCB-containing soil. The isolation covers impede contact with the underlying PCB-containing soil and reduce the potential for migration of this soil. The installed storm water management features convey storm water in a controlled manner and reduce the potential for erosion and transport of materials from this portion of OU1/OU2.

2.3.3 Eastside Drainageway (on the Former Miller Property)

Interim actions were implemented to address PCB-containing soil in the drainage area on the Former Miller Property prior to its use as a soil management area. The Miller property includes two parcels now owned by Solutia. The property is located north of West 10th Street, east of Clydesdale Avenue, west of McDaniel Avenue, and south of the Norfolk Southern railroad tracks. Two IMs were constructed between May 1997 and February 1998 to address existing PCB-containing soil and were completed in conjunction with the IMs implemented at the eastside properties. The IMs included: 1) clearing; 2) construction of soil caps (nonwoven geotextile marker layer and minimum 14-inch-thick soil isolation cover) over approximately 3.14 acres; 3) construction of a geomembrane cap (nonwoven geotextile marker layer, backfill to eliminate the ditch, either a 40-millimeter HDPE geomembrane liner or a composite 20-mil HDPE/bentonite liner over the backfilled soil a minimum 14-inch-thick soil isolation cover) over an existing drainage ditch; 4) construction of drainage swales along the boundaries between Solutia-owned property and adjacent properties; and 5) installing security fences, gates, and locks to limit the potential for unauthorized entry to the area. The IM also included constructing storm water control features to collect and convey storm water across the area and underneath the Norfolk Southern railway tracks to the 11th Street Ditch, including: a precast concrete box culvert extending north from the 10th Street dissipater structure to convey flow under West 10th Street and riprap lining in the open channel to an existing concrete box culvert under the railroad tracks and into the 11th Street Ditch. The PCB concentrations in soil under the caps and covers in this area are shown on Figure 2-4, and PCB detections range from 2 mg/kg to 1,200 mg/kg.

Long-term monitoring was conducted with inspections of the Eastside Area IMs (i.e., security features, isolation covers, berms, ditches and drainage channels, and storm water management features) until the soil management area was approved. At that time, monitoring and maintenance was included with the soil management area maintenance reporting. The isolation covers impede contact with the underlying PCB-containing soil and reduce the potential for migration of these soil. The installed storm water management features convey storm water in a controlled manner and reduce the potential for erosion and transport of materials from this portion of OU1/OU2.

2.3.4 Alabama Power Company Drainage Ditch South

In 1996, an IM was completed to line with concrete the southern portion of the storm water ditch between the northwest corner of the Facility and the APCO switchyard, located to the west of the Facility. The IM work for the APCO drainage ditch included the constructing a concrete-lined cover over the southern portion of the drainage ditch (i.e., the APCO Ditch South Section) between OU3 and the portion of the ditch immediately adjacent to the APCO Site switchyard. The northern limit of the APCO Ditch IM abuts the southern limit of the drainage ditch

immediately adjacent to the APCO switchyard which was lined with concrete as part of the 11th Street Ditch project. The APCO Ditch IM work was completed in conjunction with work at the West End Landfill which is directly south of this ditch within OU3. The PCB concentrations in soil under the concrete in this area ranged from 41 mg/kg to 239 mg/kg (Figure 2-5).

As detailed in the OU3 RI/FS, remedial activities to close and upgrade the West End Landfill within the southwest corner of OU3 were completed in 1996. The full scope of remedial activities at the West End Landfill included constructing a multimedia HDPE cover system over the landfill area, excavating and removing PCB-containing soil and placing clean soil cover over adjacent areas of the landfill, collecting storm water runoff from the landfill, and installing hard piping and lined channels to transport the runoff. This allowed for the closing of drainage ditches with affected sediment.

Long-term monitoring of the APCO Ditch IM consists of quarterly inspections of the IM as part of inspections of the West End Landfill to the south and 11th Street Ditch to the north. Maintenance is performed as needed based on the findings of the quarterly inspections. The APCO Ditch IM reduces potential exposure to and migration of PCB-containing soil. The concrete lining prevents contact with the underlying PCB-containing soil and reduces the potential for migration of these soil. The installed storm water management features convey storm water in a controlled manner and reduce the potential for erosion and transport of materials from this portion of OU1/OU2.

2.3.5 Quintard Mall

Between September 1998 and May 2001, IMs were implemented at the Quintard Mall located on South Quintard Avenue in the City of Oxford. The IMs were implemented in conjunction with expansion activities at the mall that included constructing additional retail space, a cinema complex, and a parking lot on the eastern side of the previously existing development. P/S, in cooperation with Quintard Mall, Ltd., implemented the interim actions to address sediment and soil that were excavated from the main channel of Snow Creek and its adjacent floodplain. As part of the construction activities, the reach of Snow Creek that passes through the mall property was widened, lined with concrete, and channeled beneath the parking lot and mall.

To facilitate the Snow Creek channel construction, a temporary channel was excavated to divert Snow Creek around the work area. Based on sampling conducted as part of the mall expansion, excavated soil and sediment with total PCB concentrations equal to and greater than 50 mg/kg were transported for offsite disposal at the Chemical Waste Management Toxic Substances Control Act (TSCA)-approved landfill in Emelle, Alabama. Excavated soil and sediment containing total PCBs at concentrations less than 50 mg/kg were placed beneath the parking lot at the mall property, and multilayer asphalt covers were constructed to isolate the PCB-containing soil/sediment and provide property improvements. Excavated soil/sediment with total PCB concentrations less than 50 mg/kg were also used to backfill the sidewalls along the creek channel beneath the parking lot and to increase the elevation of the ground surface to accommodate the mall foundation. Following material placement in these areas, multilayer cover systems consisting of crushed aggregate base material and concrete were constructed to isolate PCB-containing soil/sediment and provide infrastructure (Figure 2-6).

The interim actions implemented at the Quintard Mall reduce potential exposure to and migration of PCB-containing soil/sediment at the property. The areas where asphalt and concrete covers have been placed isolate underlying PCB-containing soil, prevent contact with the soil, and mitigate the potential for migration of the soil. The concrete channel installed to direct Snow Creek under the property reduces the potential for erosion and transport of PCB-containing soil and sediment into Snow Creek.

2.3.6 11th Street Ditch Projects

In 1989, approximately 1,000 tons of sediment were removed from the 11th Street Ditch and a portion of Snow Creek. This remediation project was completed as part of an investigation conducted in cooperation with the EPA, the Alabama Attorney General, and ADEM. The excavated sediment was transported and disposed of at an offsite landfill owned by Chemical Waste Management in Emelle, Alabama.

Between August 2004 and December 2004, the 11th Street Ditch and the north portion of the APCO ditch were lined with concrete. The 11th street ditch work was required by the 2001 Removal AOC. Prior to lining the ditch, excavation was conducted where samples indicated total PCB concentrations were above 10 mg/kg. The ditch sidewalls were excavated to a depth of 6 inches. The ditch bottom was excavated to a depth of 6 inches or 12 inches, depending upon the observed sediment depth. PCB concentrations for the soil that remained in the 11th Street Ditch beneath the concrete are shown in Figures 2-7a through 2-7e, and PCB detections range from 0.045 mg/kg to 590 mg/kg.

Approximately 4,060 tons of soil and sediment with total PCB concentrations less than 50 mg/kg were transported to Three Corners Landfill in Piedmont, Alabama, for disposal. Approximately 550 tons of soil and sediment with total PCB concentrations greater than or equal to 50 mg/kg were transported to Chemical Waste Management's facility in Emelle, Alabama, for disposal. An additional 440 tons of debris (non-PCB railroad ties, plates, and miscellaneous construction debris) were also removed and disposed. PCB concentrations in the ditch after excavation ranged from 0.045 mg/kg to 590 mg/kg. Subsequent to excavation, the ditch was lined with one of the following: approximately 6,700 linear feet of ditch were lined with geocomposite and a wire mesh-reinforced concrete; geotextile and riprap were installed in the vegetated swale located north of the ditch and the terminus of the ditch at Snow Creek; and approximately 420 linear feet of the APCO ditch were lined with concrete directly above existing riprap in the ditch.

Long-term monitoring of the 11th Street Ditch removal action consists of quarterly inspections of the concrete liner cover, energy dissipation curbs, riprap and concrete cover, geotextile and riprap cover, geotextile and gravel cover, riprap cover, and notification signs. Maintenance is conducted as needed based on the findings of the quarterly inspections. The completed 11th Street Ditch project reduces potential exposure to, and migration of, PCB-containing soil. The isolation covers impede contact with the underlying PCB-containing soil and reduce the potential for migration of the soil. The installed storm water management features convey storm water in a controlled manner and reduce the potential for erosion and transport of materials from this portion of OU1/OU2.

2.3.7 Hall Street Properties

Between 2004 and 2006, an IM was implemented to address PCB-containing soil at three adjacent property parcels along Hall Street (collectively referred to as the Hall Street properties) located in the city of Oxford, Alabama. The properties were originally sampled as part of the residential sampling program under the Removal AOC. When the Oxford Water and Sewer Board needed to perform work on sewers in the area, an isolation cover (geotextile marker layer, 1-foot soil cover, and vegetative cover) was constructed over approximately 1.3 acres to isolate PCB-containing soil at these properties. PCB concentrations below the isolation cover ranged from 0.056 mg/kg to 84 mg/kg. In at least one location, PCBs were detected to a depth of 8 feet below ground surface (Figure 2-8).

Following implementation of the IM, a deed restriction was established for the properties preventing future residential use of the properties. Property ownership was transferred to the Oxford Water and Sewer Board. This IM and the established deed restrictions reduce potential exposure to, and migration of, PCB-containing soil.

2.3.8 Snow Creek Sediment Removal and Dredge Spoil Piles

Dredging activities previously performed in Snow Creek by the City of Anniston resulted in a series of dredge spoil piles being placed along the nearby banks of the creek. The location of the dredge spoil piles from Snow Creek are shown on Figures 2-9a and 2-9b. Spoil piles SC-3, SC-4, SC-5, and SC-6 have been removed. In conjunction with the removal of dredge spoils SC-4, SC-5, and SC-6, management of impacted sediment was performed to assist the City of Anniston along a portion of Snow Creek.

Dredge spoil pile SC-3 was incorporated into the residential removal action completed at 710 Pine Street (Parcel 2609) in June and July 2009. Approximately 144 tons of soil/sediment containing less than 50 mg/kg of PCBs was loaded into roll-off box containers and staged prior to being transported to Three Corners Landfill for disposal. After removal of the dredge spoil pile, the area was restored with clean vegetated soil cover (consistent with the 710 Pine Street property).

In November 2009, the City of Anniston conducted sediment removal activities in Snow Creek between Pine Street and Glen Addie Avenue, as part of efforts to improve stream flow and reduce flooding potential in this area of the city. Sediment along the north and south side of the creek were targeted for removal. The excavated sediment was above the water line, and de-watering was not necessary. The sediment was transported to the Three Corners Landfill in Piedmont, Alabama. Following the removal activities, the disturbed areas were restored with seeding and mulching. In conjunction with the sediment removal activities, dredge spoil areas SC-4, SC-5, and SC-6 were removed. Approximately 405 tons of soil/sediment containing less than 50 mg/kg of PCBs was transported to Three Corners Landfill for disposal. Approximately 12 tons of soil/sediment containing PCB concentrations greater than 50 mg/kg were disposed at Chemical Waste Management's TSCA-approved landfill in Emelle, Alabama. Following completion of removal activities, disturbed areas were either seeded and mulched or covered with gravel.

2.4 Previous CERCLA Response Actions on Residential Properties

The EPA became aware of residential soil contamination during a removal action investigation of the Anniston PCB Site in 1999 and 2000. Both PCBs and lead were detected in residential soil above the EPA's Removal Action Levels (RALs) of 10 mg/kg and 400 mg/kg, respectively. No other contaminants were determined to be of concern on residential properties based on the wide list on constituents analyzed during the EPA removal assessment. The EPA determined that there were 22 industrial operations in the area that could have contributed PCB and lead contamination to residential soil.

The former Monsanto production facility was determined to be the primary source of PCBs in the environment, while 21 other nearby industries were determined to be "de minimis" PCB contributors. PCBs were assumed to be distributed to residential properties by three main pathways: air dispersion, the physical transport of contaminated fill material, and surface water transport. The air and contaminated fill pathways were investigated by sampling properties outside of the floodplain. The surface water pathway was investigated by sampling properties located within the downstream floodplain. All residential samples collected were analyzed for lead and PCBs.

All 22 industrial facilities in the Anniston area, including the former Monsanto production facility, were determined to be partially responsible for lead contamination present in the environment. Lead was assumed to be distributed to residential properties by two main pathways: air dispersion and the transport of contaminated fill material. Modeling indicated that air transport of lead would not have extended beyond 500 meters from the point of discharge. For that reason, all residential properties located within 500 meters of the center of the 22 industrial operations identified as contributors were required to be sampled for lead. It was also determined that lead contaminated fill would only have been freely transported to locations less than the distance to a land disposal facility or dump. Therefore, the extent of the Lead Site investigation did have a geographic boundary.

Based on all of the above determinations, a map illustrating the boundaries of different sampling areas in Anniston was developed as part of the settlement of the Anniston PCB and Lead Site. The map was used in the negotiation of the 2006 Stipulation to the PCD, to resolve sampling and cleanup responsibilities between the two sites. The overall area was divided into zones labeled A, B, C, and D (see Figure 2-10). Zone A was the 500 meter (m) area around 21 of the industrial operations. Zone B was the area in which fill may have been transported outside of the other zones. Zone C was the area adjacent to the former Monsanto production facility and landfills, and the downstream floodplain to Highway 78. Zone D was the Facility and a 500 m area around the Facility.

In the Stipulation and Agreement to the PCD, the responsible parties for the Anniston PCB Site agreed to clean up all yards (e.g., front, back, side) within Residential Properties in Zones A and B that contained a surface soil (top 12 inches of soil) PCB concentration greater than or equal to 1 milligram per kilogram (mg/kg) and no surface soil lead concentration greater than or equal to 400 mg/kg. The parties further agreed to clean up all portions of yards (e.g., front, back, side) within Residential Properties in Zones C and D that contain surface soil PCB concentrations

greater than or equal to 1 mg/kg, regardless of the levels of lead found in that portion of the yard. Though the EPA determined that P/S should clean up the remaining properties with soil lead greater than 400 mg/kg in Zone D, as part of their contribution to lead contamination on residential properties, no settlement has been reached, and the EPA is conducting the remaining lead only cleanups in Zone D.

A NTC Removal Agreement was used to address residential properties with surface soil PCB levels at or above 1 mg/kg. The NTC Removal Agreement was based on an engineering evaluation and cost analysis (EECA), which compared alternatives for addressing PCB-containing soil in residential areas of the Site with PCB concentrations greater than or equal to 1 mg/kg in the upper 12 inches of soil and greater than or equal to 10 mg/kg below 12 inches. The EECA Report proposed excavation, with onsite and offsite disposal of PCB contaminated soil and onsite soil management for soil with PCB concentrations less than 10 mg/kg. After a public comment period, the EPA selected the proposed remedy. The NTC Removal Agreement was clarified by the issuance of the Stipulation mentioned previously.

P/S then developed a residential soil removal work plan as required by the NTC Removal Agreement to define the approach for performing a removal action response at any property for which composite sampling results indicates the presence of PCBs in surface soil at or above 1 mg/kg. During the transition period from the Removal AOC to the NTC Removal Agreement, P/S continued to sample and complete removal actions under the Removal AOC. As part of the Site Sampling and Analysis Plan (SSAP) and associated addenda, P/S organized the OU1/OU2 portion of the Site into 35 evaluation areas (EAs) to streamline sampling and removal activities.

Table 2-1 provides a summary of the number of residential parcels sampled and/or cleaned up for PCBs by different groups under the EPA actions and oversight at the Anniston Lead and PCB Sites. It should be noted that some parcels were sampled and even required cleanup by both sites based on the agreed division of work in the Stipulation to the PCD. The lower half of the table is an accounting of where residual PCBs may be present in subsurface soil at concentrations greater than 1 mg/kg.

3.0 COMMUNITY PARTICIPATION

Since 2000, the EPA and Solutia have been working to keep the community, governmental entities, the Community Advisory Group, the Technical Advisor, the United States District Court for the Northern District of Alabama, and all other interested parties informed about Site activities. Information has been disseminated through websites, fact sheets, open houses, availability meetings, and public meetings.

The OU1/OU2 RI Report, FS Report, Baseline Risk Assessment Reports, and Proposed Plan for OU1/OU2 of the Anniston PCB Site were released to the public on March 10, 2017. These documents are incorporated in the Administrative Record for the Site. A copy of the Administrative Record, upon which the Proposed Remedy is based, is located at the Information Repositories. In addition, the Administrative Record is available in electronic format from the EPA Region 4 offices in Atlanta, Georgia. Notices about the availability of these documents was

published in the Anniston Star five times between March 12, 2017 and May 7, 2017. Radio ads ran on station WHOG five times each day on April 14, 28 and May 12.

A 30-day public comment period was planned from March 13, 2017 through April 11, 2017. Prior to publishing the Proposed Plan, the EPA received a request from members of the Community Advisory Group to extend the comment period for at least 30 days so that the community would have time to review the documents. The EPA extended the comment period to May 12, 2017. Copies of the comments received (except for personal identifying information) are included in Appendix C. The EPA's response to the comments are included in Part 3 of the ROD.

The EPA presented its preferred remedy for OU1/OU2 of the Anniston PCB Site during two public meetings. On March 23, 2017, the plan was presented at the Anniston Meeting Center, 1615 Noble Street, Anniston, Alabama. On March 24, 2017, the plan was presented at the Oxford Civic Center, 401 McCullars Lane, Oxford, Alabama. At these meetings, representatives of the EPA answered questions about sampling results in OU1/OU2, the baseline risk assessment, and the remedial alternatives under consideration. A transcript of the meeting was prepared and is available in Appendix D. The EPA also presented various portions of the Proposed Plan at community meetings sponsored by the Community Advisory Group and the Technical Advisor, during the comment period.

4.0 SCOPE AND ROLE OF THE PROPOSED RESPONSE ACTION

As with many Superfund sites, the problems encountered at the Anniston PCB Site are complex. As a result, the work has been organized into OUs, which were identified based on geographic location and complexity. OU1 and OU2 generally consists of both residential and non-residential properties around the Facility and downstream, following Snow Creek to Highway 78. The EPA has already selected a Time-Critical Removal Action and an NTC Removal Action to cleanup residential properties (OU1). The removal decisions were documented in Removal Action Memoranda dated October 2001 and February 2004.

This Proposed Plan presents a Preferred Alternative to reduce current and future risks from contaminants in soil, sediment, groundwater and surface water at OU1/OU2. This is the second CERCLA remedial action proposed for the Anniston PCB Site. An IROD was signed for OU3 in September 2011, and additional Proposed Plans and decision documents are expected to be issued to select a final remedy for OU3 and address risks at OU4, as well as, possibly impacted areas further downstream.

5.0 SUMMARY OF SITE CHARACTERISTICS

5.1 Conceptual Site Model

Two conceptual site models on which the sampling plans, risk assessments, and response actions are based were developed, one for human receptors and one for ecological receptors. The purpose of the conceptual site model is to provide a framework with which to identify potential exposure pathways occurring at OU1/OU2. Because the area is highly disturbed and developed, the conceptual site model for the terrestrial areas focused only on human health. Snow Creek,

which is the main drainageway for OU1/OU2, was evaluated for both human health and ecological health.

The human health conceptual site model in Figure 5-1 incorporates information on the potential chemical sources, affected media, release mechanisms, routes of migration, and known or potential human receptors. Potentially exposed populations consist of current and future residents, industrial and commercial workers, commercial visitors, construction and utility workers, recreational users, and trespassers, all of which may be in contact with contaminated soil, sediment, surface water, and PCBs in air as vapor and fugitive dust. The impact of PCBs in air from the Facility on adjacent residents was evaluated at the request of the community in the investigation of OU3 and was qualitatively evaluated again in OU1/OU2. Additionally, although no complete pathway was identified for current exposure to groundwater, groundwater resources are potential drinking water sources in the State of Alabama that must be restored for possible future use. Groundwater was evaluated in the investigation of OU3 and was qualitatively evaluated again for PCBs in OU1/OU2.

The ecological conceptual site model in Figure 5-2 is similarly constructed, though it focuses ecological receptors of sediment and surface water only. A more complete and complex baseline assessment of ecological risk is being conducted for the down-gradient waterway, Choccolocco Creek, which is located in a more rural, less developed setting.

5.2 Physiography and Topography

Approximately 90% of Calhoun County lies within the Valley and Ridge physiographic province. The geology of this area is characterized by folding and thrust faulting. Thrust faults are the dominant structural features in this province. The upward folding of rocks and cutting to streams has formed a series of sharp ridges and valleys. The remaining area of Calhoun County, which is located in the extreme southeastern part of the county, lies within the Piedmont physiographic province consisting of well-dissected uplands developed on metamorphic rocks. Upstream of its confluence with Snow Creek, Choccolocco Creek runs along the Talladega-Cartersville fault, which separates these two physiographic provinces. Various tributaries in the eastern and southern portions of the basin originate in the Piedmont province.

Snow Creek and its floodplain are defining features for OU1/OU2. Snow Creek, which generally runs down the center line of its 100-year floodplain, has a wide range of bed materials. The native materials in the Snow Creek basin include solids ranging from clays to gravels and bedrock contact areas, each of which play a role in determining sediment transport of hydrophobic organic compounds such as PCBs.

Snow Creek flows through recently deposited alluvium belonging to the Philo series (upper two-thirds of the basin) or Pope series (lower one-third of the basin). Both alluvial soil series are similar in their classification as fine sandy loam, their origin from sandstone and shale with possible limestone parent material, and their frequency of flooding. The dominant soil types outside the immediate channel area are identified as an undifferentiated mixture of Anniston and Allen soil. In the area of Snow Creek, sandstone and quartzite gravel, and cobbles up to eight inches in diameter are common in the soil, comprising 10% to 20%. With increasing elevation, the soil grades to the Muskingum series, a coarse, stony residuum of sandstone and shale 1 to 2 feet thick over bedrock. In the upper Snow Creek basin, extensive rough mountainous areas with

many outcrops of sandstone and quartzite bedrock, loose rock fragments, and scattered patches of sandy soil material are present. Slopes are generally greater than 25%, and runoff is rapid.

5.3 Geology/ Hydrogeology

The stratigraphic and structural relationships of the rocks throughout most of Calhoun County are typical of the Valley and Ridge physiographic province of the southern Appalachian Highlands. Rocks that range in age from the Cambrian Period to the Pennsylvanian Period have been sharply folded into northeast trending anticlines and synclines that are complicated by thrust faults. The thrust faults are the dominant structural features of the Valley and Ridge province and cause the repetition of the geologic units on the surface. Secondary stresses caused numerous high-angle faults of more limited extent. This faulting, folding, and crushing of rock units has caused the sometimes chaotic surficial distribution of formations in the county, including portions underlying OU1/OU2.

Nine consolidated units (bedrock units, including the Shady Dolomite) and the overlying residuum are considered significant water-bearing units in Calhoun County. Although the vertical conductivity in these units varies, there is no readily identifiable regional confining layer or layers to isolate the units into separate systems. Groundwater occurs in a variety of hydrogeologic environments in the consolidated (bedrock) units in Calhoun County. The majority of the water-bearing units in the area are carbonate rocks, which typically yield only enough water for individual domestic use.

The Shady Dolomite Formation is present along the lower slopes of Coldwater Mountain and Choccolocco Mountain. This formation is approximately 500 feet thick and consists of bluish-gray or pale-yellowish gray, thick-bedded dolomite with chert. The Shady Dolomite Formation is considered a good aquifer in Calhoun County, and wells developed in this aquifer can supply enough water for municipal or industrial uses.

Regional groundwater flow is controlled by topography and the transmissivity and geologic structure of the underlying formations. As groundwater flow is controlled by topography, local flow direction is generally to the north in the vicinity of the Facility. However, as groundwater approaches the 11th Street Ditch, flow becomes northeast, following the slope of the 11th Street Ditch. Ground surface elevations of the monitoring wells installed along Snow Creek indicate over 100 feet of elevation drop from the Facility to the area where OU1/OU2 crosses into OU4 along Snow Creek. Depths to the surficial water table along the 11th Street Ditch and Snow Creek are shallow, generally ranging from approximately 6 to 13 feet below ground surface (bgs). A generalized cross-section depicting approximate ground surface, depth to groundwater, and general geology is included on Figure 5-3.

Lesser quantities of groundwater are obtained from sandstone, shale, mudstone, and quartzite units present in the county. These groundwater sources can be sufficient for domestic uses; however, it is difficult to obtain sufficient groundwater from these sources for municipal or industrial uses. The groundwater yield from these rocks is controlled by fracture orientation, grain size, grain distribution, and secondary permeability.

Approximately 150 springs have been identified and located in the county, and the discharge of these springs is variable, ranging from less than 1 gallon per minute (gpm) to over 17,000 gpm.

Many of these springs are found along the trace of thrust faults and produce enough water for domestic uses and, in some instances, for municipal supply. It is estimated that 80% of these springs are used for domestic, farm, stock, municipal, industrial, or recreational water supplies. The two most significant springs located nearest to the Facility are Collateral Spring and Coldwater Spring. Both springs are located approximately five miles from the Facility. Collateral Spring is located to the south of the Facility near Interstate 20. Coldwater Spring is located approximately five miles southwest of the Facility.

Coldwater Spring is the primary water source for Anniston, Fort McClellan, Anniston Ordinance Depot, and other municipalities and communities within Calhoun County. During an observation period from 1957 to 1983, the average discharge of Coldwater Spring was approximately 31 million gallons per day (mgd), and the minimum discharge was 23.5 mgd. The city of Oxford currently relies on groundwater as its primary source of water. The city operates five production wells (each approximately 300 feet deep) that draw water from the Knox Group, Shady Dolomite Aquifer. The water from each well is tested regularly and meets all drinking water regulations without any treatment required.

As part of the investigations for OU3, P/S contacted the local water utility who confirmed that they provided service to the area surrounding the Solutia Facility. Additionally, during the RI Program for OU3, a door-to-door survey of private wells within a one-mile radius around the Solutia Facility was conducted. The field team surveyed 2,545 properties. Four commercial properties (11 parcels) were identified during the survey as having active wells. One of the wells on these properties was permitted for drinking water use, but was currently used only for process water.

A location map showing the identified springs, the survey area, and the groundwater well locations, including the Oxford municipal wells, has been included as Figure 5-4.

5.4 Surface Water Hydrology

There are many natural and man-made features in OU1/OU2 that govern surface water drainage (Figure 5-5). During precipitation events, significant quantities of surface water flow across the Facility, and into various man-made ditches. This flow generally discharges into the 11th Street Ditch north of the Facility. The 11th Street Ditch discharges in an easterly direction to Snow Creek. Snow Creek in turn flows to the south and eventually drains into Choccolocco Creek, which in turn flows to the west into Lake Logan Martin on the Coosa River. When surface water comes into contact with affected soil, constituents can become entrained in the water and subsequently transported downstream. The Facility storm water detention basin, 11th Street Ditch, and Snow Creek are part of OU1/OU2. The quality of surface water in these bodies is considered in the investigation of OU1/OU2.

5.5 Natural Resources

Snow Creek is a small urban drainageway that flows through Anniston into Oxford, before its confluence with Choccolocco Creek just south of Interstate 20 near the Choccolocco Creek Publicly Owned Treatment Works (POTW). Aquatic habitat in the OU1/OU2 portion of Snow Creek (north of U.S. Highway 78) upstream to the confluence with the 11th Street Ditch is limited. There are drainage ditches along local roads that flow into the creek, and the creek is

channelized in some locations through dense areas of residential, commercial, and industrial land use. In areas where concrete sluiceways channelize the creek, substrate, aquatic vegetation, and bank features are lacking or are insufficient as habitat for aquatic organisms or wildlife. While other areas of the creek have not been altered to the same degree, specifically the portion of Snow Creek between Noble Street and U.S. Highway 78, much of the creek is adjacent to roadways with limited vegetated buffer zones. Some areas of the creek have more expansive banks with riparian vegetation, a sandy-silt mix of substrate and depositional bars, and occasional riffle-run-pools. At the southern limit of Snow Creek in OU1/OU2, surface waters flow into a long underground culvert beneath the Quintard Mall. The portion of Snow Creek downstream of Highway 78 is part of OU4 and not OU1/OU2. The terrestrial areas that surround the creek support a wide range of land uses including industrial, manufacturing, scrap yards, recycling facilities, roadways, railroad lines, and residential properties. The fragmented and changing nature of land use in the surrounding floodplain areas serves to limit the habitat value of these areas.

5.6 Contaminants of Concern

Investigations of soil, sediment, groundwater, surface water, and air were conducted in OU1/OU2 under both RCRA and CERCLA agreements. All of the data from both programs was considered in this decision document. Many of the investigations, specifically the investigations of air and groundwater, focused only on PCBs. The reasoning for the sample locations and contaminants of interest in each media are described in the following sections.

5.6.1 Substances Detected in Soil

Substances detected in soil in OU1/OU2 were identified under several investigation programs including residential and non-residential sampling programs. The EPA removal assessment conducted from 2000 through 2002 included soil samples analyzed for a wide range of constituents. The removal assessment determined that PCB and lead were the contaminants of concern in residential soil. Two Superfund sites, the Anniston PCB Site and the Anniston PCB and Lead Site, were designated to cleanup PCBs and lead, respectively, in soil on residential properties. The sites overlap geographically in some areas. This document only addresses the PCBs that remain in residential soil where access for removal has not been granted and where PCBs greater than 1 mg/kg are still present in subsurface soil or under structures after the removal actions.

The non-residential properties were sampled through separate investigations of special use properties (i.e., schools, churches, day-care centers, community centers, playgrounds, and parks), interim measures areas, dredge spoil piles, and all other non-residential soil. A special category called unapproved waste disposal areas (UWDAs) was established to describe sampling and alternatives for two properties where auto fluff dumping was contributing to the extent of contamination, recognizing that the remedy on these properties will require a different approach.

5.6.1.1 *PCBs in Residential (OU1) Soil*

Sampling of residential properties was conducted both inside and outside of the 100-year floodplain. All residential soil was sampled for lead and PCBs. Lead and a portion of the PCB impacted properties were cleaned up by other parties in a separate removal agreement under the

Anniston PCB and Lead Site. All residential properties with PCB contamination are considered part of the Anniston PCB Site. For the most part, surface soil PCB concentrations on the affected properties have been remediated to below 1 mg/kg and subsurface soil PCB concentrations have been remediated to below 10 mg/kg. Long-term management of residual PCBs remediation waste on residential properties (soil with PCB concentrations greater than or equal to 1 mg/kg) within and outside the floodplain are addressed by this Record of Decision, including any residuals on properties cleaned up as part of the de minimis settlement on the Anniston PCB and Lead Site.

The residual PCB contamination in soil on residential properties (as of December 31, 2014) is summarized in the RI and, along with the PCB impacted properties from the Anniston PCB and Lead Site, can be characterized as follows:

- Five-point composite samples were collected from 0-3 inches below land surface (bls) and 0-6 inches bls on approximately 7600 residential properties.
- PCB concentrations were detected in surface soil on 4322 residential properties.
- PCB concentrations were detected in surface soil at concentrations greater than 1.0 mg/kg on 783 residential properties.
- PCB concentrations greater than 1.0 mg/kg were removed from the top one foot of soil on 719 residential properties (632 by the Anniston PCB Site PRPs and 71 by the Anniston PCB and Lead Site PRPs and 16 by the EPA).
- 64 residential properties with PCB concentrations greater than 1 mg/kg in surface soil have not been cleaned up: 43 are wooded lots where no exposure is currently occurring with PCB detections in soil ranging from 1 mg/kg to 441.5 mg/kg; and 21 are properties where removal access was denied with PCB detections in soil ranging from 1 mg/kg to 24.7 mg/kg.
- Residual contamination between 1 mg/kg and 10 mg/kg remains in some portions of 104 properties below the 1-foot thick layer of clean backfill installed during the NTC Removal Action.
- 433 properties have the potential to have PCBs greater than 1mg/kg under structures.

Attempts to gain access to residential properties for sampling and cleanup have been performed by the PRPs, the EPA, and members of the community. Court ordered access was granted for sampling on a number of properties.

5.6.1.2 *PCBs in Non-residential (OU2) Soil*

Non-residential soil was sampled for PCBs and other constituents by multiple parties through multiple sampling programs. OU1/OU2 non-residential soil can be grouped and evaluated in five soil/property categories:

- Special use properties (i.e., soil at schools, churches, day-care centers, community centers, playgrounds, and parks) – sampled like residential properties for (PCBs and lead) and like non-residential properties.
- Interim measure properties (i.e., soil beneath and around interim measures) – sampled for PCBs only.
- Dredge spoil piles (i.e., former Snow Creek sediment left along banks) – sampled for

PCBs and mercury only.

- Unauthorized waste disposal areas (i.e., apparent auto fluff dump areas) – one sampled in residential property investigation and one sampled in non-residential (commercial/ industrial) property investigation.
- Non-residential properties – sampled for PCBs with a subset sampled for a wide list of constituents.

5.6.1.2.1 Special Use Properties

Special use properties are a subset of non-residential properties where children may congregate. The high activity areas of schools, churches, day-care centers, community centers, playgrounds, and parks were sampled and cleaned up in accordance with residential standards under the NTC Removal Action. Low activity areas on these properties have not yet been cleaned up. These properties are primarily located adjacent to residential areas and are spread throughout the zones shown in Figure 2-10. The residual PCB contamination remaining in soil on special use properties can be characterized as follows:

- Both five-point composite and grab samples were collected from 0-3 inches bls and 0-6 inches bls in high and low activity areas on 41 special use properties.
- PCB concentrations were detected in soil at concentrations greater than 1.0 mg/kg in surface soil on 23 special use properties.
- PCB concentrations greater than 1.0 mg/kg were removed from surface soil in high activity areas on 15 special use properties as part of the NTC Removal Action.
- PCB concentrations greater than 1.0 mg/kg are present in surface soil of low activity areas on 19 properties. PCB concentrations range from 1 mg/kg to 45.2 mg/kg.
- Residual contamination between 1 mg/kg and 10 mg/kg remains on 3 special use properties in high activity areas below the 1-foot thick layer of clean backfill installed during the NTC Removal Action.
- 14 properties have the potential to have PCBs greater than 1 mg/kg under structures.

5.6.1.2.2 Interim Measure Properties

As discussed in Section 2.3, multiple IMs and removal action projects have been conducted over the past 20 years where PCBs in surface water directly impacted both residential and non-residential properties adjacent to the Facility and in downstream drainageways. After some residential and non-residential property buyouts, the interim measures were implemented in the locations shown on Figure 2-1. The PCBs in surface soil not under permeable and impermeable caps in the IMs are identified on Figures 2-2a, 2-3a, 2-4, 2-5, 2-6, 2-7a, and 2-8. No new samples were collected in the RI. Groundwater monitoring wells have been located near most of the interim measures, and provide additional information about the effectiveness of the measures in Section 5.6.3.

5.6.1.2.3 Dredge Spoil Piles

Dredging activities previously performed in Snow Creek by the City of Anniston resulted in eight dredge spoil piles being placed along the nearby banks of the creek. Dredge spoil piles

from the dredging of Snow Creek, labeled SC-1 through SC-8, were located and mapped in the late 1990s. The dredge spoil piles on Snow Creek are shown on Figures 2-9a and 2-9b. Seven of the dredge spoil piles were sampled for PCBs and mercury in 1999. PCB were detected in 29 of 29 samples, with concentrations ranging from 0.75 mg/kg to 88 mg/kg. Mercury was detected in four of four samples, with concentrations ranged from 0.19 mg/kg to 0.27 mg/kg. No new samples were collected in the RI.

During a residential removal action at 710 Pine Street in June 2009, SC-3 was removed from the bank and disposed of along with the residential soil. In November 2009, three dredge spoil areas (SC-4, SC-5 and SC-6) were removed from the banks along Snow Creek and disposed of offsite as part of the Snow Creek sediment removal action with the City of Anniston. The dredge spoil areas remaining adjacent to Snow Creek include SC-1, SC-2, SC-7 and SC-8. PCB concentrations in the remaining piles range from 0.75 mg/kg to 46 mg/kg. Mercury concentrations ranged from 0.19 mg/kg to 0.27 mg/kg.

In 2012, the condition of the remaining dredge spoil piles was evaluated. The piles range in height from 3 to 7 feet and in areal extent from 225 square feet to 44,000 square feet. The piles had a well-established vegetative cover comprised of trees, ivy, vines, weeds, brush, brier, or kudzu. A non-woven geotextile was also observed at SC-1. Evidence of creek bank erosion was observed along the four remaining Snow Creek dredge spoil piles, and some minor slumping was observed at SC-2 on the west bank. The widths of dredge spoil SC-7 and SC-8 were smaller than the initial investigation which occurred in September 1998. Field measurements indicated that SC-7 had an initial width of 40 feet in 1998. In 2012 the width was 30 feet. SC-8 had an initial width of 80 feet in 1998. In 2012 the width was 70 feet.

5.6.1.2.4 Unapproved Waste Disposal Areas

In conducting the investigation for OU1/OU2, two areas were identified that were used for the unapproved disposal of waste materials. The two identified unapproved waste disposal areas (UWDAs) and their approximate lateral extents are shown on Figure 5-6. Investigations conducted in these areas have shown that the UWDAs contain or may contain auto fluff that was deposited over time. The two specific locations include:

- The Ashley Street and Legrande area. This area includes parcels identified as 510 Legrande Street, 0 Ashley Street, and 505 Ashley Street. This UWDA is located approximately 0.25 miles west of the Solutia Facility outside of the 100-year floodplain of Snow Creek. The waste is estimated to cover an area of approximately 1.3 acres. The depth of waste material averages about 4 feet over this footprint and 5 to 6 feet in depth over large portions of this UWDA. PCBs detected in this surface soil ranged from 0.23 mg/kg to 70 mg/kg, and PCBs detected in subsurface soil ranged from 0.40 mg/kg to 64.9 mg/kg. Groundwater was not sampled on this property because waste did not reach a groundwater table.

- Wilborn Property area. This area includes 830 W. 10th Street and 0 W. 9th Street & Mulberry Avenue. This non-residential property is located approximately one mile east of the Solutia Facility with a portion of the property located inside the lateral limits of the

historical 100-year floodplain. Although a portion of the property is located inside of this historical floodplain boundary, significant filling of the property has elevated the ground surface approximately 20 feet above Snow Creek. A limited investigation was conducted at this property, including the installation of monitoring well T-13. The estimated waste limits are approximately 3.2 acres. The depth of waste material was estimated to be an average of 18 feet thick, based on the boring log and analytical data collected for well T-13. PCBs detected in surface soil ranged from 0.58 mg/kg to 190 mg/kg, and PCBs in subsurface soil ranged from 0.72 mg/kg to 562 mg/kg. No PCBs were detected in groundwater on this property, as will be discussed further in Section 5.6.3.

5.6.1.2.5 Non-Residential (Commercial/Industrial) Properties

The study area for the non-residential portions of OU1/OU2 was subdivided into 30 sampling areas called characterization areas (CAs) to assist in characterizing the overall floodplain. The CAs are shown in Figure 5-7. The boundaries of each CA were established based on the following:

- The limits of the drainage areas and 100-year floodplain for Snow Creek.
- Natural and man-made physical features that could impact transport patterns (ridges, valleys, elevated highways, bridges, culverts, railroad beds).
- Land use.
- Continuity (e.g., if a park is divided by a road or railroad, the entire park would still be grouped into one CA).
- Similarity of location with respect to suspected transport and deposition characteristics (i.e., PCBs transported via surface water are contained in the 100-year floodplain).

The data collected in the CAs for the non-residential properties were used to evaluate the nature and extent of contamination and to evaluate the baseline risk to human receptors in a human health risk assessment (HHRA). In the OU1/OU2 HHRA, the non-residential exposure units (EUs) were for the most part, determined to reflect the CAs, with the adjustments shown in Figure 5-7. The adjustments were made so that higher contaminant concentrations in portions of an EU were not "diluted" by lower concentrations in another portion of the EU when calculating exposure point concentrations (EPCs). The adjustments are described as follows: CA 14 was divided into EU14S and EU14N; CA 19 was divided into EU 19N and EU 19S; and CA 15 and CA 16 were combined into EU 15/16.

Within each of the EUs, the properties evaluated under the residential program and areas covered by improvements (i.e., parking lots, buildings, roads, interim measures, dredge spoil piles) were excluded from the non-residential soil investigation. Sampling conducted within the unimproved areas provided data sufficient for characterization and risk assessment.

Specific sample locations within each EU were identified using the Visual Sample Plan (VSP) approach. All surface soil samples were analyzed for PCB Aroclors and total organic carbon (TOC). Approximately 20% of the samples were analyzed for grain size, and 10% of the samples were analyzed for the wider list of constituents. The subsurface soil sampling component of the

non-residential program was targeted to the 10% of locations with the highest PCB concentrations in non-residential surface soil.

A total of 496 surface soil samples (including 26 duplicate samples) were collected as individual grabs from the 0- to 6-inch horizon and submitted for PCB and TOC analyses. A total of 91 of these samples (including 5 duplicates) were submitted for analysis of the wider list of constituents. In addition, 99 samples (including 11 duplicates) were submitted for grain size distribution analysis. Evidence of foundry fill was observed at 32 locations, and samples from these locations were submitted for lead analysis.

A total of 55 locations were targeted for subsurface sampling. Samples were successfully obtained from 53 of the 55 locations. At the remaining two locations, no sample was recovered due to the presence of larger size rock materials, despite multiple attempts. After field screening, 170 samples (including 11 duplicates) were submitted for PCB and TOC analyses, and 26 of these samples (including 2 duplicates) were submitted for the wider list of constituents. In addition, 32 samples (including 1 duplicate) were submitted for grain size distribution analysis. Evidence of foundry debris or fill was identified in 14 samples that were submitted for laboratory analyses of PCB and TOC.

There are four other general sources of non-residential floodplain soil sampling data. The four general data sources and the associated number of sample locations and samples are listed below:

- During the Removal Assessments at the Site, the EPA collected 201 samples from 194 locations in non-residential soil.
- P/S collected eight samples from seven locations in non-residential soil near the West 9th Street ditch under a removal action agreement.
- P/S collected 65 samples from 62 locations on low-activity portions of special use properties as part of sampling conducted under the Stipulation.
- P/S and the EPA collected 477 samples from 364 locations through a range of sampling programs targeted at specific locations/situations.

Samples collected in low activity areas of special use properties were included in the EU calculations.

The distribution of PCBs in non-residential floodplain surface soil and subsurface soil are shown on Figures 5-8 and 5-9, respectively. The data is broken down by EU in Figures 5-10 through 5-40, and Tables 5-1 and 5-2. Additional PCB data near the Facility that is non-residential surface soil data not captured by the above summaries are shown in Figure 5-41. Samples were collected from all EUs except for EU28. EU28 is completely covered by a shopping mall and parking lots. Sufficient data were collected to allow estimation of exposure point concentrations (EPCs) for all EUs, including instances where CAs where divided into two EUs for purposes of the risk assessment.

Soil samples analyzed for a wider constituent list, which included volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), other semi-volatile organic compounds (SVOCs), pesticides, metals, cyanide, and chlorinated dibenzodioxins and furans (PCDD/DF). The locations of samples analyzed for a wider list of constituents are shown on Figures 5-10

through 5-40, and the results are summarized in Table 5-3. Soil concentrations for four of those constituents (arsenic, chromium, PAHs as benzo(a)pyrene equivalents (BaPE), and polychlorinated dibenzo-p-dioxin and dibenzofuran (PCDD/DF) as 2,3,7,8-tetrachlorodibenzo-p-dioxin equivalent (TEQ)) which were significant from a risk assessment perspective are shown in Figures 5-42 through 5-45.

In non-residential areas of OU1/OU2, many properties are partially or wholly covered with impervious surfaces (buildings, asphalt, and concrete). During the RI field work no attempt was made to sample contamination that could exist beneath impervious surfaces that may have been placed subsequent to flooding events that may have deposited PCBs and perhaps other constituents onto soil. Likewise, no attempt was made to characterize the timing of development in the floodplain versus historical flooding events. The potential for future exposure as a result of removal of impervious surfaces is addressed qualitatively using general site history and results of nearby soil sampling.

While the surface soil sampling efforts were designed to achieve comprehensive overall spatial coverage of the OU, the subsurface soil sampling locations were targeted for areas within the OU with elevated surface soil PCB concentrations. The intent was to determine if the areas with high surficial concentrations created significant subsurface contamination, leaching to deeper soil and possibly to groundwater contamination. This methodology was justified based on the results of the residential sampling and removal efforts, which confirmed that for the most part OU1/OU2 PCB contamination is a surface soil concern.[2]

For the subsurface samples collected in non-residential areas of the OU, the majority of the samples were collected at locations where the highest surficial PCB concentrations were detected. This includes a portion of soil samples that were collected as part of the groundwater investigations where the sampling was specifically targeted for locations with the highest PCB soil concentrations at depth.

One hundred thirty-three (133) subsurface soil samples (excluding duplicates) collected from non-residential parcels were analyzed for PCBs, and 30 of those samples were additionally analyzed for lead. Seven subsurface samples were submitted for analysis of the wider constituent list. Select samples were also analyzed for PCB congeners. Subsurface sampling results are summarized in Table 5-3 and are also shown in Figures 5-10 through 5-40.

Sampling results for non-residential surface and subsurface soil are provided in the RI, and the results of the more significant detections relative to occurrence and risk are summarized below:

- Arsenic: OU1/OU2 arsenic concentrations were detected in 98 percent of the soil samples tested at concentrations ranging from 1.2 mg/kg to 120 mg/kg across the EUs. The background arsenic concentration from the Fort McClellan study was 8 mg/kg, and the mean arsenic concentration for the OU1/OU2 EUs is 11 mg/kg.

[2] Approximately 15 percent of the residential properties that required cleanup have subsurface soil PCB concentrations greater than or equal to 1 mg/kg. Of those properties, 50 percent had subsurface soil PCB concentrations less than 2 mg/kg, 35 percent had subsurface soil PCB concentrations less than 5 mg/kg, and 15 percent had subsurface soil PCB concentrations between 5 mg/kg and 10 mg/kg.

- PAHs: OU1/OU2 PAH concentrations were detected in 85 percent of the soil samples tested at BaP equivalent concentrations ranging from 0.091 mg/kg to 640 mg/kg, with a mean concentration of 9 mg/kg. The elevated concentrations of PAHs are randomly distributed and interspersed with lower concentrations. The higher PAH concentrations were found to the north and outside of the OUs. PAHs are present throughout the Anniston area at typical urban background levels.

- Chromium: OU1/OU2 chromium concentrations were detected in 99.7 percent of soil samples tested at concentrations ranging from 3.2 mg/kg to 14,000 mg/kg. The average chromium concentration of 90 mg/kg is driven by two elevated sample results of 14,000 and 850 mg/kg from samples collected in EU22 and EU24, respectively. Both of these samples were collected in former industrial areas including near railroad tracks in EU22 and a junkyard in EU24. Both of these EUs also have relatively low PCB concentrations with a mean PCB concentration of 1.5 mg/kg in EU22 and a mean PCB concentration of 6.8 mg/kg in EU24.

- PCDD/DFs: OU1/OU2 PCDD/DF data were detected in 100 percent of soil samples tested at TEQ concentrations ranging from 0.00036 micrograms per kilogram (µg/kg) to 0.25 µg/kg, with the exception of a single isolated result for a sample that was collected in EU25. This sample was collected in a former industrial area (US Pipe) and has a PCDD/DF TEQ concentration of 2.2 µg/kg. The sample was also tested for PCBs and had a concentration of 0.062 mg/kg. The mean PCB concentration for EU25 as a whole is also low (0.27 mg/kg). The distribution pattern of PCDD/DF concentrations suggests that their presence is the result of local anthropogenic sources. When combined with dioxin-like PCBs (DL-PCBs) the dioxins and dioxin-like compounds value (PCDD/DF/DL-PCB) TEQ ranges from 0.00036 to 2.23 µg/kg. This includes two outlier concentrations: one at 2.01 µg/kg in EU15 and the other 2.23 ng/kg in EU25, as described previously.

5.6.2 Substances Detected in Sediment and Stability of Creek Banks

There are three discrete sampling programs that provide data to evaluate sediment conditions in the OU1/OU2 portion of Snow Creek. These three sampling programs include: 73 sediment samples collected from the 34 sampling locations were collected during the RCRA Facility Investigation (RFI) Program; four samples including a field duplicate collected under the RI to evaluate the wider list of constituents over the range of PCB concentrations present in Snow Creek and to confirm the general distribution of PCBs in the OU-1/OU-2 portion of Snow Creek; and 7 sample results from EPA sediment assessments. Sampling locations from these three programs and sediment samples collected at locations on Snow Creek upstream of where the 11th Street Ditch enters Snow Creek and locations from the West 9th Street Creek collected by P/S as part of the Time Critical Removal Agreement are also shown on Figure 5-46a.

The sediment PCB data for the samples collected in the OU1/OU2 portion of Snow Creek are presented in Table 5-4. Analytical chemistry results for the OU1/OU2 sediment samples for constituents other than PCBs are also summarized in Table 5-4, which includes the number of analyses conducted for each constituent; the frequency of detection; and the minimum, maximum, and mean concentration values. In addition to the chemical constituents identified by

the EPA as part of the wider constituent list, there are additional constituents that were analyzed by the EPA. These constituents are listed at the bottom of Table 5-4.

The sediment PCB data for Snow Creek are presented on a series of Figures (5-46a through 5-46o). Figure 5-46a is a location key for the figures, showing that PCB results are presented on Figures 5-46b-46o in an upstream to downstream manner. The sediment total PCB concentrations for the OU1/OU2 Snow Creek range from not detected to 60 mg/kg. The highest PCB concentrations are generally located in the upstream portions of Snow Creek, between the 11th Street Ditch and Highway 202, inclusive of the culverts that go under the highway.

The portion of Snow Creek between the railroad bridge and Highway 78 is generally characterized by low PCB concentrations. The average sediment PCB concentration for this reach of the creek is approximately 1.9 mg/kg. Most of the results for this reach of the creek were less than 6 mg/kg. A single elevated concentration (approximately 11 mg/kg) was measured in this downstream portion of Snow Creek. This sediment sample was collected adjacent to EU25 and is shown on Figure 5-46n as being located next to a railroad crossing. The total PCB concentrations in sediment for the portion of Snow Creek upstream of the 11th Street Ditch are provided in Table 5-5 and range from not detected to a high of 18 mg/kg (the only result where PCBs are greater than 1 mg/kg in this portion of the creek). The average PCB concentration for this portion of Snow Creek located upstream of its confluence with the 11th Street Ditch is approximately 0.96 mg/kg. The sediment PCB concentrations for the West 9th Street Creek are provided in Table 5-6 and range from not detected to a high of 15 mg/kg. The average PCB concentration for the West 9th Street Creek is approximately 1.9 mg/kg.

Metals results in sediment for OU1/OU2 are shown on Figures 5-47a through 5-47j. Figure 5-47a is a location key for the figures presenting the metals results on Figures 5-47b through 5-47j. The metal results for the portion of Snow Creek upstream of the 11th Street Ditch are provided in Table 5-7. The metal results for the West 9th Street Creek are provided in Table 5-8. Results for some of the more significant metals in sediment based on ecological risk are discussed below:

- **Barium:** Barium concentrations in Snow Creek sediment samples collected downstream of the 11th Street Ditch range from approximately 40 mg/kg to 580 mg/kg.

- **Chromium:** Chromium concentrations in Snow Creek sediment samples collected downstream of the 11th Street Ditch range from approximately 30 mg/kg to 670 mg/kg.

- **Cobalt:** Cobalt concentrations in sediment samples collected from Snow Creek downstream of the 11th Street Ditch range from not detected to 110 mg/kg.

- **Lead:** Lead concentrations in sediment samples collected from Snow Creek downstream of the 11th Street Ditch range from approximately 20 mg/kg to approximately 510 mg/kg.

- **Manganese:** Manganese concentrations in sediment samples collected from Snow Creek downstream of the 11th Street Ditch range from approximately 100 mg/kg to approximately 5,200 mg/kg.

- **Mercury:** Mercury concentrations in sediment samples collected from Snow Creek downstream of the 11th Street Ditch range from approximately not detected to approximately 9 mg/kg.

- **Nickel:** Nickel concentrations in sediment samples collected from Snow Creek downstream of the 11th Street Ditch range from approximately 12 mg/kg to approximately 110 mg/kg.

- **Vanadium:** Vanadium concentrations in sediment samples collected from Snow Creek downstream of the 11th Street Ditch range from approximately 6 mg/kg to 64 mg/kg.

In addition to the metals listed above, PCDD/DFs as TEQ was evaluated. TEQs were calculated for PCDD/DFs alone and with PCB congeners for use in the ecological risk assessment.

Snow Creek Banks

There are 14 EUs that directly border Snow Creek: EU5, EU10, EU12, EU13, EU14N, EU15/16, EU17, EU19N, EU19S, EU22, EU 24, EU25, EU26 and EU27. The list of EUs to evaluate for potential bank stability concerns was further narrowed to 11 EUs by eliminating the 3 EUs with average PCB concentrations below 1 mg/kg. This screening step eliminated EU15/16, EU25, and EU27. The conditions at the remaining 11 EUs were reviewed in detail and creek bank areas with stability-related concerns were identified based on the potential for contributing PCBs to Snow Creek and OU-4.

- **EU5:** Both the east and west banks of EU5 include a range from relatively stable to severe erosion conditions. Based on PCB concentrations along EU5, creek bank stability is a concern. This includes the high-energy setting in the area of the confluence of Snow Creek with the 11th Street Ditch and at the 90-degree transition in creek flow that occurs at the border between EU5 and EU10. There may be portions along the lower section of EU5, before the transition to EU10, where natural forms of bank stabilization may be effective due to the wider creek cross section and the lower surface water velocities.

- **EU10:** Conditions are unique in EU10. After the transition from EU5, the floodplain is approximately 20 to 25 feet higher in elevation than the creek. This difference in elevation is due to filling of the area. The average PCB concentration for floodplain soil in EU10 is 8.5 mg/kg, and the concentration is determined by several samples collected in a former auto fluff dump site. The difference in elevation between the creek and floodplain is also important in that the floodplain soil PCB data do not reflect creek bank conditions. The creek banks are steep, but are covered with a heavy vegetation layer that limits erosion. At creek level, the erosion classifications range from minor erosion to relatively stable with one exception. The single exception is the severe erosion at the 10th Street Bridge. Erosion at this bridge does not contribute PCBs to the creek as the materials are base type fill materials associated with the initial construction of the bridge. The primary bank stability concern for EU10 is the transition from EU5 that is discussed above.

- **EU12 and EU13 and EU14N:** Bank conditions for EU12, EU13, and EU14N are discussed together as they border opposite sides of the same reach of the creek. This portion of the creek begins at the outlet of the Highway 202 culvert structure and continues downstream to the railroad tracks. EU12 is on the eastern to northern side of Snow Creek; EU13 is on the west to southern side of the creek; and EU14N is on the south side of the creek. Bank conditions in the initial portion of EU12 and EU13 are relatively stable and reflect prior bank stabilization work conducted as part of removal projects. The bank conditions then transition to minor erosion including a turn in creek flow to the east. Soil in the adjoining floodplain of EU14N and EU12 have average PCB concentration of 12 mg/kg and 4.3 mg/kg, respectively. The average PCB concentrations in EU13 are 3 mg/kg. The vegetation on the banks in EU12 and EU13 appears to be cut on a regular basis. If the vegetation on the banks continues to be regularly trimmed, there is some possibility that bank erosion of PCB-containing materials could occur.

- **EU17:** There are no bank stability concerns along EU17 as a large portion of the area is characterized by a lined channel, including the vertical concrete walls. The creek bank conditions along the unlined portion of the creek are also stable. The average soil PCB concentration in the adjoining floodplain is 2.4 mg/kg, with the highest concentration samples collected well away from the creek banks.

- **EU19N:** There are no bank stability concerns in EU19N. While the PCB concentrations in some portion of the adjoining floodplain are elevated (average of 77 mg/kg), the east bank of the creek is a concrete wall that is stable.

- **EU19S:** There is one location in EU19S with significant bank erosion. This area has been field inspected on multiple occasions. The significant erosion area is located on the western portion of the creek bank where Snow Creek turns quickly to the east and then back to the south. While the average surface soil PCB concentration for EU19S is 13 mg/kg, this average is determined by two sample results with PCB concentrations greater than 50 mg/kg that were collected in the eastern portion of the EU. One sample was collected in a heavily wooded area, and the second sample was collected near the railroad tracks. There were eight surface soil samples collected from the western side of Snow Creek for this EU, and all the PCB results were below 1 mg/kg. There are no bank stability concerns for this portion of EU19S. This finding is based on the PCB results for the samples collected near the creek banks areas.

- **EU22:** There are no bank stability concerns along EU22. The creek banks are relatively stable and the average PCB for the EU is 1.5 mg/kg.

- **EU24 –** There are no bank stability concerns for EU24. The creek banks were classified as stable and relatively stable, and based on the floodplain soil data, there are no soil with elevated PCB concentrations near the creek bank.

- **EU26:** Most of the creek banks in EU 26 are stable and transition to relatively stable at the southern end of the EU where the Highway 21 Bridge crosses over Snow Creek. The

average PCB concentration in this EU is 12 mg/kg and is determined by high concentration samples that were collected in the upland portion of the EU.

The results of a systematic review of bank stability conditions along the OU-1/OU-2 portion of Snow Creek indicate two primary reach locations where unstable creek banks could be potential sources of PCBs to Snow Creek and OU-4. These areas include the creek banks along EU5 including the area around the 11th Street Ditch confluence and downstream near the transition to EU10 where the creek turns sharply to the east. The second reach of creek with potential bank stability concerns is located where EU12 and EU13 border the creek. These areas may not present a bank stability concern if the vegetation along the creek banks is maintained and a vegetated buffer strip is allowed to form.

5.6.3 Substances Detected in Groundwater

Groundwater was not expected to be a medium of concern in the OU1/OU2 portion of the Site. Groundwater migrating from the Facility (OU3) with Site-related contaminants above regulatory action levels is being remediated through remedial actions selected for OU3. However, sampling of surface water and sediment has shown that significant concentrations of PCBs have been released from the Facility to Snow Creek and its floodplain. At subsurface soil locations where the deepest sampling interval (four feet below ground surface or refusal) indicated the presence of PCBs at concentrations above 10 mg/kg, a groundwater pathway investigation was performed. Additionally, since high concentrations of PCBs remain in soil of former drainage features that are under caps and covers installed as Interims Measures, monitoring wells were installed as needed to supplement existing data in the vicinity of Interim Measures where PCB residuals remain in place, to determine if the measures are effective at preventing groundwater contamination.

Ten wells, T-8 through T-17, were installed and sampled in three sampling phases as part of the OU1/OU2 RI. Soil samples were collected at each well location and are included in Table 5-4. Groundwater sampling data from the 10 wells, and another 6 wells located outside of OU3 near IMs that were used to evaluate the effectiveness of the IMs are summarized in Table 5-9. All of the wells were analyzed for PCBs Aroclors. Additionally, the 10 new wells were analyzed for PCB homologues. Filtered and unfiltered results were evaluated for each sample. The well locations are shown in Figures 5-3 and 5-4.

With the exception of T-11, each well was constructed of 2-inch diameter, flush-threaded, Schedule-40 polyvinyl chloride (PVC) casing, with a 10-foot section of 0.010-inch slotted, Schedule-40 PVC screen. T-11 was constructed using the same well material but using only a 5-foot-long screen section. A 5-foot screen section was used to intersect the moist soil observed from 6 to 10 feet bgs. The filter pack constructed around the well screens consisted of 20/30 grade silica sand with less than 2% flat particles. The sand was tremied from the bottom of the borehole to approximately 2 feet above the top of the screened interval. Sodium bentonite (100%) was used to construct a seal above the sand filter pack. Each bentonite seal extended a minimum of 3 feet above the top of the filter pack. The bentonite was allowed to hydrate approximately eight hours prior to continuing well construction activities. A grout mixture of 5% bentonite powder and 95% Portland cement was used to fill the annular space between the PVC riser section and the borehole. The grout was pumped through a tremie pipe from the top of the

bentonite seal to just below the ground surface. The wells were completed by constructing a 3-foot by 3-foot by 6-inch concrete pad around each well at the ground surface, which sloped away from the wells to provide drainage. An expandable locking well cap was placed in the top of each riser, and an aluminum protective outer casing extending approximately 2.5 feet above the ground surface was installed at each well location.

In the first phase of the groundwater investigation, temporary monitoring wells T-08, T-09, T-I0, T-11, and T-12 were installed and sampled in April 2008. Four of the wells (T-08, 09, 10 and 12) were installed on the Solutia Inc. Northside Property; with wells T-09 and T-10 installed to track the downgradient impacts from well 0W-21A (an observation well impacted by groundwater contaminated from the Facility) and wells T-08 and T-12 installed to monitor potential groundwater impacts from PCB-impacted residuals placed under a synthetic cover. The fifth well (T-11) was installed east of the First Missionary Baptist Church, as soil impacts greater than 10 mg/kg were present in the four-foot depth sample at this location. Groundwater results for wells T-08, T-10, and T-12 were below the Maximum Contaminant Level (MCL) for PCBs [0.5 micrograms per liter (µg/L)] for both Aroclor and homolog group analyses. Results for the sample from well T-11 indicated total Aroclor results for the unfiltered sample of 3.3 µg/L, while the associated 0.1-micron and 2.0- micron filtered samples were non-detect. The corresponding homolog results were 17.3 µg/L for the unfiltered sample, 3.4 µg/L for the 2.0-micron filtered sample, and 0.072 J µg/L for the 0.1-micron filtered sample. This well was resampled in the fall of 2008 with non-detect results for the Aroclor analyses for the unfiltered sample as well as the 2.0-micron and 0.1-micron filtered samples. The corresponding homolog results were 10.44 J µg/L for the unfiltered sample, 0.99 µg/L for the 2.0-micron filtered sample, and non-detect for the 0.1-micron filtered sample.

The first phase sampling results appeared to indicate an association between low concentration PCB detections in groundwater with shallow floodplain soil containing lower chlorinated PCBs (based on the results from the T-11 location). To determine whether these groundwater impacts were associated with the particular Aroclor distribution of PCBs in soil, a second phase of the investigation was implemented. All OU1/OU2 soil data provided were reviewed to identify sample locations with Aroclor distributions similar to those found at the T-11 investigation location. Although no locations matched the T-11 data, three locations were identified that were similar and additional temporary monitoring wells were installed at these locations. In August 2010, groundwater samples were collected for laboratory analysis from temporary monitoring wells T-13, T-14, and T-15. PCB results based on Aroclor and Homolog methods were below the MCL at each of these new well locations.

The low-level groundwater concentrations associated with floodplain soil appear to be limited to the T-11 area. T-11 was installed near a soil boring with Aroclor concentrations that appear to be unique for soil data collected at the Site. In the subsurface soil samples collected at that location, total PCB concentrations were 104 mg/kg and 251 mg/kg for the 24 to 36-inch and the 36 to 48-inch samples, respectively. Aroclor-1232 made up a significant portion of the total PCB concentration for each sample with this Aroclor representing 50% and 68% of the total concentration in the 24 to 36-inch and the 36 to 48-inch samples, respectively. Soil data with Aroclor-1232 detections were not found in any other soil sample from the OUl/OU2 data set. The T-13 well was installed in a location with a total PCB concentration of 188 mg/kg in the 36 to 48-inch depth sample. Although Aroclor-1232 was not present, a significant portion of the

sample (59%) was comprised of Aroclor-1242. The resulting T-13 groundwater concentration was below the MCL for PCBs. T-14 was installed in a location with a lower PCB concentration (24.5 mg/kg) in the 36 to 48-inch depth sample. This sample did not contain Aroclor-1232 or Aroclor-1242, although Aroclor-1248 accounted for about 27% of the total PCB concentration. The resulting groundwater concentration at T-14 was below the MCL for PCBs. The T-15 well was installed in a location with total PCB concentrations of 10.2 mg/kg (24 to 36-inch depth) and 24 mg/kg (36 to 48-inch depth). Aroclor-1242 accounted for 54 to 59 percent of the total PCB concentration measured in the two samples. The resulting groundwater concentration at T-15 was below the MCL for PCBs. T-08 and T-12 were installed in an area with higher chlorinated Aroclors (mostly Aroclors-1254, 1260, and 1268) and corresponding groundwater concentrations were below the MCL for PCBs.

Though the first two groundwater investigation phases provided insight into PCB patterns that might be expected to result in groundwater contamination, no groundwater data were available for downstream properties along Snow Creek and for properties near the confluence of Snow Creek and Choccolocco Creek, where previous interim measures and removal actions had been taken to address exposure concerns. Data collected within OUl/OU2 Characterization Area 26 (111 & 114 Hall Street) and OU4 areas including the Backwater Area (OU4 Characterization Area C2N), Oxford Lake Park, and the Burelle property were reviewed due to their downstream locations and proximity to the confluence area. Interim measures consisting of engineered covers have been installed at Hall Street, Oxford Lake Park, and the Burelle property. Quintard Mall data were not reviewed for this evaluation due to anticipated issues regarding access onto the property and the lower levels of PCB impacted soil contained beneath parking areas at the mall. Additionally, data from the City of Anniston's wastewater treatment facility were not included in the analysis since these data represented either pre-excavation (prior to constructing plant upgrades) or post-excavation data (data from capped stockpile), and in most cases soil at the associated locations has been excavated and disposed of at approved locations.

None of the samples from Hall Street, the Burelle property, or the backwater area met both of the criteria used to locate wells in the previous two phase (i.e., presence of PCBs in subsurface soil at concentrations above 10 mg/kg and the presence of lower chlorinated Aroclors). However, the Hall Street property was selected for investigation because a previous removal action resulted in placement of a soil cover (i.e., a geotextile marker layer and a 12-inch thick soil and vegetative cover) on the parcel, followed by deed restrictions limiting future use of the property. Monitoring well T-16 was installed in a location with total PCB concentrations of 116 mg/kg (36 to 48-inch depth) and 84 mg/kg (48 to 60-inch depth). The lowest chlorinated Aroclor was Aroclor-1254 which accounted for 55 to 57 percent of the total PCB concentration measured in the two samples. PCBs were not detected in groundwater at T-16.

A total of 16 soil sample locations within Oxford Lake Park met the criteria (i.e., presence of PCBs in subsurface soil at concentrations above 10 mg/kg and the presence of lower chlorinated Aroclors). Monitoring well T-17 was installed at a central location in Oxford Lake Park, proximate to the 16 soil sample locations. The T-17 well was installed in a location with total PCB concentrations of 163 mg/kg (24 to 36-inch depth) and 28.1 mg/kg (36 to 48-inch depth). The lowest chlorinated Aroclor was Aroclor-1254 which accounted for 60 to 68 percent of the total PCB concentration measured in the two samples. PCBs were not detected in groundwater at T-17.

5.6.4 Substances Detected in Surface Water

Surface water was sampled under the RCRA and CERCLA programs. The surface water collection locations are shown on Figure 5-48. Data collected under the RCRA program was the primary source of information in the RI. The data are presented in Table 5-10. These data were collected during base- and high-flow conditions to assess the downstream transport of PCBs and suspended solids but were also used to calculate estimated whole-water PCB concentrations. These data indicate that for base-flow conditions at the downstream end of OU1/OU2, the chronic Ambient Water Quality Criteria (AWQC) of 0.014 µg/L was exceeded in three of six sampling events. This is relevant in assessing surface water conditions for Snow Creek because base-flow conditions are typically present 90% of the time. Also of note was the presence of PCBs in the surface waters of Snow Creek at sampling stations located 2,000 feet and 3,000 feet upstream of where surface water from the Facility in the 11th Street Ditch enters Snow Creek.

The highest calculated whole-water PCB concentration was also for an upstream sampling location (0.772 µg/L at 14th Street) and was a factor of approximately five higher than the highest calculated downstream whole-water concentration for base-flow conditions (0.168 at Snow Street). The AWQC for PCBs was exceeded during all high-flow events using the calculated whole-water PCB concentrations. This is not unexpected as during periods of high-flow, elevated TSS concentrations that are present in the surface water can drive the calculated whole-water PCB concentrations.

The data collected under the RI are presented in Table 5-11. These samples were collected in OU4 just downstream of OU1/OU2 and were collected for three separate high-flow events. PCB Aroclors were not detected (at a reporting limit of approximately 0.5 µg/L) in any of the whole-water samples. Total PCBs as the sum of homolog groups were also determined using a more sensitive method than the Aroclor method with the concentrations ranging from 0.2 µg/L to 0.6 µg/L. While PCBs were present at concentrations above the AWQC during these high-flow conditions, this was not unexpected as the samples were analyzed as whole-water samples and included suspended sediment. The data indicate that during periods of high flow, the chronic AWQC for PCBs was exceeded. An acute AWQC value for comparison with high-flow conditions is not available. In terms of the metals, lead exceeded the chronic AWQC in one event and both chromium and lead exceeded acute and chronic AWQC in one event.

5.6.5 Substances Detected in Air

Ambient air data for the Site have been collected under separate sampling programs spanning a 14-year period. All of the results show some low [nanograms per cubic meter (ng/m^3)] PCB concentrations in air above the screening level; the regional screening level is used by the EPA to help determine when collecting additional data is warranted.[3]

5.6.5.1 *Solutia 1999 Air Study*

Solutia collected ambient air samples in and around the Facility from February 19, 1998 to December 23, 1999. Over this period, 36 sampling events were conducted to assess PCB concentrations in ambient air with samples collected from four to eight locations near the

[3] The Regional Screening Level (RSL) for PCBs in Resident Ambient Air was 3.4 ng/m^3 when the Anniston PCB air studies began in 1999 and has since then been changed to 4.9 ng/m^3.

perimeter of the Facility and one background location. The samples were analyzed by gas chromatography/mass spectrometry (GC/MS). The results were reported in terms of concentrations of PCB congener classes (homologs), each class determined by the number of chlorines attached to the biphenyl molecule. Total PCBs were obtained by summing the results for the ten congener classes for each sample. At least one duplicate sample was collected during each sampling event.

The sample locations were renumbered and some were moved during this initial study period to provide better information about what PCB concentrations were impacting onsite workers as well as offsite residences. The results of the air sampling conducted by Solutia determined that the PCB concentrations in air typically ranged of 0.1 to 50 ng/m^3. The highest value reported during sampling by Solutia was 80 ng/m^3 near Mars Hill Missionary Baptist Church on April 9, 1998.

5.6.5.2 *EPA 1999 Air Study*

The EPA collected ambient air samples for three days in and around the Facility from June 28 to July 1, 1999. The study was designed to assess PCB concentrations in ambient air at perimeter fence locations around the Solutia Facility. A background air monitoring site was established upwind of the Facility. A meteorological-station was established, to measure wind speed and direction.

The high volume air samples were collected and analyzed by the Science and Ecosystem Support Division (SESD) laboratory for the presence of PCBs by Gas Chromatography/Electron Capture Detector (GC/ECD) in accordance with Method TO-4 as described in the EPA Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Air samples were collected at a nominal flow rate of 220-liters per minute over a 24-hour interval. The results were reported in terms of concentrations of PCB Aroclors, specifically Aroclor-1242 and Aroclor-1254. Total PCBs were obtained by summing the results for the individual Aroclors detected for each sample. At least one duplicate sample was collected during the final 2 days of the sampling event.

The results of the air sampling conducted by the EPA determined that the PCB concentrations in air typically ranged of 2.4 to 78 ng/m^3. The highest value reported during sampling by the EPA was 78 ng/m^3 at the sampler located between the railroad tracks and 10th Street near Crawford Avenue. The PCB concentrations were generally highest when it rained during the first 2 days of the study. On the first day of the study, when the winds were primarily westerly, the sampler located at Wellborn High School, approximately one and a-half miles away, was not impacted by PCBs. However, on the last 2 days of the study when wind direction was variable, PCBs were found in samples at Wellborn High School, though 10 times lower than at the other sampling locations. Duplicate samples reproduced very well for Aroclor-1242. However, because of very low concentrations of Aroclor-1254, some variability was shown. Wind speed and direction data that was collected during the study along with wind roses for each sampling event. A wind rose for the entire 3-day study was generated which shows that the predominate wind direction was from the West southwest.

5.6.5.3 *Solutia 2000 Air Study*

Solutia collected 24-hour air samples two days per month at five locations on the Facility property boundaries from January 2000 through January 2001 (see locations numbered 1 through 5 on Figure 5-49). The samples were analyzed by GC/MS. The results were reported in terms of concentrations of PCB congener classes (homologs), each class determined by the number of chlorines attached to the biphenyl molecule. Total PCBs were obtained by summing the results for the ten congener classes for each sample. At least one duplicate sample was collected during each monthly sampling event. Solutia's detection limits for PCBs by congener class was reported as 0.06 ng/m^3 based on a 350 m^3 air sample volume. Meteorological data was not provided.

The results of the air sampling conducted by Solutia determined that the PCB concentrations in air ranged from non-detect to 116 ng/m^3. The highest value reported during sampling by Solutia was 116 ng/m3 near the Northside Properties Interim Measure Area on June 28-29, 2000.

5.6.5.4 *EPA 2000 Air Study*

The EPA collected 24-hour samples for two days in June 2000 at eight locations (Solutia Inc. sampling occurred on the same two days in June). Six of the EPA sample stations were located approximately 0.25 to 0.5 miles away from the Facility property borders; the remaining two sample stations were located approximately 1 mile away. EPA sample stations were located in residential or public access areas (see locations A through G on Figure 5-49). The EPA used a GC/ECD, as described in EPA Method TO-4A. EPA analyzed for Aroclors 1242, 1254, 1221, 1232, 1248, 1260,1016, and 1268. EPA also analyzed for PCB congener numbers 28, 52, 60, 66, 74, 77, 81, 99,101,105,118, 126, 138,153, 156,163, 169, 170,180, 183, 187,194,195, 196, 201, 203, 206, 208, and 209. EPA detection limits were 2.1 ng/m^3 to 3.8 ng/m^3 for PCBs by Aroclor and 0.18 ng/m^3 to 0.52 ng/m^3 for PCBs by congener number.

Total PCB concentrations for the air samples collected by the EPA in 2000 (based on the sum of PCB Aroclors) ranged from not detected to 45 ng/m^3. EPA provided the meteorological data that showed winds were mainly from the southwest. Calm winds were more prevalent in nighttime hours and heavy rain was recorded from 9 to 10 am on June 29th. Aroclor-1242 was detected in samples on both days. PCB congener numbers 28 and 74 were detected. Congener numbers 52, 60, 66, 74, 81, 101, and 156 were reported as "presumptive evidence of presence of material." The maximum concentration (4.9 ng/m^3 total congeners and 45 ng/m^3 Aroclor-1242) was detected at the station located approximately 0.25 miles northwest of the property boundary. Table 5-12 presents ambient PCB concentrations (ng/m^3) from the EPA 2000 Study.

5.6.5.5 *Solutia 2003-2004 Air Study*

In 2003 and 2004, Solutia conducted the most comprehensive of all the PCB ambient air studies in Anniston (see 5 locations in OU1/OU2 on Figure 5-49). The study involved monthly monitoring of ambient PCBs and continuous collection of meteorological monitoring data over the course of a one-year period from April 2003 through March 2004. The overall objective of the air monitoring program was to (a) evaluate the air pathway in the area surrounding Solutia's Anniston, Alabama Facility and (b) assist in identifying PCB source areas not yet characterized near the Facility, if any, using an air pathway analysis approach.

The eight air sampling locations sites were selected based on the following:

- Four sites (one in each of the four directional quadrants around the Solutia Facility) to provide information about fence line ambient PCB concentrations.
- One site was positioned at a location previously used by EPA for ambient PCB monitoring.
- Three additional sites were employed to facilitate collection of data representative of conditions upwind and downwind of the Solutia Facility.

Five types of samples were collected during the program, as outlined below:

- 24-hour continuous samples; filter and Polyurethane Foam (PUF) analyzed together collected at all eight locations.
- 24-hour continuous samples; filter and PUF analyzed separately collected at the Near East location for eight of the twelve monitoring sessions.
- Nocturnal/diurnal samples collected to assess day/night variation at the Northwest site for six of the twelve monitoring sessions.
- Field blanks collected each month as a QA/QC measure to assess the potential for sample contamination. (No PCBs were detected in any of the field blanks).
- Collocated samples collected once each month at the East site to assess precision of the combined sampling and analysis regime. (Collocated samples showed good agreement with an average percent difference of less than 5%).

With the exception of the sampler designated for day/night evaluation, all samplers were operated for two sequential nominal 24-hour sampling sessions per month over a 12-month period. The sampler assigned for day/night evaluation operated over two distinct periods per 24-hour session (approximately 15 hours for day sampling; approximately 9 hours for night sampling). Table 5-13 shows the number and types of samples collected and analyzed at each site.

Valid samples were analyzed by GC/MS for the mono through deca PCB congener classes based upon the procedures described in EPA Method TO-4A. The GC/MS approach outlined in EPA Method TO-4A is consistent with the analytical methodology employed for ambient PCB samples previously collected at the Facility. Detection limits of 20 ng/sample per congener class are anticipated, producing an overall method detection limit of about 0.7 ng/m^3 (assuming 300 m^3 sample volume) for total PCBs.

The PCB data sets from the study were evaluated based upon the following parameters:

- Recoveries of isotopically labeled PCB congeners spiked into samples prior to extraction. Acceptance limits for recoveries have been established as 50% to 125%. All samples met these acceptance limits.
- Results for the analyses of field and method blanks. No target analytes were detected in any of the field blanks or method blanks collected and analyzed during the program.
- Results of laboratory control spikes (spikes of sample collection media retained at the laboratory during the program). Acceptance limits for laboratory control spikes are relative percent difference of 40% and recovery limits between 50% and 125%. These limits were met for all samples.

For each sample, ambient PCB concentrations were calculated by dividing laboratory results (measured weight of target compound per sample) by sample volume (standard cubic meters) to give a mass per unit volume in ambient air (ng/m^3). Ambient concentrations were reported for each individual PCB congener class; total PCBs were reported on a per sample basis by summing the values reported for each of the ten congener classes. For those congener classes reported as non-detected, a value of zero was used to calculate total PCBs. Table 5-13 presents ambient PCB concentrations from the 2003-2004 Study. PCB concentrations in air ranging from non-detect to 145.4 ng/m^3, while the average total PCB concentration at each sampling location ranged from 2.9 ng/m^3 to 24.4 ng/m^3.

The results of the study indicate that ambient PCBs appear almost exclusively in the vapor phase in the area surrounding the Solutia site during this sampling period. This vapor phase predominance indicates that the PCB transport mechanism from source area to air pathway during this study was volatilization and not suspension of fugitive dust.

Analysis of the mono- through deca-PCB profile can provide information on potential sources. The data for this study show that ambient PCB concentrations for the tri-substituted congener class and above increased with temperature. Higher ambient total PCB concentrations likely occur at higher temperatures because of PCB evaporation from soil. However, the evaporation is only correlated to the heavier congeners of PCBs (tri-substituted and above). High concentrations of heavy congener classes occur on hot days when evaporation is occurring and is found at all monitors in the area.

Ambient PCB concentrations of the mono- and di-substituted PCBs did not appear to vary with temperature. The lighter congeners (mono and di-substituted and sometimes tri-substituted) are not correlated with temperature and therefore likely do not arise from evaporation from soil. These lighter congeners are in the air year round. Thus, there appear to be two portions of the measured PCBs (mono- and di-substituted; tri- through deca-substituted) with two different source mechanisms. The light congener classes appear throughout the year and are not dependent on evaporation. They therefore come from sources that are not local to the plant site or monitoring area.

The Work Plan called for separate collection and analysis of 12 nocturnal/diurnal sample pairs to assist with identifying potential PCB sources. Of the 12 nocturnal/diurnal sample pairs collected during the program, five showed higher PCB values at night and seven showed higher PCB values during the daytime. As such, evaluation of nocturnal/diurnal sampling results did not provide additional insight about potential PCB source areas.

The data indicate influences from both onsite and offsite PCB source areas. During six of 16 sampling sessions with consistent wind direction (5/21/03, 8/13/03, 10/21/03, 10/22/03, 12/10/03 and 1/14/04), the highest total PCB concentration was measured at a monitor situated predominantly upwind of the Facility. This suggests the presence of offsite PCB source influences. In addition to offsite influences, the data also suggest influence from onsite PCB source areas. During one session (11/17/03), two monitors downwind of the Facility showed the highest PCB concentrations. A second session (9/10/03) showed PCB concentrations increasing across the plant along the upwind/downwind vector. During seven additional sessions, both offsite and onsite source influences were noted.

5.6.5.6 *RI/FS Air Study*

Additional air samples were collected by Solutia during the summer of 2006 as part of the OU1/OU2 RI. The two locations were selected and were located at the north end and the south end of the OU1/OU2 study area (see Figure 5-49). A total of four air samples and one duplicate were collected at two locations (two samples per location) using high volume samplers collecting data over a 24-hour period. The samples were collected on August 15 and 16, 2006 in the middle of the summer with air temperatures around 80 degrees.

The samples were analyzed by GC/MS. The results were reported in terms of concentrations of PCB congener classes (homologs), each class determined by the number of chlorines attached to the biphenyl molecule. Total PCBs were obtained by summing the results for the ten congener classes for each sample. During the RI/FS air study, PCB concentrations in air ranged from 1.4 ng/m^3 to 14.5 ng/m^3. Table 5-14 provides the homologue data.

Air samples collected in 2006 were also analyzed for PCDD/DFs and 12 dioxin-like PCB congeners (Table 5-14). The data was used to calculate total TEQs for each sample. Total TEQs ranged from 0.001 picograms per cubic meter (pg/m^3) to 0.028 pg/m^3.

5.6.5.7 *EPA 2012 Air Study*

On October 23-25, 2012, the EPA collected ambient air samples from three properties located near the Site (see Figure 5-49). The EPA collected ten 24-hour ambient air samples including QA/QC samples (two sample from three locations, two field blank, and two duplicate samples). Analysis of the air samples for PCB homologues was conducted by a CLP laboratory in accordance with EPA Method TO-4A. To allow for a more complete understanding of the meteorological conditions associated with pollutant concentrations, wind speed and wind direction, were collected from a temporary meteorological station located at the intersection of Clydesdale Avenue and West 7th Street on Solutia property near the entrance to the Facility.

The PCB air data collected by the EPA in 2012 are consistent with previously collected data for OU1/OU2, and the concentrations ranged from 1.7 ng/m^3 to 26 ng/m^3 (EPA 2013a), with an average of 9 ng/m^3. A summary table of the PCB homolog analytical results for the air samples collected is contained in Table 5-15. Duplicate air sample results confirmed the method precision was good. A field blank sampling cartridge was collected on the first sampling day. Analysis of the field blank cartridge showed trace level amounts of PCB homologs that are present in the ambient air. The PCB results found in the field blanks are typical for air samples analyzed by this methodology. The PCB concentrations detected in the field blanks do not affect the quality of the data.

The first sampling period started on Tuesday, October 23, 2012 at 09:40, the wind was generally out of the northeast between 1 mile per hour (mph) and 11mph until the end of the sampling period at 11:13 on Wednesday, October 24, 2012. The highest concentrations of total PCB homologs in the ambient air (26 ng/m^3) were recorded at sample station "I" which is located at 300 Parker Street. This site is located west of the Solutia Facility.

The second sampling period started on Wednesday, October 24, 2012 at 09:56, the wind was generally out of the east and ranged in speed from calm to 6.9 mph until the end of the sampling period at 11:32 on Thursday, October 25, 2012. The highest concentrations of total PCB

homologs in the ambient air (8.8 ng/m^3) were again recorded at Sample Station I which is located at 300 Parker Street. This site is located west of the Solutia Facility.

5.6.5.8 *EPA 2013 Air Study*

On June 25-27, 2013, the EPA collected ambient air samples from three properties located near the Site (see Figure 5-49). The EPA collected nine 24-hour ambient air samples including QA/QC samples (two sample from three locations, one field blank, and two duplicate samples). Analysis of the air samples for PCB homologues was conducted by a CLP laboratory in accordance with EPA Method TO-4A. To allow for a more complete understanding of the meteorological conditions associated with pollutant concentrations, wind speed and wind direction, were collected from a temporary meteorological station located at the intersection of Clydesdale Avenue and West 7th Street on Solutia property near the entrance to the Facility.

The PCB air data collected by the EPA in 2013 are consistent with previously collected data for OU1/OU2, and the concentrations ranged from 1.3 ng/m^3 to 19 ng/m^3, with an average of 8.2 ng/m^3. A summary of the PCB homolog analytical results for the air samples collected is contained in Table 5-16. Duplicate air sample results confirmed the method precision was good. A field blank sampling cartridge was collected on the first sampling day. Analysis of the field blank cartridge showed trace level amounts of PCB homologs that are present in the ambient air. The PCB results found in the field blanks are typical for air samples analyzed by this methodology. The PCB concentrations detected in the field blanks do not affect the quality of the data.

The first sampling period started on Tuesday, June 25, 2013 at 09:10 a.m., the wind direction was variable, with hourly wind speed averages between 0.4 and 5.7mph, with occasional gusts up to 13 mph, until the end of the sampling period at 11:00 a.m. on Wednesday, June 26, 2013. The highest concentrations of total PCB homologs in the ambient air for this sampling period were recorded at sample station J which is located at West 10th Street & Parkwin Avenue, in the center of the sampling area, north of the Facility.

The second sampling period started on Wednesday, June 26, 2013 at 09:22 a.m., the wind was generally out of the southeast, with hourly wind speed averages between 3.5 mph to 8.1 mph, with occasional gusts up to 22 mph, until the end of the sampling period at 11:11 a.m. on Thursday, June 27, 2013. The highest concentrations of total PCB homologs in the ambient air were again recorded at sample station J which is located at West 10th Street & Parkwin Avenue on Solutia owned property, in the center of the sampling area, north of the Facility.

6.0 CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

The area land use for the Site, as a whole, ranges from heavy industry and manufacturing to largely agricultural or forested. The majority of OU1/OU2 is a highly variable mixture of residential and non-residential properties with the non-residential areas including a range of industrial and commercial uses. The southern portion of OU1/OU2 includes the city of Oxford, which includes residential, commercial, and some manufacturing. The agricultural and forested areas are primarily limited to the OU4 portion of the Site with some forested area along the outer borders of OU1/OU2 and OU3.

Land use within the Snow Creek floodplain is variable with small areas often supporting multiple land uses and property owners. This area is approximately one-third residential and two-thirds non-residential (Figure 1-3). The range of land uses reflects the urbanized nature of Snow Creek and includes heavy industry, manufacturing, residential, light commercial, and public recreation, all within close proximity to each other. Similarly, results of a parcel-by-parcel land use inventory indicated that land use was highly variable.

Groundwater is considered by the State of Alabama to be a potential drinking water source. The Facility and nearby residents obtain water from the local water utilities. For Anniston and many parts of Calhoun County, the water utility obtains its water from Coldwater Springs which is located approximately five miles southwest (up gradient) of the Facility and can support an average discharge of 32 million gallons per day (mgd). The City of Oxford has a water utility that used 5 production wells screen in an aquifer. Future use of groundwater at or near the Facility is unlikely because extraction rates are typically less than 0.1 gpm.

Residential properties adjacent to the creek will continue to be impacted by flooding, which may result in these areas converting to non-residential uses in the future. Recreational areas, transportation structures, and industrial/commercial operations that can survive in floodplains are expected to continue to occupy the OU1/OU2 floodplain in the future.

7.0 SUMMARY OF SITE RISKS

The assessment of risk prepared for this portion of the Site estimates what risks the chemicals found in OU1/OU2 pose to human health and the environment if no action is taken. It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. The OU1/OU2 risk assessment consists of a Human Health Risk Assessment (HHRA) and a Streamlined Ecological Risk Assessment (SERA).

The risk assessment was developed with data gathered in previous RCRA investigations and during the RI, and includes analyses of samples of soil, sediment, groundwater, surface water and air in OU1/OU2. Estimates of current risks are based on the absence of any site-specific remediation; estimates of future risk are based on the assumption that current soil and groundwater chemical concentrations will persist in the future, and groundwater will be utilized as a drinking water source. More information and details of the risk assessments and their findings are provided in the HHRA and SERA reports appended to the RI.

7.1 Human Health Risk Assessment

The HHRA was prepared by the EPA using the data provided by P/S. Though initially finalized in 2010, the HHRA was revised in 2012 to evaluate the impact of the dioxin toxicity reassessment, and again in 2014 to adjust exposure assumptions used in the OU1/OU2 HHRA so it used the same assumptions used in the OU4 HHRA. The results presented in this section reflect all of the changes made to the original HHRA.

The HHRA for OU1/OU2 evaluated and quantified potential risks to human health from exposure to chemical constituents in OU1/OU2. The HHRA included the following steps:

- evaluated potential ways people may come into contact with contaminants of potential concern (COPCs);
- identified COPCs by media;
- calculated exposure point concentrations (EPCs) for the COPCs in the various media;
- identified toxicity criteria to quantify potential risks; and
- characterized potential cancer risks and non-cancer health hazards associated with possible current and future exposure to COPCs.

The process also identified uncertainties in the data evaluated and in the risk assessment process and culminated with the development of risk-based Remedial Goals (RGs). The process and the risk assessment findings are discussed in the following subsections.

7.1.1 Identification of Hazards

The hazard identification process includes defining the data set for risk evaluation, identifying COPCs based on prevalence and concentration, and calculating the EPCs of the COPCs in the various exposure media. Available data for surface and subsurface soil, sediment, surface water, and air were used to evaluate risks. Sufficient data were available to characterize surface soil for PCBs on an EU basis (Table 5-1). Other non-PCB constituents in soil and subsurface soil, and PCBs in subsurface soil were evaluated on an OU-wide basis (Table 5-3). The risk to human health from exposure to sediment is limited because sediment is submerged and not easily accessed. In accordance with EPA Region 4 policy, sediment data (Table 5-4) were evaluated qualitatively as a means to assess possible exposures to unsubmerged sediment that may occur along the creek banks. PCB concentrations in groundwater and PCB and metals concentrations in surface water were evaluated by comparison to chemical-specific health-protective ARARs.

7.1.2 Identification of Contaminants of Potential Concern

Each constituent detected in samples collected from the OU was evaluated for the potential to contribute to risk. Chemicals were quantitatively evaluated for risk if they exceeded native background levels and risk-based screening levels. The HHRA evaluated detected concentrations of constituents that were above risk-based screening levels.

For this assessment, the universe of chemicals detected in samples collected from the Site is termed chemicals of interest (COI). For non-residential properties, all detected chemicals (COIs) were considered in the COPC selection process regardless of whether the chemical was known to be associated with current or former site use. A COI is considered a COPC if its maximum detected concentration exceeds its respective screening-level. Appendix E Tables E-2.1, E-2.2, and E-2.3 present the entire chemical list in soil (surface and subsurface), sediment, and surface water, respectively, along with the results of the COPC screening process.

This approach to screening COIs is designed to be very conservative. That is, it should include chemicals that pose little or no human health threat rather than exclude chemicals that might pose some risk or hazard. Thus, identification of a chemical as a COPC does not indicate that it poses a threat to human health. Rather, it indicates the chemical should be further evaluated.

COPCs are subject to quantitative risk assessment for receptors and pathways identified in Section 7.1.3. Based on the results of the risk calculations presented in Section 7.1.5, a subset of

COPCs are identified that will help drive risk management decisions for the site. These chemicals are termed chemicals of concern (COCs). Note that for residential properties, PCBs and lead were previously identified as COCs based on prevalence, concentration and toxicity. Prior to selecting COPCs, it was necessary to limit the database to useable and representative sample results. Several steps were necessary.

- In the non-residential dataset some sample locations were listed as "remediated", indicating that PCBs as reported are no longer present. In these cases, if a soil sample was labeled as remediated, the PCB concentration prior to remediation was replaced with the PCB detection limit from the offsite source area for fill material. This approach approximates existing conditions in the absence of confirmatory samples.
- Data that were qualified as rejected were removed from applicable datasets.
- The seven carcinogenic PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b) fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene) were combined to provide single values expressed as BaPE concentrations.
- Data reported for individual Aroclors were combined into single total PCB values.
- Data for original and duplicate samples were rectified.

7.1.3 Exposure Assessment

EPCs represent concentrations to which receptors may be exposed. PCB data for surface soil were sufficient to develop a PCB EPC for each EU. EPCs for constituents other than PCBs were calculated on an OU-wide basis. EPCs are an input factor to calculations of chemical exposure and, for the reasonable maximum exposure, are typically estimated as the upper one-sided 95% upper confidence limit (UCL) of the mean. This process is used to help reduce the chance that the actual average concentration is underestimated by the available data.

The EPA calculated the EPC values for the reasonable maximum exposure scenario in the HHRA (CDM, 2010a) as the 95% UCL using ProUCL version 4.00.02. For the central tendency exposure scenario, the arithmetic mean was used as the EPC to calculate risks and hazards. Appendix E Table E-3.1A presents the calculated EPCs for surface soil for each EU. Table E-3.1B presents EPCs calculated for surface soil on a site-wide basis. Tables E-3.2 and E-3.3 include the calculated EPCs for subsurface soil and surface water, respectively.

Exposure refers to the potential for an individual to come in contact with the COPCs. The exposure assessment considers the conceptual site model (CSM) (Figure 5-1) and the different ways that people may be exposed to COPCs in the various media. The exposure assessment considers exposure to COPCs through contact with surface and subsurface soil, sediment, surface water, and air. In OU1/OU2, several possible residential and non-residential receptors were considered. For each medium, contact may be through direct dermal contact, incidental ingestion, or inhalation. The amount of exposure is a function of the type of receptor, route of exposure, concentration of the COPC in the media, and frequency and duration of exposure. For each exposure pathway, both current and potential future land uses were considered.

The most significant exposure pathways in OU1/OU2 are associated with PCB-containing soil, primarily surface soil with exposure to subsurface soil for certain receptors (industrial/ commercial and intrusive workers). The HHRA qualitatively considered risks from exposure to

groundwater recognizing that Site-related constituents in groundwater are in localized areas and that the evaluation of groundwater conditions in OU1/OU2 includes a comparison with applicable or relevant and appropriate requirements (ARARs). In the case of PCBs in groundwater, this is a comparison with the PCB health-protective MCL of 0.5 µg/L.

Risks from exposure to air were assessed by comparing the ambient air concentrations in OU1/OU2 to the EPCs that were used to calculate exposures in the OU3 HHRA. This assessment was based on a conservative residential exposure scenario that assumed continuous exposure over a 30-year duration, assuming residents living along the fence line of the Facility. Therefore, the risks generated for OU1/OU2 are a conservative representation of all people that both live and work in Anniston. Using this approach, ambient air inhalation risks were found to be *de minimis,* or at very low risk levels.

To ensure that all potential human receptor classes were considered in the HHRA, and in accordance with EPA risk assessment guidance, current and future residential scenarios were evaluated, and the following six exposure scenarios were evaluated for the various non-residential uses of the OU:

- Industrial/commercial workers (adult).
- Intrusive workers (adult construction and utility workers).
- Commercial visitors (adult, young child 1 to 6 years old).
- School/daycare occupants (adult, young child 1 to 6 years old).
- Recreational users (young child 1 to 6 years, adolescent 7 to 16 years old).
- Trespassers (adolescent 7 to 16 years old).

More detail on the selection of exposure scenarios and pathways is included in Appendix E Table E-1.

To evaluate exposure and risk within OU1/OU2, the OU was subdivided into EUs (Figure 5-7). The types of receptors that may be exposed in any given EU are largely driven by land use. Numerous site visits and reviews of aerial photography were used to determine the types of land use in each EU and which receptors might be present under current and future scenarios. Land use and the associated human activities in OU1/OU2 are diverse and discontinuous, and the concentrations and distribution of PCBs and other constituents are also varied depending on localized fate and transport mechanisms.

Subsequent risk assessment calculations were performed using the EPCs and the receptor-specific exposure parameters. The exposure parameters are presented for all soil-related exposure scenarios in Appendix E Table E-4.1. Exposure parameters for surface water exposure scenarios are presented in Appendix E Table E-4.2. It was assumed that each of the receptor populations was exposed to surface soil (via ingestion, dermal contact, and/or inhalation), based on an exposure within the individual EUs. The intrusive worker was assumed to contact subsurface soil (ingestion/dermal contact/inhalation) based on an OU-wide exposure. For the recreational user and trespasser, exposure to surface water (ingestion/dermal contact) was assumed to happen on an OU-wide basis. Risks for each receptor and pathway were evaluated on an OU-wide basis for constituents other than PCBs.

7.1.4 Toxicity Assessment

A toxicity assessment identifies chemical-specific parameters that quantify the toxicity of COPCs. These parameters are used, along with estimates of exposure, to estimate potential cancer risks and non-cancer hazards. Toxicity parameters used in the HHRA were obtained from a variety of sources. Appendix E Tables E-5.1 and E-5.2 identify the non-cancer toxicity criteria used in the HHRA for oral/dermal and inhalation exposure, respectively. Appendix E Tables E-6.1 and E-6.2 identify the cancer toxicity criteria used in the HHRA for oral/dermal and inhalation exposure, respectively.

The toxicity value used to estimate cancer risks is the cancer slope factor (CSF) in units of milligrams of constituent per kilogram body weight per day (mg/kg-day), which estimates the risk of cancer per unit dose. When a slope factor is multiplied by an estimate of lifetime average daily dose of a potential carcinogen (in mg/kg-day), the result is an estimate of the excess lifetime cancer risk associated with exposure at that dose. The EPA develops CSFs in a conservative manner, and risk estimates using slope factors are considered to be upper-bound estimates. Risks estimated using CSFs are considered unlikely to underestimate actual risks and may substantially overestimate risks for a given exposure.

For non-cancer effects, hazards are estimated using the oral reference dose (RfD) or, in the case of inhalation exposures, the reference concentration (RfC) in air. The EPA defines the RfD and RfC as "an estimate of a daily oral exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime". The RfD is expressed in units of mg/kg-day, while the RfC is expressed in units of mg/m^3.

7.1.5 Risk Characterization

Cancer risks and non-cancer hazards are a function of an estimated dose (based on the EPCs), the exposure pathway reasonable maximum exposure and central tendency exposure parameters, and the chemical-specific toxicity value (either the CSF or RfD). For cancer, the EPA has defined the acceptable risk range as an excess cancer risk of 1 in 1,000,000 ($1x10^{-6}$) to 1 in 10,000 ($1x10^{-4}$).

The hazard quotient (HQ) is the ratio of the estimated exposure to the RfD or RfC. Where multiple hazard quotients are calculated for different pathways and/or chemicals, the quotients are added to calculate a total hazard index (HI). HIs are calculated to evaluate non-cancer effects. If the hazard quotient is calculated to be equal to or less than 1 (i.e., the estimated dose is equal to the RfD), then no adverse health effects are expected as a result of exposure. If the hazard index is above 1, then adverse health effects are possible.

HHRA Results on an EU Basis

Table 7-1 summarizes the reasonable maximum exposures (RME) non-residential cancer risks. Concentrations in one EU (EU19N) had a PCB cancer risk greater than $1x10^{-4}$ for the commercial/industrial worker. The cancer risks for the other EUs were equal to or less than $1x10^{-4}$. Table 7-2 summarizes the RME non-cancer hazards. The non-cancer benchmark of one was exceeded at seven EUs across multiple exposure scenarios. Appendix E Tables E-7.1 through E-7.46 show more detailed information on the cancer and non-cancer risks at each of these EUs.

HHRA Results on an OU-Wide Basis

In addition to the risks from PCBs in surface soil, the HHRA qualitatively and quantitatively evaluated risks in other media and from constituents other than PCBs (see Tables 7-1 and 7-2). These risks were evaluated on an OU-wide basis for each receptor. The HHRA evaluated risks from subsurface soil, surface water, and air. The HHRA found that some constituents other than PCBs contributed to the OU-wide risks to human health. Appendix E Tables E-7.47 and E-7.48 show the cancer and non-cancer risk from exposure to subsurface soil on an OU-wide basis. Tables E.7-49 and E.7-50 show the cancer and non-cancer risk from exposure to surface water on an OU-wide basis. Risks from inhalation are discussed in the bulleted items below.

Cancer risks and HI values for the non-PCB COPCs in surface soil exceeded the EPA target cancer and non-cancer risk thresholds for the young child at a school/daycare scenario. In addition to the school/daycare scenario, the cancer risk threshold for non-PCB COPCs was exceeded for the industrial worker adult and recreational young child. The non-PCB cancer risks are largely driven by the EPC values for BaP equivalents, chromium, and PCDD/DFs. Arsenic concentrations also contribute to the OU-wide risks. Constituents other than PCBs in soil include:

- Lead in soil: Risks were not calculated for lead in soil. The OU-wide surface soil concentration is below the residential cleanup goal for lead (400 mg/kg).

- PCBs in subsurface soil: Risks were evaluated on an OU-wide basis assuming a construction worker exposure scenario. The subsurface EPC for PCBs was 100 mg/kg and the calculated risk results were found to be within the EPA's acceptable cancer risk range of risk for the construction worker exposure scenario, though slightly higher than the HI of 1 (i.e., HI= 1 at 97 mg/kg).

- PCBs in groundwater: Some localized areas of groundwater with concentrations of PCBs have been identified in association with overlying soil containing PCBs. The HHRA qualitatively considered risks from exposure to groundwater recognizing that site-related constituents in groundwater are in localized areas and that the evaluation of groundwater conditions in OU1/OU2 includes a comparison to ARARs. In the case of PCBs, this is a comparison to the PCB MCL of 0.5 µg/L. One isolated area (well T-11) has groundwater concentrations above the MCL. Well T-11 is located in the easternmost portion of EU5 bounded by Snow Creek to the west and south and railroad tracks to the north and east. In addition, two small areas are technically located in OU1/OU2 but are being addressed under the EPA-selected remedy for OU3.

- PCBs in sediment: Sediment was evaluated qualitatively only in the HHRA, as a means to assess possible exposures to unsubmerged sediment that may occur along the creek banks. This is consistent with EPA Region 4 guidance. The risk to human health from exposure to sediment is limited because sediment is submerged.

- PCBs in air: Risks from exposure to air were based on a residential exposure scenario that assumed continuous exposure over a 30-year duration. In that regard, the risks generated for OU1/OU2 are representative of all people that both live and work in

Anniston. Using this approach, ambient air inhalation risks were found to be at the low end of the EPA cancer risk range.

7.1.6 Uncertainties in the Human Health Risk Assessment

Uncertainties are introduced in each step of the data collection and risk assessment processes. Because of these uncertainties and the nature of the risk assessment methodology and assumptions, the risk assessment provides a conservative (upper-end) measure of the potential risks and hazards from COPCs in the OU. The use of conservative assumptions throughout the risk assessment process is intended to result in overestimating rather than underestimating human health risk. Therefore, actual risk may be lower than estimated, but is unlikely to be greater.

7.1.7 Uncertainties relative to dioxin toxicity and PCB toxicity

Dioxins and dioxin-like compounds (i.e., PCDD/DFs and dioxin-like PCBs (DL-PCB) combined) were analyzed for in a subset of soil samples collected in OUs. The human health risk assessment for these OU1/OU2 was complete in 2010, before the release of the February 17, 2012, oral non-cancer toxicity value, or reference dose (RfD), for 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) in the EPA's Integrated Risk Information System (IRIS). The HHRA was revised in 2012 to evaluate the impact of the dioxin reassessment.

PCDD/DFs alone were not determined to be significant risk drivers in either the 2010 risk assessment or the 2012 revision. The industrial soil RSL for dioxin and dioxin-like compounds TEQ is 0.730 µg/kg. One isolated sample collected in EU25 was collected in a former industrial area (US Pipe) and has a PCDD/DF TEQ concentration of 2.230 µg/kg and no contribution from DL-PCBs.

When DL-PCBs are combined with PCDD/DF, two additional sample results exceeded the dioxin industrial RSL due to the contribution of DL-PCBs. One sample in EU11 had a PCDD/DF TEQ concentration of 0.045 µg/kg and DL-PCB TEQ contribution of 0.748 µg/kg. The second sample in EU15 had a PCDD/DF TEQ concentration of 0.107 µg/kg and DL-PCB TEQ contribution of 1.900 µg/kg.

The results of the risk assessment from OU1/OU2 verify that dioxin and dioxin-like compounds TEQ site-wide are not a concern in industrial areas, though three samples exceed the industrial RSL. Two of the three samples are nearly three times the RSL and could be considered hot spots when evaluating remedial alternatives. Since OU1/OU2 includes both industrial/commercial areas and residential areas, a review of the dioxin data when PCB concentrations are less than 1 mg/kg (i.e., the residential cleanup goal) shows that only the samples identified above exceed the dioxin residential RSL of 0.051 µg/kg.

The results of the dioxins and dioxin-like compounds (PCDD/DF/DL-PCB TEQ) calculations for samples collected in OU1/OU2 are presented in Table 7-3. The data shows the relationship between dioxins and dioxin-like compounds (PCDD/DF/DL-PCB TEQ) and total PCBs.

7.2 Ecological Risk Assessment

Ecological risk assessments for the OU1/OU2 portion of the Site were developed in two reports. Potential ecological risks for OU1/OU2 were initially evaluated in the Screening-Level

Ecological Risk Assessment (SLERA). In the 2005 SLERA, it was determined that the terrestrial exposure pathways in OU1/OU2 are fragmented, habitat is disturbed (dominated by mowed and maintained lands with little habitat-quality plant cover, impervious surfaces, and transportation infrastructure), and development pressure is strong, which will likely lead to additional fragmented and disturbed ecological habitat over time. Due to the habitat constraints, the EPA determined that soil cleanup to protect human health would provide acceptable protection of terrestrial ecological receptors exposed to OU1/OU2 soil. One third of the OU1/OU2 area is residential, where PCBs have been cleaned up to a concentration of less than 1 mg/kg. Future cleanup of non-residential soil will also increase the protection of terrestrial ecological receptors.

The OU1/OU2 portion of Snow Creek required a quantitative evaluation because of the ecological receptors associated with the aquatic environment. The results of the SLERA supported PCBs as the primary risk driver for OU1/OU2. In further evaluation conducted by EPA (which considered background concentrations, bioaccumulation and EPA Region 4 sediment screening values), eight other constituents, in addition to PCBs, were identified as possibly indicating risk. These constituents were carried forward for evaluation in the SERA. The COPCs evaluated in the SERA were PCBs, barium, chromium, cobalt, lead, manganese, mercury, nickel, vanadium, and dioxin and dioxin-like compounds (PCDDs/PCDF/DL-PCBs). The SERA for the OU1/OU2 portion of Snow Creek found that there are risks to benthic invertebrates, avian, and mammalian receptors from exposure to PCBs and some metals (barium, chromium, cobalt, lead, manganese, mercury, nickel, and vanadium) in sediment in localized areas.

7.2.1 Identification of Chemicals of Concern

The surface sediment data set for the OU1/OU2 portion of Snow Creek used in preparing the SERA included 51 discrete samples analyzed for total PCBs (as the sum of Aroclors), 12 to 15 discrete samples analyzed for metals, and two samples analyzed for PCDD/DFs. There were an additional 12 samples collected upstream of the OU1/OU2 portion of Snow Creek. These data were derived from four primary data sources: 1) the 1999 RCRA Program; 2) the 2006 RI/FS Program; 3) the EPA data collected in 2000 and 2001; and 4) the 1995 Snow Creek evaluation and the 2002 Cabometer property evaluation which are considered miscellaneous P/S data collection programs.

Appendix F Table F-1 summarizes the ecological COCs, their associated concentrations in each medium, and medium-based toxicity values.

7.2.2 Ecological Exposure Assessment

Appendix F Table F-2 summarizes the ecological exposure assessment, which is described in more detail below.

7.2.2.1 *Ecological Setting*

There are several land use types that are within the floodplain adjacent to Snow Creek. These include both residential and non-residential (i.e., commercial, industrial, recreational, and transportation/infrastructure) land uses that have altered the floodplain of Snow Creek. The extensive developed land areas have consumed much of the contiguous habitat that was in place before the development of Anniston and Oxford. What are left are only small, isolated patches of

disturbed land that have limited capacity to support wildlife communities. Many of the terrestrial habitats that are provided by trees and shrubs (including a high proportion of nonnative species) are confined to the steep altered edge of Snow Creek. In addition to these observations, a 2005 survey included a quantitative approach for evaluating the terrestrial habitat quality along Snow Creek where riparian (creek bank) habitat is the primary habitat type. Terrestrial exposure pathways in OU1/OU2 are limited because habitat is disturbed (dominated by mowed and maintained lands with little habitat quality plant cover, impervious surfaces, and transportation infrastructure), and development pressure is strong, which will likely lead to even more fragmented and disturbed ecological habitat with the passage of time.

For the aquatic habitat, within the creek, there are a number of areas containing concrete sluiceways in upstream reaches of Snow Creek that have eliminated bank habitat, substrate, and a functional floodplain. In addition, land is developed immediately along the creek in these areas. There are some areas of Snow Creek where small pools, riffles, and runs may provide limited habitat for aquatic organisms; however, these areas are limited in size relative to the overall length of the creek. As such, the SERA evaluated the ecological receptors associated with the aquatic environment within the OU1/OU2 portion of Snow Creek.

7.2.2.2 *Key Species*

The benthic organism community in the creek is dominated by midges (Chironomidae). Alligator weed (*Alternanthera philoxeroides*), is an exotic aquatic plant that is so dense in the Creek during the warmer months, that at periods of low flow it severely blocks the Creek channel. In faster-flowing riffles over cobbled substrate (predominately below South Nobles Street) other species are present, including two families of mayflies (Baetidae and Heptageniidae), dragonflies (Coenagrionidae), dobsonflies (Corydalidae), riffle beetles (Elmidae), water scavenger beetles (Hydrophilidae), stoneflies (mostly Hydroptilidae), and several families of freshwater snails. Crayfish have been observed in the Creek. Sunfish have also been observed using small pools of the Creek where there is adequate bank cover. Fish observed during the community survey were limited to stonerollers, mosquitofish, shiners, sunfish, chub, minnow, black redhorse, and yellow bullhead.

Herptiles observed during the community surveys included Gulf Coast spiny softshell turtle (*Apalone spinifera aspera)*, copperhead (*Agkistrodon contortrix*), bull frog (*Rana catesbeiana*), and southern two-lined salamander (*Eurycea cirrigera*).

Birds potentially inhabiting an aquatic food chain niche that were observed during the surveys were limited to the barn swallow (*Hirundo rustica*), belted kingfisher (*Ceryle alcyon*), chimney swift (*Chaetura pelagica*), and phoebe (*Sayornis phoebe*). Mammals potentially inhabiting an aquatic food chain niche that were observed during the surveys were limited to the muskrat (*Ondatra zibethicus*) and *Microchiroptera* bats. Although not observed during the survey, mallard (*Anas platyrhynchos*) and raccoon (*Procyon lotor*) have been observed incidentally during other Site activities.

The presence of Federal or State species designated rare, endangered, or threatened was not noted during the survey.

7.2.2.3 *Complete Exposure Pathways and Exposure Point Concentrations*

For aquatic-feeding receptors, the potential exposure routes are direct contact with the COPCs in water or sediment and ingestion of food. The particular COPCs at the Site are relatively insoluble in water and tend to adhere tightly to sediment. Thus, the bioaccumulation models used in the risk assessment compared concentrations in prey tissues to concentrations in the sediment. For the aquatic habitats within OU1/OU2, the following are complete pathways that are identified as significant and were quantitatively evaluated:

- sediment and benthic invertebrates; and
- sediment/contaminated prey and herbivorous (mallard and muskrat), invertivorous (tree swallow and little brown bat), and omnivorous (pied-billed grebe and raccoon) birds and mammals.

The four miles of creek evaluated in the SERA were not explicitly divided into exposure units. In general, to evaluate relevant ecological exposures, the surface sediment data from 0 to 2 inches were used, although in some cases deeper depths were also included. This depth interval encompasses the biologically active zone where the majority of the contact between ecological receptors, their prey, and sediment is likely to occur. For the COCs (PCBs and metals), the dataset was sufficient to calculate a 95% UCL. The 95% UCL was calculated using ProUCL (Version 4.1.01). Duplicates were averaged before including those values in ProUCL. Nondetects were included using the reporting limit to calculate the 95% UCL concentration. The 95% UCL recommended by ProUCL was selected and used along with individual sample concentrations to evaluate receptor exposure. Summary statistics for the COCs are presented in Appendix F Table F-1.

7.2.2.4 *Modeling Data and Assumptions*

The dietary exposure model is used to estimate exposure, in the form of a daily ingested dose for birds and mammals. The daily dose was calculated by summing ingestion estimates for each prey type in the receptor's diet as well as incidental sediment ingestion. Because prey tissue was not measured in OU1/OU2, the EPC for prey tissue was modeled using a bioaccumulation factor (BAF) along with the sediment EPC. The biotic data collected within OU-4 were used to develop uptake models or BAFs, as summarized in Appendix F Table F-3.

For wildlife receptors, exposure parameters, such as dietary composition, body weight, and food ingestion rates, are defined and summarized in Appendix F Tables F-4 and F-5. In this section, exposure and intake assumptions are defined on the basis of available literature information and best professional judgment using the EPA's 1993 Wildlife Exposure Factor Handbook and other sources as necessary and appropriate. The ingestion rates were calculated as dry weight using the appropriate equations provided in Nagy[4] with the exception of the mallard, for which the ingestion rate was based on peer-reviewed literature studies. Because OU1/OU2 does not support significant fish populations, in cases where diets contained fish dietary compositions were adjusted using best professional judgment to be consistent with prey items in OU1/OU2.

[4] Nagy, K.A. 2001. Food requirements of wild animals: Predictive equations for free living mammals, reptiles, and birds. Nutrition Abstracts and Reviews, Series B, 71:21R-31R.

7.2.3 Ecological Effects Assessment

The effects assessment describes the selection and development of the toxicity thresholds/benchmarks and Toxicity Reference Values (TRVs) used to calculate Site-Specific Risk-Based Concentrations (SSRBCs) for benthic invertebrates, birds, and mammals.

7.2.3.1 *Benthic Community Toxicity Values*

For the benthic community, a range of sediment-based toxicity values for PCBs was developed based on Site-specific bioassays that were conducted with OU-4 sediment. The 32 sediment samples (a total of 26 sediment samples from 6 different locations in OU-4, and six reference sediment samples from Choccolocco Creek approximately 3 kilometers upstream of OU-4) collected for toxicity testing collectively spanned a wide range of combinations of total PCBs and TOC concentrations. Chronic toxicity tests were conducted on 31 different sediment samples (20 sediment samples from OU-4, six reference sediment samples, and duplicate tests for five of the 20 OU-4 sediment) in each of the two cycles of toxicity tests, resulting in a total of 26 toxicity tests conducted with non-control sediment (20 Site sediment samples and six reference sediment samples). The toxicity tests were conducted by the U.S. Geological Survey's Columbia Environmental Research Center in Columbia, Missouri, and the U.S. Army Corps of Engineers' Engineer Research and Development Center in Vicksburg, Mississippi. A range of growth, reproduction, and survival endpoints was *tested using a freshwater amphipod (Hyalella azteca; 42-day tests) and midge (Chironomus dilutus*; up to 54-day tests). For each endpoint, a range of effective concentrations (EC) were estimated including the EC0*, EC10*, EC20*, and EC50* values (Appendix F Table F-6). The EC0*, EC10*, EC20*, and EC50* are the regression-predicted PCB concentrations that would cause an additional 0%, 10%, 20%, or 50% effect beyond the lowest response measured in the reference sediment (i.e., 1×, 0.9×, 0.8×, and 0.5× the response at the "bottom" of the reference envelope). EC0* values are selected as the LOAEL-equivalent SSRBCs for PCBs. The concentrations associated with these endpoints are included as toxicity values for evaluation of potential risk to the benthic community (Appendix F Table F-6).

In addition to the EC* values, efforts were made to estimate the EC0 relative to the average reference response. It is estimated as the PCB concentration at which the average reference-sediment response would be predicted to occur, when projected onto the concentration-response curve generated for that endpoint with OU-4 sediment. This EC0 differs from the EC0* described above, which is the concentration at which no effects were observed beyond those observed in reference sediment. The EC0* represents a concentration to which no Site-related effects can be attributed; and because only six reference sediment were tested, the threshold for Site-related effects would be expected to occur at some concentration higher than the EC0*. As shown in Appendix F Table F-6, the EC0 values could not be estimated for most endpoints because the average reference-sediment response was greater than the regression-predicted maximum control normalized response. For metals, benchmarks (used as SSRBCs) were selected from the consensus-based sediment quality guidelines developed by MacDonald et al.[5] Appendix F Table F-7 provides the sediment toxicity benchmarks for metals.

[5] MacDonald, D.D., C.G. Ingersoll, and T.A. Berger. 2000b. Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. Arch. Environ. Contaminant Toxicology. 39:20-31.

7.2.3.2 *Avian and Mammalian TRVs*

Dietary TRVs for birds and mammals were developed based on endpoints that could result in population-level impacts such as survival, reproduction, development, and growth. Both no observed adverse effect level (NOAEL) and lowest observed adverse effect level (LOAEL) TRVs were selected, and are provided in Appendix F Table F-8. For PCBs and mercury, available peer-reviewed toxicity data were reviewed to develop avian and mammalian TRVs.

Based on all of the avian PCB toxicity data reviewed, studies conducted with domestic chickens (*Gallus domesticus*) appear to represent the high end of the sensitivity range for PCB toxicity. A significant body of research has been conducted regarding avian sensitivity to aryl hydrocarbon receptor (AHR)-mediated effects of dioxin-like compounds. AHR-mediated effects are the primary mechanism of toxicity for PCBs in vertebrate species. While non-AHR-mediated effects can occur, they are thought to occur at much higher concentrations than AHR-mediated effects. Two sets of TRVs were developed for PCBs. One represents the high end of the range of sensitivity; the second represents the mid-range of sensitivity for avian species. A description of the assessment and measurement endpoints chosen for the assessment are presented in Appendix F Table F-2.

7.2.4 Ecological Risk Characterization

The risk characterization for the SERA is based on a comparison of receptor-specific SSRBCs to COPC measured concentrations in sediment within the OU1/OU2 portion of Snow Creek. The NOAEL and LOAEL SSRBCs are summarized in Appendix F Tables F-9 and F-10. Although the exceedance of an SSRBC at an individual sample point does not necessarily indicate potential risk to a receptor or a local population of receptors, this initial comparison is considered along with OU1/OU2- and receptor-specific habitat information to formulate conclusions about risk to the identified receptors.

The SSRBCs were calculated for each receptor to facilitate the evaluation of the magnitude and spatial extent of potential risk. For benthic invertebrates, the SSRBCs for metals are simply the sediment toxicity thresholds. For PCBs, the SSRBCs are based on the sediment toxicity thresholds (EC* values) discussed previously.

The SSRBC calculations for birds and mammals use a standard dose equation in combination with the avian and mammalian TRVs. The dose is set equal to the TRV, and the equation is rearranged to solve for the concentration in sediment that would result in no exceedances of the TRV (Appendix F Table F-10). As noted previously, the four miles of creek evaluated in the OU1/OU2 SERA have not been explicitly divided into EUs. Rather, the measured COPC concentration in each individual sample location is compared to the respective SSRBC that was calculated. For PCBs and metals, 95% UCL EPCs for the OU1/OU2 Site area were compared to each SSRBC and exceedances are shown in blue highlighted cells in Appendix F Tables F-11 and F-12. Note that the data used to calculate the 95% UCL EPCs were collected using sampling designs that focused on the upstream areas near the confluence of the 11th Street Ditch and Snow Creek and the culverts that convey Snow Creek flow under Highway 202. These locations were selected for sampling during multiple programs based on the potential for high PCB concentrations to be present. The elevated PCB concentrations in this portion of the creek reflect proximity to the Facility via surface water flow from the 11th Street Ditch and that the Highway

202 culverts tend to retain sediment (i.e., are generally depositional areas). Based on these factors, the estimated UCL of the mean for the OU1/OU2 portion of Snow Creek as a whole is biased high. Given this bias, it is important to compare the measured concentrations of individual sample results to the SSRBCs, especially downstream of the Highway 202 culverts.

For benthic invertebrates, *C. dilutus* percent emergence and *H. azteca* 42 day young per female were the most sensitive endpoints, with *H. azteca* reproduction being more sensitive than *C. dilutus*. Individual and 95% UCL concentration exceedances of PCB SSRBCs are summarized in Appendix F Table F-11. The 95% UCL concentration for PCBs exceeded the EC0, EC0*, EC10*, and EC20* values for these endpoints. Overall, the 95% UCL exceeded the SSRBC based on the EC0 for all but one endpoint as well as the EC0* for seven out of 15 endpoints, the EC10* for four endpoints, and the EC20* for two endpoints. All individual samples exceeded the EC0 surrogate SSRBC of 0.05 mg/kg. For growth endpoints, exceedances ranged from 71% for the EC0* for *H. azteca* 28-day biomass per replicate chamber to 0 exceedances of the EC20* for the 42-day biomass per replicate endpoint. For reproductive endpoints, as described above, *H. azteca* reproduction (42-day young per female) were the most sensitive endpoints and 41 to 76% of the samples exceeded the EC* values for these endpoints. The percent emergence endpoint for *C. dilutus* indicated similar results with 18% to 65% of the samples exceeding the EC* values. For survival, *C. dilutus* 13-day survival was the most sensitive endpoint and exceedances were 18% at the EC0* and 0 at the EC10* and EC20* SSRBCs. For *H. azteca survival*, only 4% of samples exceeded the EC0* and no samples exceeded the EC10* or EC20* SSRBCs. By comparison, using non site-specific screening values (i.e., threshold effect concentrations [TECs] and probable effect concentrations [PECs]) the 95% UCLs, as well as all but two individual sample points, exceed these values. For metals, no SSRBCs were developed. As such, other available, non-site-specific screening values (primarily TECs and PECs) are used for this comparison (Appendix F Table F-12). For cobalt, only a single sample exceeded the TEC value, thus risk to benthic invertebrates from cobalt is considered *de minimis*. The 95% UCL concentrations did not exceed the PEC for mercury, and only 1 individual sample (S-2-03a) exceeded this value. Similarly, for lead, the 95% UCL did not exceed the PEC, and only one individual sample (CA- 25-EPA-43166-2503) exceeded this value. Based on this comparison, risk to benthic invertebrate communities from lead is expected to be low. The 95% UCL concentrations of chromium and nickel as well as 25% to 33% of individual sample points exceeded the PEC values. Thus, risk to benthic invertebrate communities from these COPCs is possible. For barium, manganese, and vanadium, no toxicity values or SSRBCs are available and risk to benthic invertebrate communities from these COPCs is uncertain.

For birds, the 95% UCL concentration is below the SSRBC for cobalt (Appendix F Table F-12). Likewise, there were infrequent or no individual sample points exceeding SSRBCs (either 0 or 1 out of 12 samples), indicating risk to birds from cobalt is *de minimis*. Similarly, possible risk to birds from barium appears to be minimal as the 95% UCL concentration is below the LOAEL SSRBC and only one individual sample exceeded this value (s-med-1). For the remaining COPCs, 95% UCL concentrations exceed NOAEL and LOAEL SSRBCs for at least one of the avian representative receptors. The sandpiper indicated the highest possible risk for five of the remaining COPCs (PCBs, lead, manganese, mercury, and vanadium), and the tree swallow indicated the highest possible risk from chromium and nickel. Risk from PCBs to high-sensitivity avian species appears to be highest followed by risk to insectivorous birds (represented by the tree swallow) from chromium and invertivorous birds (represented by the

sandpiper) from manganese and lead. Risk to avian species from mercury and nickel appears to be low, with 95% UCL concentrations only slightly exceeding LOAEL SSRBCs for the tree swallow and sandpiper and infrequent individual sample point exceedances (0-3 samples).

In addition to the SSRBC comparisons based on the field bioaccumulation data described above, for PCBs, a second scenario was evaluated. In this scenario, the laboratory bioaccumulation study results were used to estimate PCB uptake into benthic invertebrate tissue. The laboratory study predicted substantially higher PCB uptake into benthic invertebrates compared to the field data. Thus, the resulting SSRBCs were lower. Using the laboratory uptake estimate, all samples exceeded both NOAEL and LOAEL SSRBCs for the sandpiper (i.e., the receptor with the highest proportion of benthic invertebrates in the diet). Appendix F Table F-13 presents the alternative SSRBCs as well as the percent of samples that exceed each value.

For mammals, 95% UCL concentrations are below SSRBCs for barium, cobalt, mercury, and vanadium (Appendix F Table F-12). Likewise, there were infrequent or no individual sample points exceeding SSRBCs (either 0 or 1 out of 12 samples), indicating risk to mammals from these COPCs is *de minimis*. The 95% UCL concentrations exceed NOAEL and LOAEL SSRBCs for PCBs, chromium, manganese, and nickel. The 95% UCL concentration for lead does not exceed the LOAEL SSRBC. For lead, the muskrat and raccoon indicate possible risk, but only a single sample exceeds the NOAEL or LOAEL SSRBCs (CA-25-EPA-43166-2503). Thus, risk from lead to mammals is considered *de minimis*. For the bat, all concentrations of chromium, 88% of samples for PCBs and 42% of samples for nickel exceeding LOAEL SSRBCs. The muskrat evaluation suggests the highest possible risk from manganese with 100% of the samples exceeding the LOAEL SSRBC.

The complete set of RGOs is provided in Appendix F Tables F-14 and F-15. A second set of RGOs were also developed These RGOs are based on the SSRBCs but are adjusted using an assumption of 50% Site (OU1/OU2 portion of Snow Creek) usage and are shown on Appendix F Table F-16. Appendix F Table F-17 presents the overall protective levels for ecological receptors.

Note that surface water concentrations are presented in the RI. Although surface water was not explicitly evaluated in the SERA, surface water samples should meet National Recommended Water Quality Criteria. Sediment concentrations may need to be reduced if monitoring data demonstrates that a reduction is need for surface water to meet the criteria.

7.2.5 Uncertainties in the Streamlined Ecological Risk Assessment

There are a number of uncertainties that affect risk predictions in the SERA, and they are generally associated with receptor exposure assumptions, BAFs, TRVs, and benchmarks. Exposure assumptions with the greatest uncertainty are associated with receptor site use (i.e., are the receptors present for a significant amount of time and is the prey base sufficient to support their long-term dietary needs) and receptor exposure models.

7.3 HHRA and SERA Conclusion

Based on the findings of the risk assessments, the response action proposed is necessary to protect the public health or welfare and the environment from actual or threatened releases of

hazardous substances into the environment. The HHRA determined that there is potential risk exceeding EPA's target risk range to commercial/industrial workers, commercial visitors, school/daycare workers/young children, trespassers, recreational users, construction workers, and utility workers from exposure to PCBs, Arsenic, chromium, and PAHs as BaPEs in soil. The SERA for the OU1/OU2 portion of Snow Creek found that there are some risks to benthic invertebrates, avian, and mammalian receptors from exposure to PCBs and some metals (barium, chromium, cobalt, lead, manganese, mercury, nickel, and vanadium) in sediment in localized areas. The highest sediment concentrations are generally located near the confluence of the 11th Street Ditch and Snow Creek and near the culverts at the Highway 202 underpass.

8.0 REMEDIAL ACTION OBJECTIVES AND GOALS

8.1 Remedial Action Objectives

The Remedial Action Objectives (RAOs) provide the overall goals that an alternative is to achieve, and are used to guide the development of the remedial alternatives. RAOs were developed for four environmental media: soil, sediment, groundwater, and surface water as follows.

The EPA has identified the following RAOs for Site soil:

- Reduce risks to residents from direct contact with, inhalation of, or incidental ingestion of COCs in surface soil above levels that are protective.
- Reduce risks to industrial and commercial workers, commercial visitors, trespassers, school children, and recreational users associated with direct contact with, inhalation of, or incidental ingestion of COCs in surface soil above levels that are protective.
- Reduce risks to construction and utility workers from direct contact with, inhalation of, or incidental ingestion of COCs in surface and subsurface soil above levels that are protective.
- Reduce migration of COCs from surface soil to surface water.
- Prevent migration and leaching of PCBs from surface and subsurface soil to groundwater above levels that are protective of beneficial use (i.e., attain drinking water standards).

The following are the RAOs for Snow Creek sediment:

- Reduce risks to ecological receptors from exposures to sediment in Snow Creek to levels that are protective of receptors.
- Prevent migration of PCBs from creek bank soil to levels that are protective of Snow Creek and OU4.

The following is the RAO for surface water:

- Reduce COC concentrations in surface water to meet AWQC for aquatic life protection.

The following are the RAOs for groundwater:

- Prevent exposure to groundwater from direct contact with, inhalation of, or ingestion of PCBs in groundwater above acceptable levels that are protective of beneficial use (i.e., attain drinking water standards).

- Restore contaminated groundwater to levels that are protective of beneficial use (i.e., attain drinking water standards).

8.2 Remedial Goals

In general, remedial goals (RGs) are used to develop the long-term contaminant concentrations that need to be achieved to meet the RAOs by the remedial alternatives. These goals must comply with Applicable or Relevant and Appropriate Requirements (ARARs) (or the basis for a waiver must be provided) and result in residual risk levels that fully satisfy the CERCLA requirement for the protection of human health and the environment. RGs are based on either ARARs, risk-based concentrations if standards are not available or not sufficiently protective, or background concentrations. Site-specific RGs were developed for each RAO for the following media: soil, sediment, groundwater, and surface water. A summary of the risk based goals for the Site-specific COCs in surface and subsurface soil based on the HHRA are presented in Table 8-1. A summary of the risk based goals for the Site-specific COCs in sediment based on the SERA are presented in Table 8-2. The RG for PCBs in groundwater and surface water are based on ARARs that will be discussed in more detail in Section 10.

8.2.1 Remedial Goals for PCBs in Residential Soil

RGs for PCBs in residential soil were established in the EECA and are required to satisfy RAOs 1, 4, and 5 above. The removal action level (RAL) for PCBs in residential soil was established at 1.0 mg/kg in surface soil and 10.0 mg/kg in subsurface soil. These concentrations have been achieved for most residential properties at the Site through removal actions. The long-term protectiveness of those values was confirmed in the OU1/OU2 HHRA. However, any soil with PCB concentrations greater than 1 mg/kg that remain on the property are considered PCB remediation waste and P/S still has TSCA obligations, largely related to future soil disturbance activities that could create an unacceptable risk by bringing to the surface subsurface soil with PCB concentrations greater than 1.0 mg/kg. The alternatives considered for residential exposure apply to the few properties that have not been cleaned up or contain residual PCBs greater than 1 mg/kg in subsurface soil and potentially beneath structures on residential properties.

8.2.2 Remedial Goals for Non-residential Soil

RGs for non-residential soil are established to satisfy RAOs 2, 3, 4, and 5 above. Non-residential human exposures include industrial and commercial workers, commercial visitors, trespassers, school and daycare workers and children, and recreational area users. COCs identified in the HHRA for non-residential soil include PCBs, arsenic, chromium, PAHs and DCDD/DFs.

8.2.2.1 *PCBs in Non-residential Soil*

Areas where interim measures have been implemented, where dredge spoil piles exist adjacent to Snow Creek, where UWDAs were found, and where current and former commercial/industrial operations are located need to be protective for industrial and commercial worker, commercial

visitor, and trespasser exposures. The PCB RGs that are protective of commercial/industrial workers and that are within the acceptable carcinogenic risk range and have non-cancer HIs less than or equal to 1 range from 2 mg/kg to 29 mg/kg. Within this range, commercial visitors are adequately protected at PCB concentrations between 9 mg/kg and 29 mg/kg, and trespassers are adequately protected at PCB concentrations between 8 mg/kg and 29 mg/kg. Given these ranges of concentrations, two non-residential RGs were evaluated for non-residential surface soil cleanup: 21 mg/kg, which represents the $1x10^{-5}$ carcinogenic risk to commercial/industrial workers and a $2x10^{-6}$ carcinogenic risk to commercial visitors and trespassers; and 9 mg/kg which represents the $5\ x10^{-6}$ carcinogenic risk to commercial/industrial workers and the $1x10^{-6}$ carcinogenic risk to commercial visitors and trespassers.

Non-residential exposures on special use properties are primarily experienced by commercial workers, commercial visitors, school/daycare workers and children, recreational users, and trespassers. Special use properties were divided into high and low activity areas and the high activity areas have been cleaned up to residential exposure standards (i.e., 1.0 mg/kg in surface soil and 10.0 mg/kg in subsurface soil) because it was determined that children may experience the same exposures in these areas as on residential properties. Two surface soil RGs for low activity areas of special use properties are evaluated in the alternatives in Section 9.2. (i.e., 21 mg/kg and 1 mg/kg). The 21 mg/kg RG is the same goal for all other non-residential soil. It represents the $1x10^{-5}$ carcinogenic risk to commercial/industrial workers and a $2x10^{-6}$ carcinogenic risk to commercial visitors and trespassers. This concentration is essentially protective for recreational users (8×10^{-6} carcinogenic risk and HI=1), but not for children in a school or daycare setting (2×10^{-5} carcinogenic risk and HI=2). If the surface soil RG chosen for the low activity portions of special use properties is 21mg/kg, the alternative needs to provide adequate controls to prevent the low activity areas from being converted to high activity areas. If there is concern that controls cannot be established to prevent certain uses in low activity areas, the most stringent non-residential exposure scenario should be assumed for the low activity areas (i.e. PCB RGs of 1.0 mg/kg in surface soil which represents a $1\ x10^{-6}$ carcinogenic risk to young children in a school or daycare setting).

Construction workers and utility workers are exposed to surface and subsurface soil site-wide. The RG for subsurface soil is typically tied to the acceptable construction worker exposure, which is the more protective of the two exposure scenarios for subsurface soil. The PCB RGs that are protective of construction workers that are within the carcinogenic risk range and have non-cancer HIs less than or equal to 1 range from 56 mg/kg to 97 mg/kg. One subsurface PCB RG was evaluated for construction and utility worker exposure: 97 mg/kg, which represents an HI of 1 and the $2x10^{-6}$ carcinogenic risk to construction workers, and an HI of 0.1 and $2x10^{-7}$ carcinogenic risk to utility workers.

Again, any soil with PCB concentrations less than 1 ppm that remain on non-residential properties are considered PCB remediation waste and there are still TSCA obligations associated with those remaining soil. The alternatives considered for interim measures, dredge spoil piles, UWDAs, and other non-residential soil (commercial/industrial area) address a range of options and the residual PCBs. The alternatives considered for soil on special use properties will address the residual PCBs in subsurface soil in high activity areas, possible contamination in soil beneath structures, and PCBs in surface and subsurface soil located in low activity areas. No PCBs should be left in surface soil at a concentration greater than or equal to 50 mg/kg.

8.2.2.2 *Non-PCBs COCs in Non-residential Soil*

In addition to PCBs, COCs in non-residential soil identified in the risk assessment include arsenic, chromium, and PAHs. Dioxins (PCDD/DF/DL-PCBs) were also considered by the EPA. There is substantial data to link these contaminants to multiple industrial operations in the area, even some still operating in the floodplain. Appendix G in the FS includes an exhaustive review of data compared to background concentrations and geographic distribution. The end result is a determination that the Facility is not likely the only, or even primary, contributor to the concentrations detected in OU1/OU2. Remediation of the OU1/OU2 area for non-PCB COCs to the lowest (i.e., $1x10^{-6}$ carcinogenic risk) concentration is not practical. For that reason, the highest acceptable cleanup concentration (i.e., $1x10^{-4}$ carcinogenic risk) was used to identify hot spots for remediation of these non-PCB contaminants. Additional investigations may be needed during remedial design to ensure that these remedial concentrations are protective of groundwater.

The OU1/OU2 mean arsenic concentrations are the same as the local background mean at Fort McClellan. The OU1/OU2 maximum arsenic concentration (120 mg/kg near railroad and the 11th Street ditch) is higher than the Fort McClellan maximum suggesting anthropogenic source(s) of arsenic inside or outside of OU1/OU2. The range of RGs for arsenic that are protective of all exposures except young children in a school/daycare or recreational setting are within the carcinogenic risk range and have non-cancer HIs less than or equal to 1, range from 4 mg/kg to 382 mg/kg. Since the high concentrations are associated with industrial areas and not schools and recreation areas, the RG for arsenic was set at 382 mg/kg, and no areas of exceedance have been identified. Therefore, while arsenic was identified as a COC, it will not move forward as a COC.

The OU1/OU2 mean chromium concentrations are much higher than the local background mean found at Fort McClellan. The OU1/OU2 average chromium concentration is driven by two elevated points of 14,000 mg/kg in EU22 and 850 mg/kg in EU24. If these two high points are removed, the average would be 39 mg/kg and the maximum would be 550 mg/kg, which is higher than Fort McClellan, but consistent with OU1/OU2 background. The range of RGs for chromium that are protective of all exposure scenarios except young children in a school/daycare setting are within the carcinogenic risk range, and have non-cancer HIs less than or equal to 1 range from 6 mg/kg to 568 mg/kg. Since the high concentrations are associated with industrial areas and not schools and daycares, the RG for chromium was set at 568 mg/kg, and two areas of exceedance not associated with high PCBs have been identified. Therefore, chromium will move forward as a contaminant of concern.

PAH concentrations in soil appear to be attributable to urban background. PAHs are likely present from multiple urban and industrial uses in the area. The range of RGs for PAHs (benzo[a]pyrene-equivalent - BaPE) of 0.2 mg/kg to 21 mg/kg (derived from the 2010 HHRA) are protective (within the carcinogenic risk range and have non-cancer HIs not exceeding 1) for all exposures except young children in a school or daycare setting. However, the toxicity value for PAHs has been modified since 2010, resulting in an increase in the RGs by a factor of between 7 and 8. The revised soil concentration range (based on carcinogenic risk, and also protective for non-cancer effects) is 2 mg/kg to 153 mg/kg. Since the high PAH concentrations in OU1/OU2 are associated with industrial areas and not schools or recreation areas, the RG for PAHs was set at 153 mg/kg (the 1 x 10-4 carcinogenic risk value), and two areas where PAH exceedances are not associated with high PCBs concentrations in soil have been identified.

The distribution PCDD/DFs detected in surface soil in OU1/OU2 is random with no evident pattern to the sporadic higher concentrations in the Snow Creek floodplain. When PCDD/DF concentrations are combined with DL-PCBs from the same soil sample, two locations do not fit the pattern demonstrating that PCB cleanup goals are protective of PCDD/DF/DL-PCB concentrations. The highest PCDD/DF/DL-PCB TEQs are 2.23 µg/kg in EU25 and 2.01 µg/kg in EU15. The RG for PCDD/DF/DL-PCB is 0.730 µg/kg, and these two outliers are targeted for action to ensure that the OU1/OU2 area as protective as possible.

For subsurface soil, chromium concentrations less than 6,936 mg/kg are protective, PAHs (as BaPE) concentrations less than 3,890 mg/kg and PCDD/PCDFs (TEQ) less than 0.730 µg/kg are protective.

8.2.2.3 *Remedial Goal for Wooded Lots*

Approximately 43 wooded lots have been identified with PCB detections in surface soil greater than 1.0 mg/kg. Only one of the 43 wooded lots has a detected PCB concentration greater than 21 mg/kg. Some of these properties are in designated residential areas and some are in undeveloped areas that may be developed for commercial industrial uses in the future. Because the lots are overgrown and wooded, access for human exposure to contamination is currently limited to trespassers. The PCB RGs that are protective of trespassers (i.e., that are within the carcinogenic risk range and have non-cancer HIs less than or equal to 1) range from 8 mg/kg to 46 mg/kg. The one wooded lot that has PCB concentrations in soil that are not protective to trespassers should be cleared by P/S and cleaned up in accordance with the NTC removal action provided access is granted by the owner, because the PCB concentration in soil exceeds the highest level acceptable for trespasser exposure.

8.2.3 Groundwater

The RG for PCBs in groundwater, the only contaminant investigated in groundwater outside of OU3, is established by a chemical-specific ARAR which establishes that the MCL of 0.5 µg/L is a relevant and appropriate requirement. Chemical-, Action-, and Location-specific ARARs are presented in more detail in Section 10.

8.2.4 Sediment

A range of RGs for sediment were established by the SERA for ecological receptors for OU1/OU2. Receptors evaluated included benthic invertebrates, mallards, tree swallows, spotted sandpipers, pied-billed grebe, muskrat, little brown bats, and raccoons. COC concentrations levels that induce no-effects and low-effects are presented. Appendix F Table F-15 assumes that all receptors spend 100% of their time in Snow Creek; Appendix F Table F-16 assumes that birds and mammals spend 50% of their time in Snow Creek.

The RGs for total PCBs in sediment range from 0.1 mg/kg to 5 mg/kg for receptors that spend 100% of their time in Snow Creek. Two total PCB RGs in sediment were evaluated for the protection of ecological receptors: 3 mg/kg which represents the LOAEL for benthic invertebrates; and 1 mg/kg, which represents the NOAEL for benthic invertebrates. Both goals are protective of mallards, pied-billed grebe, muskrat, and raccoons. The 1 mg/kg goal is more protective of tree swallows, spotted sandpipers, and little brown bats that spend 50% of their time in Snow Creek.

The RGs for barium in sediment range from 160 mg/kg to 4,249 mg/kg for receptors that spend 100% of their time in Snow Creek. The goal for barium in sediment was set at 322 mg/kg, which represents the lowest LOAEL for the receptors in OU1/OU2 (i.e., the mallard), It is expected to be protective for 3 of 8 receptors that spend 100% of their time in Snow Creek at a NOAEL. It is expected to be protective for all receptors that spend 50% of their time in Snow Creek. The 95% UCL for barium in Snow Creek is 255 mg/kg.

The RGs for chromium in sediment range from 20 mg/kg to 269 mg/kg for receptors that spend 100% of their time in Snow Creek. The goal for chromium in sediment is 111 mg/kg, which represents the LOAEL for benthic invertebrates in Snow Creek. It is expected to be protective for 3 of 8 receptors that spend 100% of their time in Snow Creek at the NOAEL. It is expected to be protective for 4 of 7 receptors that spend 50% of their time in Snow Creek at the NOAEL. The 95% UCL for chromium of Snow Creek is 364 mg/kg.

The RGs for cobalt in sediment range from 50 mg/kg to 504 mg/kg for receptors that spend 100% of their time in Snow Creek. The goal for cobalt in sediment is 59 mg/kg, which represents lowest LOAEL for the receptors in OU1/OU2 (i.e., the spotted sandpiper) and is expected to be protective for 6 of 8 receptors that spend 100% of their time in Snow Creek at a NOAEL. It is expected to be protective for all receptors that spend 50% of their time in Snow Creek. at a NOAEL. The 95% UCL for cobalt in Snow Creek is 33.2 mg/kg.

The RGs for lead in sediment range from 22 mg/kg to 1,000 mg/kg for receptors that spend 100% of their time in Snow Creek. The goal for lead in sediment is 128 mg/kg, which represents LOAEL for benthic invertebrates in Snow Creek. It is expected to be protective for 4 of 8 receptors at a NOAEL. It is expected to be protective for 5 of 7 receptors that spend 50% of their time in Snow Creek at a NOAEL. The 95% UCL for lead in Snow Creek is 126 mg/kg.

The RGs for manganese in sediment range from 169 mg/kg to 9,063 mg/kg for receptors that spend 100% of their time in Snow Creek. The goal for manganese in sediment is 1,100 mg/kg, which represents mean upgradient concentration for manganese. It is higher than both the minimum LOAEL (214 mg/kg) and two times the mean of sediment background concentration at Fort McClellan (713 mg/kg). The 95% UCL for manganese in Snow Creek is 2,643 mg/kg.

The RGs for mercury in sediment range from 0.2 mg/kg to 13 mg/kg for receptors that spend 100% of their time in Snow Creek. The goal for mercury in sediment is 1 mg/kg, which represents the LOAEL for benthic invertebrates in Snow Creek. It is expected to be protective for 3 of 8 receptors at the NOAEL. It is expected to be protective for 5 of 7 receptors that spend 50% of their time outside of Snow Creek at a NOAEL. The 95% UCL for mercury in Snow Creek is 2 mg/kg.

The RGs for nickel in sediment range from 10.9mg/kg to 295 mg/kg for receptors that spend 100% of their time in Snow Creek. The goal for nickel in sediment is 49 mg/kg, which represents the LOAEL for benthic invertebrates in Snow Creek and is expected to be protective for 4 of 8 receptors at a NOAEL. It is expected to be protective for 6 of 7 receptors that spend 50% of their time in Snow Creek at a NOAEL. The 95% UCL for nickel in Snow Creek is 50 mg/kg.

The RGs for vanadium in sediment range from 6 to 988 mg/kg for receptors that spend 100% of their time in Snow Creek. The goal for vanadium in sediment is 41 mg/kg, which represents two

times the mean of sediment background concentration at Fort McClellan (41 mg/kg). This value is also similar to the minimum value in NOAA SQuiRT Screening Table (50 mg/kg) and the upgradient mean (31 mg/kg). The goal for vanadium is expected to be protective for 3 of 7 receptors at a NOAEL. It is expected to be protective for and 4 of 7 receptors that spend 50% of their time in Snow Creek at a NOAEL. The 95% UCL for vanadium in Snow Creek is 40 mg/kg.

8.2.5 Surface Water

The RGs for contaminants in surface water are established by chemical specific ARARs. Chemical-, Action-, and Location-specific ARARs are presented in more detail in Section 10 of this Proposed Plan. Nationally recommended water quality criteria for aquatic life are ARARs for the highest concentration of specific pollutants or parameters in water that are not expected to pose a significant risk to the majority of species in a given environment. Surface water exceeded total PCB (by total homologues), lead, and chromium ambient water quality criteria in samples collected during the RI. The Chronic AWQC for total PCBs is 0.014 µg/L. The Chronic AWQC for lead is 2.5 µg/L. The Chronic AWQC for chromium is 11 µg/L (chromium VI) and 74 µg/L (chromium III). The AWQC for human health protection are not relevant since Snow Creek does not contain edible size fish and is not a source of drinking water.

9.0 DESCRIPTION OF ALTERNATIVES

General response actions and remedial technologies for reducing unacceptable risks due to contamination in soil, sediment, and groundwater at OU1/OU2 were developed and screened. The potential technologies were first screened based on technical implementability only. Surviving technologies were then screened based on effectiveness, implementability, and cost. The technologies that were not feasible or had limitations that might prevent achievement of RAOs were eliminated in the screening process, with the remaining technologies considered to be better suited for further consideration in developing remedial alternatives.

The retained technologies were used to develop eight categories of alternatives needed to address a wide range of different issues in the OU1/OU2 study area. Six of the categories address human exposure to contamination in surface and subsurface soil at residential properties, special use properties, within and around previously implemented interim measures, in dredge spoil piles, in UWDAs, and in other non-residential areas (i.e., commercial/industrial properties, etc.). A seventh category addresses human exposure and leaching to groundwater and surface water from surface and subsurface soil near T-11, as well as restoration of groundwater contamination in the area. An eighth category addresses alternatives for reducing ecological exposure to sediment and surface water in Snow Creek and the stability of creek bank soil to reduce ongoing releases of contamination. These eight categories of alternatives represent the range of remedial activities considered appropriate for OU1/OU2. As required by CERCLA, no further action alternatives were evaluated in each category, to serve as a basis for comparison with the other active cleanup methods. The following sections present a summary of the remedial alternatives evaluated.

9.1 Remedial Alternatives for Residential Soil

The remedial alternatives developed for soil on residential properties are inclusive of the removal actions already completed under the Removal AOC, the NTC Removal Action Agreement, and

the Stipulation to the CD. All residential removal properties that have been cleaned up meet the requirements of the selected remedy in the NTC Removal Action, which was based on an evaluation of alternatives in an EECA. The selected remedy implemented in the NTC Removal Action included:

- Excavation of surface soil with PCB concentrations greater than or equal to 1.0 mg/kg and subsurface soil with PCB concentrations greater than or equal to 10.0 mg/kg.
- Cleaning interior surfaces of homes with dust concentrations above 1.0 mg/kg.
- Excavation or installation of barrier materials in accessible crawl spaces with PCB concentrations in surface soil above 1.0 mg/kg.
- Disposal of soil with PCB concentrations less than 10.0 mg/kg at an onsite soil management area located near the Facility, provided the material passes leachability testing.
- Disposal of soil with PCB concentrations more than 10.0 mg/kg PCBs, at an appropriate offsite solid waste landfill.
- Backfilling excavated areas with clean soil and topsoil to approximately the same grades that existed prior to excavation.
- Re-vegetation of the property as agreed to with the owner.

Residential cleanup alternatives are needed for properties that have not been cleaned up because they are wooded or the owner has not granted access, and to manage residual PCBs that may remain in subsurface soil (at concentrations greater than 1 mg/kg and less than 10 mg/kg), as well as beneath existing structures (e.g., homes, garages, paved areas, etc.).

Key ARARs for the Residential Soil alternatives include:

- Regulations at 40 Code of Federal Regulations (C.F.R.) Part 262.11(a)-(d) for the management and disposal of remediation wastes.
- Regulations at 40 C.F.R. Part 761 for the management and disposal of PCB remediation wastes.
- Regulations at 40 C.F.R. § 761.61(c) for risk-based disposal of PCB remediation wastes.

The Residential Soil (RS) remedial alternatives developed for detailed analysis are summarized below:

– Alternative RS-1 – No Further Action

– Alternative RS-2 – Complete the NTC Removal and Manage PCB Residuals

– Alternative RS-3 –Excavate PCBs in Soil Greater Than or Equal to 1 mg/kg at All Depths and Manage PCB Residuals

ALTERNATIVE RS-1
No Further Action
Estimated Capital Cost: $0
Estimated Annual Operation &Maintenance (O&M) Cost: $0

Estimated Present Worth Cost: $0

No additional remedial actions would be undertaken as part of this alternative to contain, remove, or monitor impacted soil. Although most residential properties have been remediated to a currently protective level, the health of current residents of properties where access was denied and future residents where overgrown vegetation and structures are removed may be at risk. There would be no safeguards to ensure cover soil over subsurface PCBs remain in place. The No Action alternative is intended to serve as a baseline for comparison with the other alternatives.

ALTERNATIVE RS-2
Complete the Non-Time-Critical Removal and Manage PCB Residuals
Estimated Capital Cost: $3,726,000
Estimated Annual Operation &Maintenance (O&M) Cost: $113,000
Estimated Present Worth Cost: $7,342,000

Alternative RS-2 requires completion of the removal of PCB contaminated soil from the residential properties that have not already been cleaned up under the NTC Removal Action, provided access is granted and/or wooded areas with overgrown vegetation have been cleared. Surface soil with PCB concentrations greater than or equal to 1.0 mg/kg and subsurface soil with PCB concentrations greater than or equal to 10.0 mg/kg would be excavated and backfilled with clean soil. Soil generated during the additional residential removal activities would be disposed of onsite in the designated Facility soil management area known as the South Staging and Soil Management Area (SSSMA) provided that the PCB concentrations from the five-point composite samples collected from the property are less than 10.0 mg/kg. Otherwise, the excavated soil would be disposed of at an approved TSCA offsite disposal facility.

One wooded lot with a PCB concentration greater than the non-residential RG (21 mg/kg) and the highest acceptable trespasser exposure (46 mg/kg) will be prioritized for clearing by the PRP, and it will be cleaned up to a residential cleanup goal of 1.0 mg/kg, provided access is granted by the owner. All other wooded lots identified with PCB concentrations in surface soil greater than 1 mg/kg will be cleaned up when the owners clear the lots for residential development.

A soil management program would be implemented as part of this remedial alternative. The management plan would track residential properties with residual PCB concentrations (between 1.0 mg/kg and 10.0 mg/kg) that remain in subsurface soil underlying areas that were previously remediated, and under structures (i.e., buildings, sheds, or paved areas that limits exposure) near remediated areas. Soil management activities would include interactive outreach to local landowners or local municipalities regarding any plans to remove the current access constraints such as granting permission to access the property, clearing of heavily vegetated land, demolition of buildings/structures, etc. There are currently no institutional controls (ICs) identified to aid the soil management plan to protect the remedy and prevent exposure in the future.

Deed notices to inform prospective purchasers of potential residual contamination on properties would be voluntary. The EPA and the community are working with local officials to develop more formal institutional controls that can be enforced to prevent future exposures if the soil management plan fails.

The following components are part of alternative RS-2:

- Follow an approved soil management plan which requires:
  - periodic attempts to gain access to properties identified with PCBs in surface and/or subsurface soil;
  - PCB cleanup of soil on properties where wooded areas have been cleared and soil are now accessible; and
  - PCB sampling and cleanup, if needed, of soil beneath demolished structure (i.e., building, shed, or paved area that limits exposure) on properties where previous cleanups have occurred.
- Excavate surface soil with PCB concentrations greater than or equal to 1.0 mg/kg and subsurface soil with PCB concentrations greater than or equal to 10.0 mg/kg.[6]
- Clean interior surfaces of homes with dust concentrations above 1.0 mg/kg.
- Excavate or install barriers in accessible crawl spaces with PCB concentrations in surface soil above 1.0 mg/kg.
- Dispose of soil with PCB concentrations less than 10.0 mg/kg at an onsite soil management area located near the Facility, provided the material passes leachability testing.
- Dispose of soil with PCB concentrations more than 10.0 mg/kg PCBs, at an approved TSCA offsite disposal facility.
- Backfill excavated areas with clean soil and topsoil to approximately the same grades that existed prior to excavation.
- Re-vegetate the property as agreed to with the owner.

ALTERNATIVE RS-3
Excavate PCBs in Soil Greater Than or Equal to 1 mg/kg at All Depths and Manage PCB Residuals

Estimated Capital Cost: $9,918,000
Estimated Annual Operation &Maintenance (O&M) Cost: $54,000
Estimated Present Worth Cost: $15,715,000

Alternative RS-3 is the same as Alternative RS-2 except that subsurface soil with PCB concentrations greater than or equal to 1 mg/kg will also be removed. This alternative will include returning to those previously remediated residential properties where subsurface soil PCB concentrations are between 1 mg/kg and 10 mg/kg and removing the subsurface soil. Removal of the soil would reduce the opportunity of future recontamination of residential yards if the soil management plan fails. Soil management would be reduced to tracking demolition of structures on previously remediated residential properties.

Soil on the residential properties that have not already been addressed under the NTC Removal Action will be remediated after access is granted and/or wooded areas with overgrown vegetation have been cleared. Surface soil with PCB concentrations greater than or equal to 1 mg/kg and subsurface soil with PCB concentrations greater than or equal to 1 mg/kg would be

[6] One wooded property with a PCB concentration in soil greater than 21.0 mg/kg will also need to be cleared before excavation can take place.

excavated and backfilled with clean soil. Soil generated during the additional residential removal activities would be disposed of onsite in the designated Facility soil management area known as the SSSMA provided that the PCB concentrations from the five-point composite samples collected for the property are less than 10 mg/kg. Otherwise, the excavated soil would be disposed of at an approved TSCA offsite disposal facility.

One wooded lot with a PCB concentration greater than the non-residential RG (21 mg/kg) and the highest acceptable trespasser exposure (46 mg/kg) will be prioritized for clearing by the PRP, and it will be cleaned up to a residential cleanup goal of 1.0 mg/kg, provided access is granted by the owner. All other wooded lots identified with PCB concentrations in surface soil greater than 1 mg/kg will be cleaned up when the owners clear the lots for residential development.

A soil management program would be implemented as part of this remedial alternative. The management plan would track properties with residual PCBs that may remain under structures (i.e., buildings, sheds, or paved areas that limits exposure) near remediated areas. Soil management activities would include interactive outreach with local landowners or local municipalities regarding any plans to clear heavily vegetated land and demolish buildings/structures, etc. There are currently no ICs identified to aid the soil management plan to protect the remedy and prevent exposure in the future.

Deed notices to inform prospective purchasers of potential residual contamination on properties would be voluntary. The EPA and the community are working with local officials to develop more formal institutional controls that can be enforced to prevent future exposures if the soil management plan fails.

The following components are part of alternative RS-3:

- Follow an approved soil management plan which requires:
    - periodic attempts to gain access to properties identified with PCBs in surface and/or subsurface soil;
    - PCB cleanup on properties where wooded areas have been cleared and are now accessible; and
    - PCB sampling and cleanup, if needed, of soil beneath demolished structure (i.e., building, shed, or paved area that limits exposure) on properties where previous cleanups have occurred.
- Excavate surface soil with PCB concentrations greater than or equal to 1.0 mg/kg and subsurface soil with PCB concentrations greater than or equal to 1.0 mg/kg.[7]
- Clean interior surfaces of homes with dust concentrations above 1.0 mg/kg.
- Excavate or install barriers in accessible crawl spaces with PCB concentrations in surface soil above 1.0 mg/kg.
- Dispose of soil with PCB concentrations less than 10.0 mg/kg at an onsite soil management area located near the Facility, provided the material passes leachability testing.
- Dispose of soil with PCB concentrations more than 10.0 mg/kg PCBs, at an approved TSCA offsite disposal facility.

[7] One wooded property with a PCB concentration in soil greater than 21.0 mg/kg will also need to be cleared before excavation can take place.

- Backfill excavated areas with clean soil and topsoil to approximately the same grades that existed prior to excavation.
- Re-vegetate the property as agreed to with the owner.

9.2 Remedial Alternatives for Special Use Property Soil

In accordance with the Stipulation to the PCD, special use properties (i.e., schools, churches, day-care centers, community centers, playgrounds, and parks) within the area being investigated were evaluated to determine if there were areas of high activity and low activity on the property. The playground area of a public park, the outdoor play or recess areas of a school, community center, or day-care center, and similar areas of any church property, generally comprised of areas less than one quarter acre in size, were designated as high activity areas subject to residential cleanup. Surface soil with PCB concentrations greater than or equal to 1.0 mg/kg and subsurface soil with PCB concentrations greater than or equal to 10.0 mg/kg were excavated and backfilled with clean soil. Three of the high activity areas remediated contain residual PCB concentrations (between 1.0 mg/kg and 10.0 mg/kg) in subsurface soil. Fourteen properties contain structures (i.e., buildings, sheds, or paved areas) that may be preventing exposure to PCBs in soil.

Other areas of the same types of property, such as athletic fields and large open fields larger than one quarter acre in size, paved areas, and other portions of these properties where people, primarily children, are likely to spend less time, were designated as low activity areas and were not subject to residential cleanup. The HHRA prepared for the RI/FS was used to determine the cleanup goal in low activity areas. The low activity portion of 20 special use properties have PCB concentrations in surface soil that range from non-detect mg/kg to 45.2 mg/kg (a sample collected in a wooded area at a depth of 6-12 inches below ground surface) and have not been remediated.

Remedial alternatives were developed to represent a range of options to address PCBs in soil in low activity areas, residual PCB concentrations (between 1.0 mg/kg and 10.0 mg/kg) that remain in subsurface soil underlying areas that were previously remediated, and residual PCBs in soil beneath structures (i.e., buildings, sheds, or paved areas) near remediated areas.

Key ARARs for the special use property alternatives:

- Regulations at 40 C.F.R. Part 261 for the management and disposal of remediation wastes
- Regulations at 40 C.F.R. Part 761 for the management and disposal of PCB remediation wastes
- Regulations at 40 C.F.R. § 761.61(c) for risk-based disposal of PCB remediation wastes

The special use property soil (SU) remedial alternatives developed for detailed analysis are summarized below:

- Alternative SU-1 – No Action
- Alternative SU-2 – Excavate Surface Soil in Low Activity Areas to PCB Remedial Goal of 21 mg/kg and Manage PCB Residuals
- Alternative SU-3 – Excavate Surface Soil in Low Activity Areas to PCB Remedial Goal of 1 mg/kg and Manage PCB Residuals

- Alternative SU-4 – Excavate Surface and Subsurface Soil in High and Low Activity Areas to PCB Remedial Goal of 1 mg/kg and Manage PCB Residuals

ALTERNATIVE SU-1
No Further Action

Estimated Capital Cost: $0
Estimated Annual Operation &Maintenance (O&M) Cost: $0
Estimated Present Worth Cost: $0

No additional remedial actions would be undertaken as part of this alternative to contain, remove, or monitor impacted soil. Although the high activity areas on special use properties have been remediated to a protective level, there would be no safeguards to ensure low activity areas don't become high activity areas, that cover soil over subsurface PCBs remain in place, or that soil beneath structures is protective if the structure is demolished. The no action alternative is intended to serve as a baseline for comparison with the other alternatives.

ALTERNATIVE SU-2
Excavate Surface Soil in Low Activity Areas to a PCB Remedial Goal of 21 mg/kg and Manage PCB Residuals

Estimated Capital Cost: $181,000
Estimated Annual Operation &Maintenance (O&M) Cost: $22,000
Estimated Present Worth Cost: $517,000

Alternative SU-2 is focused on PCBs in soil in low activity areas and soil management of PCB residuals in subsurface soil or beneath structures. This alternative assumes that soil in low activity areas is the same as all other non-residential soil and is sufficiently protective if cleaned up to the PCB RG of 21 mg/kg, representing a $1x10^{-5}$ carcinogenic risk to industrial/commercial workers. This value is protective of all other exposures at $1x10^{-5}$ carcinogenic risk level, except young children in a school or daycare setting. PCB concentrations in low activity areas currently range from non-detect to 21.4 mg/kg, except for one concentration at 45.2 mg/kg at a depth of 6 to 12 inches bls in a heavily wooded area. At the 21.0 mg/kg cleanup level, no additional work in low-activity areas is required to make soil on special use properties protective unless the wooded area is cleared.

The soil management plan would be designed to ensure that: low-activity areas with PCB concentrations greater than or equal to 1.0 mg/kg do not become high activity areas without further cleanup; subsurface soil with PCB concentrations greater than or equal to 1.0 mg/kg remain in the subsurface or are appropriately managed; and soil below structures near PCB impacted areas are sampled and cleaned up, as needed, following demolition. Any soil generated during soil management activities would be disposed of in the SSSMA provided that the PCB concentrations from the five-point composite sample collected for the property are less than 10.0 mg/kg. Otherwise, the excavated soil would be disposed of at approved offsite disposal facilities.

Deed notices to inform prospective purchasers of potential residual contamination on properties would be voluntary. The EPA and the community are working with local officials to develop more formal institutional controls that can be enforced to prevent future exposures if the soil management plan fails.

The following components are part of alternative SU-2:

- Follow an approved soil management plan which requires:
  - monitoring low-activity areas with PCB concentrations greater than or equal to 1 mg/kg to ensure they do not become high activity areas without further cleanup;
  - Monitoring to ensure subsurface soil with PCB concentrations greater than or equal to 1 mg/kg remain in the subsurface or are appropriately managed; and
  - Monitoring to ensure soil beneath structures near PCB impacted areas are sampled and cleaned up, as needed, following demolition.
- If structures are removed in high activity areas, excavate surface soil with PCB concentrations greater than or equal to 1 mg/kg and subsurface soil with PCB concentrations greater than or equal to 10 mg/kg.
- If structures are removed in low activity areas, excavate surface soil with PCB concentrations greater than or equal to 21 mg/kg and subsurface soil with PCB concentrations greater than or equal to 97 mg/kg.
- Clean interior surfaces, if needed, of occupied structures with dust concentrations above 1.0 mg/kg.
- Dispose of excavated soil with PCB concentrations less than 10.0 mg/kg at an onsite soil management area located near the Facility, provided the material passes leachability testing.
- Dispose of soil with PCB concentrations greater than or equal to 10.0 mg/kg PCBs, at an approved TSCA offsite disposal facility.
- Backfill excavated areas with clean soil and topsoil to approximately the same grades that existed prior to excavation.
- Vegetate or re-vegetate the property as agreed to with the owner.

ALTERNATIVE SU-3
Excavate Surface Soil in Low Activity Areas to a PCB Remedial Goal of 1 mg/kg and Manage PCB Residuals

Estimated Capital Cost: $1,890,000
Estimated Annual Operation &Maintenance (O&M) Cost: $25,000
Estimated Present Worth Cost: $3,128,000

Similar to alternative SU-2, alternative SU-3 is focused on PCBs in soil in low activity areas and soil management of residual PCBs in subsurface soil or beneath structures. This alternative assumes that the soil in low activity areas is not the same as all other non-residential soil and should provide more protection to young children. Additionally, this alternative assumes that the soil management plan will not effectively prevent special use properties from using low-activity areas as high activity areas in the future. For those reasons, this alternative requires that the PCB RG of 1 mg/kg, representing a $1x10^{-6}$ carcinogenic risk to young children in a school/daycare setting be used for low-activity areas. This value is protective of all other exposures. PCB-impacted soil in low-activity areas of 20 special use properties would require remediation under this alternative.

The soil management plan would be designed to ensure that: subsurface soil with PCB concentrations greater than or equal to 1.0 mg/kg remain in the subsurface or are appropriately

managed; and soil below structures near PCB impacted areas are sampled and cleaned up, as needed, following demolition. Any soil generated during remediation and soil management activities would be disposed of in the SSSMA provided that the PCB concentration from the five-point composite samples collected for the property are less than 10.0 mg/kg. Otherwise, the excavated soil would be disposed of at approved offsite disposal facilities.

Deed notices to inform prospective purchasers of potential residual contamination on properties would be voluntary. The EPA and the community are working with local officials to develop more formal institutional controls that can be enforced to prevent future exposures if the soil management plan fails.

The following components are part of alternative SU-3:

- Follow an approved soil management plan which requires:
  - Monitoring to ensure subsurface soil with PCB concentrations greater than or equal to 1 mg/kg remain in the subsurface or are appropriately managed; and
  - Monitoring to ensure soil beneath structures near PCB impacted areas are sampled and cleaned up, as needed, following demolition.
- Excavate surface soil in high and low activity areas with PCB concentrations greater than or equal to 1 mg/kg and subsurface soil with PCB concentrations greater than or equal to 10 mg/kg in high activity areas and greater than equal to 97 mg/kg in low activity areas.
- Clean interior surfaces of occupied structures with dust concentrations above 1.0 mg/kg.
- Excavate or install barriers in accessible crawl spaces with PCB concentrations in surface soil above 1.0 mg/kg.
- Dispose of excavated soil with PCB concentrations less than 10.0 mg/kg at an onsite soil management area located near the Facility, provided the material passes leachability testing.
- Dispose of soil with PCB concentrations more than 10.0 mg/kg PCBs, at an approved TSCA offsite disposal facility.
- Backfill excavated areas with clean soil and topsoil to approximately the same grades that existed prior to excavation.
- Vegetate or re-vegetate the property as agreed to with the owner.

ALTERNATIVE SU-4
Excavate High and Low Activity Areas to a PCB Remedial Goal of 1 mg/kg at All Depths and Manage PCB Residuals

Estimated Capital Cost: $2,532,000
Estimated Annual Operation &Maintenance (O&M) Cost: $14,000
Estimated Present Worth Cost: $3,922,000

Like alternative SU-2 and SU-3, alternative SU-4 is focused on PCBs in soil in low activity areas and soil management of residual PCBs in subsurface soil or beneath structures. This alternative assumes that the soil in low activity areas is not the same as all other non-residential soil and should provide more protection to young children. Additionally, this alternative assumes that the soil management plan will not effectively prevent special use properties from using low-activity areas as high activity areas in the future or at preventing subsurface soil with PCB concentrations

greater than or equal to 1.0 mg/kg and less than 10.0 mg/kg from impacting surface soil in the future. For those reasons, this alternative requires that the PCB RG of 1.0 mg/kg, representing a $1x10^{-6}$ carcinogenic risk to young children in a school/daycare setting be used for low-activity areas, and that subsurface soil in high and low activity areas also meet the PCB RG of 1.0 mg/kg. This value is protective of all other exposures. PCB-impacted surface soil in low-activity areas of 20 special use properties and PCB impacted subsurface soil in three high activity areas previously remediated would require remediation under this alternative.

The soil management plan would be designed to ensure that the soil below structures near PCB impacted areas are sampled and cleaned up, as needed, following demolition. Any soil generated during remediation and soil management activities would be disposed of in the SSSMA provided that the PCB concentration from the five-point composite samples collected for the property are less than 10 mg/kg. Otherwise, the excavated soil would be disposed of at approved offsite disposal facilities.

Deed notices to inform prospective purchasers of potential residual contamination on properties would be voluntary. The EPA and the community are working with local officials to develop more formal institutional controls that can be enforced to prevent future exposures if the soil management plan fails.

The following components are part of alternative SU-4:

- Follow an approved soil management plan which requires monitoring to ensure soil beneath structures near PCB impacted areas are sampled and cleaned up, as needed, following demolition.
- Excavate surface soil with PCB concentrations greater than or equal to 1.0 mg/kg and subsurface soil with PCB concentrations greater than or equal to 1.0 mg/kg in high and low activity areas.
- Clean interior surfaces of occupied structures with dust concentrations above 1.0 mg/kg.
- Dispose of soil with PCB concentrations less than 10.0 mg/kg at an onsite soil management area located near the Facility, provided the material passes leachability testing.
- Dispose of excavated soil with PCB concentrations more than 10.0 mg/kg PCBs, at an approved TSCA offsite disposal facility.
- Backfill excavated areas with clean soil and topsoil to approximately the same grades that existed prior to excavation.
- Vegetate or re-vegetate the property as agreed to with the owner.

9.3 Remedial Alternatives for Interim Measure Area Soil

Multiple interim measures and removal actions have been conducted over the past 20 years. The complete list of previously implemented interim measures, interim caps, and removals actions (other than the residential removals) include:

- Northside Area
- Eastside Area

- Eastside Drainageway
- Hall Street
- Quintard Mall
- 11th Street Ditch
- Snow Creek Sediment and Dredge Spoil Pile Removal

An effectiveness evaluation was completed for all of the previous interim measures, interim caps, and removal projects. The results of the effectiveness evaluation indicated that additional efforts were necessary to enhance three of the previously implemented interim measures: Northside Area, Eastside Area, and the Eastside Drainageway (Figures 9-1, 9-2a-d, and 9-3).

Key ARARs for the interim measure alternatives include:

- Regulations at 40 C.F.R. Part 262.11(a)-(d) for the management and disposal of remediation wastes.
- Regulations at 40 C.F.R. Part 761 for the management and disposal of PCB remediation wastes.
- Regulations at 40 C.F.R. § 761.61(c) for risk-based disposal of PCB remediation wastes.

The interim measure (IM) soil remedial alternatives developed for detailed analysis are summarized below:

- Alternative IM-1 – No Action
- Alternative IM-2 – Expand Existing Measures, Address PTW if Present and Institutional Controls (ICs)
- Alternative IM-3 – Expand Existing Measures, Address PTW if Present, Excavate Soil at PB-RR-37 and Dispose Offsite, and ICs
- Alternative IM-4 – Excavate Soil to Non-residential RGs where not Covered by Existing Measures and Dispose of Offsite, Address PTW if Present, and ICs

ALTERNATIVE IM-1
No Action

Estimated Capital Cost: $0
Estimated Annual Operation &Maintenance (O&M) Cost: $0
Estimated Present Worth Cost: $0

The No Action alternative is intended to serve as a baseline for comparison with the other alternatives. This alternative would leave the impacted soil around the previously implemented interim measures in place with no controls to prevent human or ecological exposure or transport to Snow Creek. Under this alternative, no remedial actions would be undertaken as part of this alternative to contain, remove, monitor, or treat impacted soil.

ALTERNATIVE IM-2
Expand Existing Measures, Address PTW if Present and ICs

Estimated Capital Cost: $702,000
Estimated Annual Operation &Maintenance (O&M) Cost: $100,000
Estimated Present Worth Cost: $2,604,000

Alternative IM-2 includes maintaining the existing IMs and expanding the existing IMs in the Northside Area, Eastside Area, and the Eastside Drainageway (including the drainage ditch to the north and PB-RR-37 area) to meet the non-residential RG for PCBs in surface soil of 21.0 mg/kg. This alternative would include placing an engineered cap over the additional areas using the original cover designs developed when the existing IM covers were installed. For locations with PCBs in drainageways, the engineered cap would include a low permeability geomembrane liner covered with at least 12 inches of clean soil and vegetation. For locations not considered drainageways, a cover consisting of a geotextile marker layer covered with at least 12 inches of clean soil and vegetation would be installed.

Further evaluation of the potential presence of PCBs in groundwater at the Eastside Area and PB-RR-37 area are required during the remedial design to confirm that the high subsurface PCB concentrations are not leaching to groundwater. If leaching to groundwater is found to be occurring, subsurface soil excavation may be required if determined to be necessary during remedial design.

Deed restrictions and environmental easements/covenants will be used to restrict the potential future uses of the IM areas, including the expanded areas. Operation, monitoring, and maintenance of the existing and proposed additional remedial components are included in IM-2.

The following components are part of alternative IM-2:

- Expand the engineered caps (Figure 9-4) of the IMs such that the PCB EPC for the area is less than 21 mg/kg, with a not to exceed concentration of 50 mg/kg:
  - in drainageways, a low permeability geomembrane liner covered with at least 12 inches of clean soil and vegetation will be used to cap PCB impacted soil;
  - in non-drainageways, a geotextile marker layer covered with at least 12 inches of clean soil and vegetation will be used to cap PCB impacted soil; and
  - any soil excavated to implement these caps and covers will be disposed of offsite at an appropriate facility.
- Ensure deed restrictions or easements/covenants are in place to restrict the potential future uses of the new and old IM areas.
- Conduct operations, monitoring, and maintenance of the existing and proposed additional components.
- Further investigate potential groundwater impacts from high subsurface PCB concentrations located within the Eastside Area IM and at sample PB-RR-37. If PCB impacts to groundwater are greater than the MCL, excavation of PCB impacted subsurface soil within the IM or at PB-RR-37 may be required as determined in design.

The duration to implement the field construction components of IM-2 is 6 to 12 months. O&M activities would continue in perpetuity, though cost estimates are provided for a 30-year duration. Energy use for IM-2 is approximately 690 MMBtu, and the greenhouse gas emissions are approximately 55 carbon dioxide equivalents (CO2e).

ALTERNATIVE IM-3
Expand Existing Measures, Address PTW if Present, Excavate Soil at PB-RR-37 and Dispose Offsite, and ICs

Estimated Capital Cost: $721,000
Estimated Annual Operation &Maintenance (O&M) Cost: $100,000
Estimated Present Worth Cost: $2,632,000

Alternative IM-3 includes maintaining the existing IMs, expanding the existing IMs in the Northside Area, Eastside Area, and the Eastside Drainageway (including the drainage ditch to the north) to meet the non-residential RG for PCBs in surface soil of 21 mg/kg, and excavation and offsite disposal of soil near PB-RR-37 to meet the non-residential RG for PCBs in surface soil of 21 mg/kg and subsurface RG for PCBs of 97 mg/kg. Excavated soil will be disposed of at an approved offsite facility. This alternative would include placing an engineered cap over the additional areas using the original cover designs developed when the existing IM covers were installed. For locations with PCBs in drainageways, the engineered cap would include a low permeability geomembrane liner covered with at least 12 inches of clean soil and vegetation. For locations not considered drainageways, a cover consisting of a geotextile marker layer covered with at least 12 inches of clean soil and vegetation.

Further evaluation of the potential presence of PCBs in groundwater at the Eastside Area and PB-RR-37 area are required during the remedial design to confirm that the high subsurface PCB concentrations are not leaching to groundwater. If leaching to groundwater is found to be occurring, subsurface soil excavation may be required if determined to be necessary during remedial design.

Deed restrictions and environmental easements/covenants will be used to restrict the potential future uses of the IM areas, including the expanded areas. Operation, monitoring, and maintenance of the existing and proposed additional remedial components are included in IM-3.

The following components are part of Alternative IM-3:

- Expand the engineered caps (Figure 9-4) of the IMs such that the PCB EPC for the area is less than 21 mg/kg, with a not to exceed concentration of 50 mg/kg:
  - in drainageways, a low permeability geomembrane liner covered with at least 12 inches of clean soil and vegetation will be used to cap PCB impacted soil;
  - in non-drainageways, a geotextile marker layer covered with at least 12 inches of clean soil and vegetation will be used to cap PCB impacted soil; and
  - any PCB impacted soil excavated to implement these caps and covers will be disposed of offsite at an appropriate disposal facility.
- Excavate soil near PB-RR-37 to meet the non-residential RG for PCBs in surface soil of 21 mg/kg and subsurface RG for PCBs of 97 mg/kg.
- Backfill excavated areas with clean soil and topsoil to approximately the same grades that existed prior to excavation.
- Re-vegetate backfilled area.
- Dispose of excavated soil at an approved TSCA offsite disposal facility based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.

- Ensure deed restrictions are in place to restrict the potential future uses of the new and old IM areas.
- Soil management of residual PCBs in the subsurface may be needed in the excavation area.
- Conduct operations, monitoring, and maintenance of the existing and proposed additional components.
- Further investigate potential groundwater impacts from high subsurface PCB concentrations located within the Eastside Properties IM and at sample PB-RR-37. If PCB impacts to groundwater are greater than the MCL, excavation of PCB impacted subsurface soil within the IM or at PB-RR-37 may be required as determined in design.

The duration to implement the field construction components of IM-3 is 6 to 12 months. O&M activities would continue in perpetuity, though cost estimates are provided for a 30-year duration. Energy use for IM-3 is approximately 750 MMBtu, and the greenhouse gas emissions are approximately 60 CO2e.

ALTERNATIVE IM-4
Excavate Soil to Non-residential RGs where not Covered by Existing Measures and Dispose Offsite, Address PTW if Present, and ICs

Estimated Capital Cost: $1,842,000
Estimated Annual Operation &Maintenance (O&M) Cost: $100,000
Estimated Present Worth Cost: $4,315,000

Alternative IM-4 includes maintaining the existing IMs and excavating soil around the Northside Area, Eastside Area, and the Eastside Drainageway (including the drainage ditch to the north and PB-RR-37 area) IMs to meet the non-residential RG for PCBs in surface soil of 21 mg/kg and subsurface RG for PCBs of 97 mg/kg. Excavated soil will be disposed of at an approved offsite facility.

Further evaluation of potential PCB discharges to groundwater at the Eastside Area and PB-RR-37 area are required during the remedial design to confirm that the high subsurface PCB concentrations are not leaching to groundwater. If leaching to groundwater is found to be present, subsurface soil excavation may be required as determined during design.

Deed restrictions will be used to restrict the potential future uses of the IM areas. Soil management of residual PCBs in the subsurface may be needed in the excavation areas. Operation, monitoring, and maintenance of the existing and proposed additional remedial components are included in IM-4.

The following components are part of Alternative IM-4:

- Excavate soil around the Northside Area, Eastside Area, and the Eastside Drainageway (including the drainage ditch to the north and PB-RR-37 area) IMs to meet the non-residential RG for PCBs in surface soil of 21 mg/kg and subsurface RG for PCBs of 97 mg/kg.
- Backfill excavated areas with clean soil and topsoil to approximately the same grades that existed prior to excavation.

- Re-vegetate backfilled area.
- Dispose of excavated soil at an approved offsite disposal facility based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.
- Ensure deed restrictions are in place to restrict the potential future uses of the IM areas.
- Soil management of residual PCBs in the subsurface may be needed in the excavation areas.
- Conduct operations, monitoring, and maintenance of the existing components.
- Further investigate potential groundwater impacts from high subsurface PCB concentrations located within the Eastside Properties IM and at sample PB-RR-37. If PCB impacts to groundwater are greater than the MCL, excavation of PCB impacted subsurface soil within the IM or at PB-RR-37 may be required as determined in design.

The duration to implement the field construction components of IM-4 is 6 to 12 months. O&M activities would continue in perpetuity, though cost estimates are provided for a 30-year duration. Energy use for IM-4 is approximately 3,600 MMBtu, and the greenhouse gas emissions are approximately 300 CO2e.

9.4 Remedial Alternatives for Dredge Spoil Piles

There were eight dredge spoil piles (SC-1 through SC-8) located along Snow Creek in OU1/OU2. Four of the eight dredge spoil piles were removed (SC-3, SC-4, SC-5, and SC-6) during previous removal actions. The current locations of the remaining dredge spoil piles are shown on Figures 2-9a and 2-9b. Dredge spoil pile SC-8 has been identified as a target remedial area based on its PCB EPC (29 mg/kg). Even though dredge spoil piles SC-1 and SC-7 were characterized as having EPCs below the non-residential soil RG of 21 mg/kg and SC-2 is assumed to be similar in concentration to SC-1 (because they are located on the same segment of the creek), two of the alternatives require total excavation of the four remaining piles to prevent future erosion back into the creek or residential use of the soil in the piles as fill. The alternatives for dredge spoil piles involve different combinations of removal and onsite and offsite disposal.

Key ARARs for the dredge spoil piles include:

- Regulations at 40 C.F.R. Part 261.11(a)-(d) for the management and disposal of remediation wastes.
- Regulations at 40 C.F.R. Part 761 for the management and disposal of PCB Remediation Wastes.
- Regulations at 40 C.F.R. § 761.61(c) for risk-based disposal of PCB Remediation Wastes.

The dredge spoil piles (DSP) remedial alternatives developed for detailed analysis are summarized below:

- Remedial Alternative DSP-1 – No Action

- Remedial Alternative DSP-2 – Excavate to Non-residential Goal and Offsite Disposal

- Remedial Alternative DSP-3 – Excavate to Non-residential Goal and Onsite Disposal

- Remedial Alternative DSP-4 – Excavate All Dredge Spoil Piles and Offsite Disposal

- Remedial Alternative DSP-5 – Excavate All Dredge Spoil Piles and Onsite Disposal

ALTERNATIVE DSP-1
No Action

Estimated Capital Cost: $0
Estimated Annual Operation &Maintenance (O&M) Cost: $0
Estimated Present Worth Cost: $0

The No Action alternative is intended to serve as a baseline for comparison with the other alternatives. This alternative would leave the impacted soil in place with no controls to prevent human or ecological exposure. Under this alternative, no remedial actions would be undertaken as part of this alternative to contain, remove, monitor, or treat impacted soil.

ALTERNATIVE DSP-2
Excavate to Non-residential Goal and Offsite Disposal

Estimated Capital Cost: $631,000
Estimated Annual Operation &Maintenance (O&M) Cost: $0
Estimated Present Worth Cost: $947,000

Alternative DSP-2 includes excavation and offsite disposal of dredge spoil pile soil with an exposure point concentration that exceeds the non-residential RG for PCBs in surface soil of 21 mg/kg. Only SC-8 would be removed under this remedial alternative. This alternative will also include collecting PCB data for dredge spoil pile SC-2 during a preliminary design investigation to confirm that the exposure point concentration for the pile is less than the non-residential RG for PCBs in surface soil of 21 mg/kg.

The process to remove dredge spoil pile SC-8 includes clearing trees and constructing a temporary construction roadway to the dredge spoil pile. The excavated soil will be loaded onto on-road dump trucks. The trucks will be decontaminated and covered with a tarp prior to transport to the offsite disposal facility. A 12-inch layer of soil beneath the dredge spoil pile will also be removed and disposed of offsite as part of this alternative. The area will be backfilled with clean soil and vegetated. Dispose of all excavated soil at an approved offsite disposal facility

The remaining dredge soil piles with concentrations below the RG of 21 mg/kg [SC-1, SC-7, and possibly SC-2, depending on the predesign investigation (PDI) results] will be evaluated for perennial vegetation and the effectiveness of that vegetation in ensuring stability. If additional stabilization is needed, planting or seeding will be conducted to ensure stability.

Following construction, soil management will be conducted for residual PCBs that remain in the dredge spoil areas.

The following components are part of Alternative DSP-2:

- Collect sample(s) for PCB analysis from dredge spoil pile SC-2 during a preliminary design investigation to confirm that the exposure point concentration for total PCBs is less that the PCB RG of 21 mg/kg.
- Excavate dredge spoil pile soil with an exposure point concentration for total PCBs greater than or equal to the PCB RG of 21 mg/kg.
- Excavate soil beneath the dredge spoil pile footprint as needed to meet the non-residential soil RG for PCBs in surface soil of 21 mg/kg and subsurface RG for PCBs of 97 mg/kg.
- Backfill excavated areas with clean soil and topsoil to approximately the same grades that existed prior to the dredge spoil piles.
- Re-vegetate backfilled area.
- Dispose of excavated soil at an approved offsite disposal facility based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.
- Evaluate vegetation and stability of remaining dredge spoil piles and re-vegetate as needed to ensure stability.
- Manage residual PCBs in dredge spoil areas and in soil beneath the dredge spoil piles footprint along with other non-residential soil, as needed.

The duration to implement the field construction components of DSP-2 is 1 month. Remaining piles would be treated like other non-residential soil. Energy use for DSP-2 is approximately 1,200 MMBtu, and the greenhouse gas emissions are approximately 100 CO2e.

ALTERNATIVE DSP-3
Excavate to Non-residential Goal and Onsite Disposal
Estimated Capital Cost: $324,000
Estimated Annual Operation &Maintenance (O&M) Cost: $0
Estimated Present Worth Cost: $485,000

Remedial alternative DSP-3 is the same as DSP-2 with the exception that an onsite soil management area is proposed for the disposal of soil with PCB concentrations less than 50 mg/kg.

Alternative DSP-3 includes excavation of dredge spoil pile soil with an exposure point concentration that exceeds the non-residential RG for PCBs in surface soil of 21 mg/kg. Only SC-8 would be removed under this remedial alternative. This alternative also includes collecting PCB data for dredge spoil pile SC-2 during a preliminary design investigation to confirm that the exposure point concentration for the pile is less than the non-residential RG for PCBs in surface soil of 21 mg/kg.

The process to remove dredge spoil pile SC-8 includes clearing trees and constructing a temporary construction roadway to the dredge spoil pile. The excavated soil will be loaded onto on-road dump trucks. The trucks will be decontaminated and covered with a tarp prior to transport to the offsite disposal facility. A 12-inch layer of soil beneath the dredge spoil pile will also be removed and disposed of offsite as part of this alternative. The area will be backfilled with clean soil and vegetated. Dispose of all excavated soil at an approved offsite disposal facility.

The remaining dredge soil piles with concentrations below the RG of 21 mg/kg (SC-1, SC-7, and possibly SC-2, depending on the PDI results) will be evaluated for perennial vegetation and the effectiveness of that vegetation in ensuring stability. If additional stabilization is needed, planting or seeding will be conducted to ensure stability.

Following construction, soil management will be conducted for residual PCBs that remain in the dredge spoil areas.

The following components are part of Alternative DSP-3:

- Collect sample(s) for PCB analysis from dredge spoil pile SC-2 during a preliminary design investigation to confirm that the exposure point concentration for total PCBs is less that the PCB RG of 21 mg/kg.
- Excavate dredge spoil pile soil with an exposure point concentration for total PCBs greater than or equal to the PCB RG of 21 mg/kg (this currently impacts only SC-8).
- Excavate soil beneath the dredge spoil pile footprint as needed to meet the non-residential soil RG for PCBs in surface soil of 21 mg/kg and the subsurface soil RG for PCBs of 97 mg/kg.
- Backfill excavated areas with clean soil and topsoil to approximately the same grades that existed prior to the dredge spoil piles.
- Re-vegetate backfilled area.
- Disposal of soil with total PCB concentrations less than 50 mg/kg in an onsite soil management area. If new samples reveal soil with total PCB concentrations greater than or equal to 50 mg/kg it must be disposed of in an approved TSCA offsite disposal facility.
- All disposal decisions will be based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.
- Evaluate vegetation and stability of remaining dredge spoil piles and re-vegetate as needed to ensure stability.
- Manage residual PCBs in dredge spoil areas and in soil beneath the dredge spoil piles footprint along with other non-residential soil, as needed.

The duration to implement the field construction components of DSP-3 is 1 month. Remaining piles would be treated like other non-residential soil. Energy use for DSP-3 is approximately 750 MMBtu, and the greenhouse gas emissions are approximately 60 CO_2e.

ALTERNATIVE DSP-4
Excavate All Dredge Spoil Piles and Offsite Disposal
Estimated Capital Cost: $932,000
Estimated Annual Operation &Maintenance (O&M) Cost: $0
Estimated Present Worth Cost: $1,399,000

Alternative DSP-4 requires the removal of the four remaining dredge spoil piles (SC-2, SC-2, SC-7, and SC-8) and disposal of the excavated soil in an offsite landfill. This alternative will eliminate the need to stabilize the remaining dredge spoil piles and ensure that the soil does not get re-deposited in the creek or transported for use as fill.

The process to remove the dredge spoil piles includes clearing trees and constructing temporary construction roadways to the dredge spoil piles. The excavated soil will be loaded onto on-road dump trucks. The trucks will be decontaminated and covered with a tarp prior to transport to the offsite disposal facility. A 12-inch layer of soil beneath the dredge spoil piles will also be removed and disposed of offsite as part of this alternative. The area will be backfilled with clean soil and vegetated. All excavated soil will be disposed of at approved offsite disposal facilities.

Any soil management required will be conducted for residual PCBs that remain below the dredge spoil pile footprint along with other non-residential soil.

The following components are part of Alternative DSP-4:

- Excavate all dredge spoil pile soil.
- Excavate soil beneath the dredge spoil pile footprints as needed to meet the non-residential soil RG for PCBs in surface soil of 21 mg/kg and subsurface RG for PCBs of 97 mg/kg.
- Backfill excavated areas with clean soil and topsoil to approximately the same grades that existed prior to the dredge spoil piles.
- Re-vegetate backfilled area.
- Dispose of excavated soil at an approved offsite disposal facility.
- All disposal decisions will be based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.
- Manage residual PCBs in dredge spoil areas and in soil beneath the footprint of the dredge spoil piles footprint along with other non-residential soil, as needed.

The duration to implement the field construction components of DSP-4 is 1 month. Energy use for DSP-4 is approximately 1,780 MMBtu, and the greenhouse gas emissions are approximately 140 CO2e.

ALTERNATIVE DSP-5
Excavate All Dredge Spoil Piles and Onsite Disposal
Estimated Capital Cost: $475,000
Estimated Annual Operation &Maintenance (O&M) Cost: $0
Estimated Present Worth Cost: $714,000

Remedial alternative DSP-5 is the same as DSP-4 with the exception that an onsite soil management area is proposed for the disposal of materials with PCB concentrations less than 50 mg/kg. Alternative DSP-5 requires the removal of the four remaining dredge spoil piles (SC-2, SC-2, SC-7, and SC-8) and disposal of soil with total PCB concentrations less than 50 mg/kg in an onsite soil management area and soil with total PCB concentrations greater than or equal to 50 mg/kg in an approved TSCA offsite disposal facility. Disposal decisions will be based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.

The process to remove the dredge spoil piles includes clearing trees and constructing temporary construction roadways to the dredge spoil piles. The excavated soil will be loaded onto on-road dump trucks. The trucks will be decontaminated and covered with a tarp prior to transport to the offsite disposal facility. A 12-inch layer of soil beneath the dredge spoil piles will also be removed and disposed of offsite as part of this alternative. After confirmation that non-residential

RGs are met, the area will be backfilled with a 12-inch layer of clean soil and vegetated. Any soil management required will be conducted for residual PCBs that remain below the dredge spoil pile footprint along with other non-residential soil alternative areas.

The following components are part of Alternative DSP-5:

- Excavate all dredge spoil pile soil.
- Excavate soil beneath the dredge spoil pile footprints as needed to meet the non-residential soil RG for PCBs in surface soil of 21 mg/kg and soil RG for PCBs in subsurface soil of 97 mg/kg.
- Backfill excavated areas with clean soil and topsoil to approximately the same grades that existed prior to the dredge spoil piles.
- Re-vegetate backfilled area or provide other erosion protection.
- Dispose of excavated soil with total PCB concentrations less than 50 mg/kg in an onsite soil management area. If new samples reveal soil with total PCB concentrations greater than or equal to 50 mg/kg, dispose of soil in an approved TSCA offsite disposal facility.
- Disposal decisions will be based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.
- Manage residual PCBs in dredge spoil areas and in soil beneath the footprint of the dredge spoil piles footprint along with other non-residential soil, as needed.

The duration to implement the field construction components of DSP-5 is 1 month. Energy use for DSP-5 is approximately 1,120 MMBtu, and the greenhouse gas emissions are approximately 90 CO2e.

9.5 Remedial Alternatives for Unapproved Waste Disposal Areas

In conducting the investigation for OU1/OU2, three areas of fill were identified with PCB contamination. In one area, PCBs were found at depth only, with no evident impact to human health and the environment from surface soil. In two of the areas, solid waste in the form of auto fluff was identified as a major part of the surface and subsurface composition and likely contributed to the PCBs contamination found. The two areas were called unapproved waste disposal areas (UWDAs). The two specific locations include the Ashley Street and Legrande site in EU1 and the Wilborn I site located in the southeastern portion of EU10.

Key ARARs for the UWDAs include:

- Regulations at 40 C.F.R. Part 261.11(a)-(d) for the management and disposal of remediation wastes.
- Regulations at 40 C.F.R. Part 761 for the management, storage and disposal of PCB remediation wastes.
- Regulations at 40 C.F.R. § 761.61(c) for risk-based disposal of PCB remediation wastes.
- Regulations at ADEM Admin. Code r. 335-13-14-.17, 19, and 20.

The remedial alternatives for the UWDAs are summarized below:

- Remedial Alternative UWDA-1 – No Action

- Remedial Alternative UWDA-2 –Soil Cover and Marker Layer

- Remedial Alternative UWDA-3 – RCRA Subtitle D Cap

- Remedial Alternative UWDA-4 – Excavation and Offsite Disposal

ALTERNATIVE UWDA-1
No Action

Estimated Capital Cost: $0
Estimated Annual Operation &Maintenance (O&M) Cost: $0
Estimated Present Worth Cost: $0

Alternative UWDA-1 is the no action alternative, which means that no remedial actions would be conducted at the two unapproved UWDA areas. Concentrations of PCBs in surface soil at the Ashley Street and Legrande area will exceed the residential RG of 1 mg/kg and concentrations of PCBs in surface soil at the Wilborn I area will exceed the non-residential RG of 21 mg/kg. Under this alternative, no remedial actions would be undertaken as part of this alternative to contain, remove, monitor, or treat impacted soil. This alternative is intended to serve as a baseline for comparison with the other alternatives.

ALTERNATIVE UWDA-2
Soil Cover and Marker Layer

Estimated Capital Cost: $570,000
Estimated Annual Operation &Maintenance (O&M) Cost: $50,000
Estimated Present Worth Cost: $1,630,000

Alternative UWDA-2 includes constructing a protective soil cover system over the two UWDAs at the Site to eliminate the direct contract threat. Figure 9-4 shows what a typical soil cover cross-section looks like. This alternative includes placing a soil cover over these areas consisting of a geotextile fabric and a 12-inch-thick layer of clean soil. Clean imported fill would be used to construct the caps. (Note that a wells installed at Wilborn I area and the former Carter Street auto fluff disposal area (cleanup up by the Anniston PCB and Lead Site) were used to determined that PCBs are not likely to be leaching to groundwater from these types of disposal areas.)

ICs in the form of environmental covenants will be included to restrict future use of these areas to further restrict contact with impacted soil and waste. O&M and monitoring of the proposed remedial components are included in UWDA-2.

The following components are part of Alternative UWDA-2:

- Clear and prepare surface for cover.
- Install soil cover consisting of:
  - geotextile marker layer; and
  - 12-inch-thick layer of clean soil.
- Re-vegetate surface or provide other erosion protection for cap.
- Execute environmental covenants to restrict future use of these areas and to protect the cap.

- Conduct O&M and monitoring of the cover.

The duration to implement the field construction components of UWDA-2 is approximately 6 to 12 months. O&M activities would continue in perpetuity. though cost estimates are provided for a 30-year duration. Energy use for UWDA-2 is approximately 1,060 MMBtu, and the greenhouse gas emissions are approximately 85 CO2e.

ALTERNATIVE UWDA-3
RCRA Subtitle D Cap

Estimated Capital Cost: $1,317,000
Estimated Annual Operation &Maintenance (O&M) Cost: $50,000
Estimated Present Worth Cost: $2,715,000

Alternative UWDA-3 is the same as UWDA-2 except that the cover constructed over the two UWDAs will be equivalent to a RCRA Subtitle D multi-layer cap. Figure 9-4 shows a low-permeability cap consisting of a 40-mil geomembrane liner, a geocomposite drainage layer, and protective soil cover which would be equivalent to a typical RCRA Subtitle D cap. Though groundwater contamination is not expected to be a concern in these areas, a more stringent RCRA Subtitle D cap is appropriate for waste disposal areas where disposal records are not available. Clean imported fill would be used to construct the caps.

Environmental covenants will be adopted to restrict future use of these areas to further restrict contact with impacted soil. O&M and monitoring of the proposed remedial components are included in UWDA-3.

The following components are part of Alternative UWDA-3:

- Clear and prepare surface for cover.
- Install a RCRA Subtitle D multi-layer cap, that may consist of the following layers (the actual configuration will be determined during remedial design):
  - 40-mil geomembrane liner,
  - geocomposite drainage layer, and
  - 18-inch-thick protective soil cover.
- Re-vegetate the surface or provide other erosion protection for cap.
- Execute environmental covenants to restrict future use of these areas and to protect the cap.
- Conduct O&M and monitoring of the cover.

The duration to implement the field construction components of UWDA-3 is one to two years. O&M activities would continue in perpetuity, though cost estimates are provided for a 30-year duration. Energy use for UWDA-3 is approximately 1,570 MMBtu, and the greenhouse gas emissions are approximately 130 CO2e.

ALTERNATIVE UWDA-4
Excavation and Offsite Disposal

Estimated Capital Cost: $27,486,000
Estimated Annual Operation &Maintenance (O&M) Cost: $0
Estimated Present Worth Cost: $41,229,000

Alternative UWDA-4 includes the excavation and offsite disposal of all waste materials contained on the affected properties. This alternative consists of removing both surface and subsurface soil, replacing the removed soil as needed to control erosion with clean fill material. The upper portion shall be capable of supporting vegetative growth, and reestablishing vegetation in disturbed areas. Soil generated during the removal activities would be disposed of at an approved offsite landfill(s). Approximately 101,700 cubic yards of waste material would be excavated and disposed of at an offsite landfill under this alternative.

No O&M or ICs would be required for this alternative, as the waste materials identified at these locations would be removed and transported to an approved landfill(s).

The following components are part of Alternative UWDA-4:

- Excavate all soil/waste over the waste disposal areas.
- Dispose of excavated soil/waste offsite at an approved disposal facility(ies).
- Backfill as needed to re-establish natural grades and prevent erosion.
- All PCB disposal decisions will be based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.
- Backfill as needed to re-establish natural grades and prevent erosion.
- Re-vegetate surface or provide other erosion protection.

The duration to implement the field construction components of UWDA-4 is two to three years. Energy use for UWDA-4 is approximately 62,500 MMBtu, and the greenhouse gas emissions are approximately 5,000 CO2e.

9.6 Remedial Alternatives for Non-residential Soil

Candidate remedial areas for non-residential soil in commercial/industrial areas and transportation corridors located in the Snow Creek floodplain or around the Facility (areas not covered by the other non-residential categories) were developed to address PCBs, PAHs as BaPE, chromium, and PCDD/DF in surface soil. Each of the remedial alternatives developed for non-residential soil would address the same footprint, as shown in Figure 9-5a for a RG of 21 mg/kg and Figures 9-6 for a RG of 9 mg/kg. Seven remedial approaches were screened for the non-residential soil including the no action alternative. Six of these approaches were carried through the screening process. The first active approach of placing cover soil over the target remedial areas was screened out due to concerns with increasing localized flooding in EU5, EU14N, and EU19S. To address this concern, the second alternative combines removing soil with placing clean backfill materials in the three EUs where flooding is of concern and directly covering target remedial area soil in the remaining EUs and areas where flooding is less of a concern. The four other remedial approaches include removing the upper 12 inches of soil with different forms of disposal, including offsite disposal, a combination of onsite and offsite disposal, offsite treatment using incineration, and a combination of onsite treatment using thermal desorption combined with offsite incineration of the high-concentration PCB oil from the thermal treatment process. With the exception of the no action alternative, each of the remedial alternatives includes implementing a soil management plan and the possibility if ICs including environmental covenants. The soil management plan would include monitoring for

potential changes in property use from non-residential to residential as part of long-term O&M activities.

The remedial alternatives for non-residential soil are focused on surface soil in EUs where PCBs, chromium, PAH (as BaPE), and PCDD/DF exceed RGs. For example:

- The PCB EPC for each EU was compared to the PCB surface soil RG of 21 mg/kg and the not-to-exceed PCB concentration of 50 mg/kg. Based on this evaluation, 11 general locations in OU1/OU2 were identified as either not meeting the non-residential surface soil criteria RG for PCBs or having PCB concentrations greater than or equal to 50 mg/kg. These general areas are EU5, EU7, EU10, EU14N, EU19N, EU19S, EU24, EU26, west of EU1, north of APCO, and Highway 202 (Figures 9-5 b through 9-5 l).
- The surface soil RGs for the non-PCB constituents are 382 mg/kg for arsenic, 568 mg/kg for chromium, 153 mg/kg for PAHs as BaPE, and 0.730 µg/kg for PCDD/DF. There was only enough data to calculate a site-wide EPC for the non-PCB constituents. In order to ensure hot spots of the non-PCB constituents were not disregarded, a point-by-point analysis was compared to the RGs and a limited number of small isolated areas where concentrations of non-PCB constituents exceed their respective RGs were found in surface soil. This includes two locations where three sample results exceed the PAH (as BaPE) RG of 153 mg/kg (north of APCO on Figure 9-7a, EU14N on Figure 9-7b); two locations where one sample result in each of these areas exceeds the chromium RG of 568 mg/kg (EU22 on Figure 9-8a, EU24 on Figure 9-8b); and two locations where one sample result in each location that is approximately three times higher than the PCDD/DF/DL-PCB RG of 0.730 µg/kg (EU15 Figure 9-9a and EU25 Figure 9-9b).

The overall remedial approach is to reduce the EPC values in these areas to less than the RGs by remediating the higher-concentration areas until the EPC for the area as a whole is reduced to a value that is less than the RG and also address all locations with PCB concentrations greater than or equal to 50 mg/kg. Preliminary design investigations will be used to fully delineate the areas.

The range of remedial alternatives for non-residential surface soil includes no action to removal with a range of disposal options and treatment. The options for disposal include offsite disposal and a combination of onsite and offsite disposal.

Key ARARs for Non-Residential Soil Alternatives include:

- Regulations at 40 C.F.R. Part 261 for the management and disposal of remediation wastes
- Regulations at 40 C.F.R. Part 761 for the management and disposal of PCB remediation wastes
- Regulations at 40 C.F.R. § 761.61(c) for risk-based disposal of PCB remediation wastes

The Non-residential Soil (NRS) remedial alternatives developed for detailed analysis are summarized below:

- Remedial Alternative NRS-1 – No Action

- Remedial Alternative NRS-2 – Combination Capping and Excavation, Onsite and Offsite Disposal, and Management of PCB Residuals

- Remedial Alternative NRS-3 – Excavate Soil, Onsite and Offsite Disposal, and Manage PCB Residuals

- Remedial Alternative NRS-4 – Excavate Soil, Offsite Disposal, and Manage PCB Residuals

- Remedial Alternative NRS-5 – Excavate Soil, Offsite Treatment, and Manage PCB Residuals

- Remedial Alternative NRS-6 – Excavate Soil, Onsite Treatment, and Manage PCB Residuals

ALTERNATIVE NRS-1
No Action

Estimated Capital Cost: $0
Estimated Annual Operation &Maintenance (O&M) Cost: $0
Estimated Present Worth Cost: $0

Under NRS-1, no actions would be taken to address PCBs, chromium, PAHs, or PCDD/DF/DL-PCBs in non-residential surface soil. Under this alternative, no remedial actions would be undertaken as part of this alternative to contain, remove, monitor, or treat impacted soil. This alternative is intended to serve as a baseline for comparison with the other alternatives.

ALTERNATIVE NRS-2
Combination Capping and Excavation, Onsite and Offsite Disposal, and Management of PCB Residuals

(a) For RG 21 mg/kg Estimated Capital Cost: $1,004,000
Estimated Annual Operation &Maintenance (O&M) Cost: $413,000
Estimated Present Worth Cost: $7,911,000

(b) For RG 9mg/kg Estimated Capital Cost: $2,467,000
Estimated Annual Operation &Maintenance (O&M) Cost: $413,000
Estimated Present Worth Cost: $10,106,000

Alternative NRS-2 includes a nonintrusive approach for covering non-residential surface soil in three EUs (EU7, EU19N, and EU26) and removing and replacing non-residential surface soil in the remaining remedial areas to achieve the PCB RG of 21/mg/kg in surface soil. No subsurface excavation is anticipated to meet the PCB RG of 97 mg/kg in subsurface soil. No non-PCB RGs are known to be exceeded in these areas. Excavation would only be conducted in those areas where placement of cover alone would likely increase the potential for flooding. The excavated soil would be disposed of, and the removal areas would be backfilled with clean fill materials.

NRS-2 would involve clearing trees and surface vegetation from the target remedial areas. The amount of vegetation removed varies between target removal areas.

For the areas where soil removal is needed to facilitate cover placement, Best Management Practices (BMPs) such as a silt sock or waddle would be placed between the excavation area and Snow Creek to prevent the erosion of loose soil into the creek. Bank soil would be excavated or stabilized as needed to meet the selected remedy for sediment and banks (the alternatives under consideration are presented further in the document).

Specific soil management activities would include active outreach with property owners, local City building departments, area utility companies, and county/state-wide transportation agencies regarding any plans to disturb soil in non-residential areas where construction and demolition activities could impact the non-residential or adjacent residential remedies.

Institutional controls such as deed notices or environmental easements/covenants are needed to ensure that owners are aware of residual PCBs present on properties and that they handle them properly. The EPA and the community are working with local officials to determine if more formal institutional controls can be established to prevent future exposures.

The following components are part of Alternative NRS-2:

- Install a soil cover over PCB impacted surface and subsurface soil in areas in EU7, EU19N, EU26:
  - clear surface vegetation and prepare surface;
  - install geotextile marker layer;
  - place a 12-inch layer of clean fill; and
  - re-vegetate the area or install alternative surface to prevent erosion of cover.
- Excavate and dispose of PCB and Non-PCB impacted surface and subsurface soil in areas EU5, EU10, EU14N, EU19S, EU22, EU24, EU25, west of EU1, north of APCO, and Highway 202:
  - Excavate surface soil and subsurface soil, if needed to meet RGs;
  - Dispose of excavated soil with total PCB concentrations greater than or equal to 50 mg/kg in an approved TSCA offsite disposal facility.
  - All PCB disposal decisions will be based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.
  - Backfill and re-vegetate as needed to re-establish natural grades and prevent erosion.
- Manage residual PCBs in non-residential soil.

The duration to implement the field construction components of NRS-2(a) a is one to two years. O&M activities would continue in perpetuity, though cost estimates are provided for a 30-year duration. Energy use for NRS-2(a) is approximately 2,300 MMBtu, and the greenhouse gas emissions are approximately 185 CO2e.

ALTERNATIVE NRS-3
Excavate Soil, Onsite and Offsite Disposal, and Manage PCB Residuals

(a) For RG 21 mg/kg Estimated Capital Cost: $2,391,000
Estimated Annual Operation &Maintenance (O&M) Cost: $413,000
Estimated Present Worth Cost: $9,992,000

(b) For RG 9mg/kg Estimated Capital Cost: $4,190,000
Estimated Annual Operation &Maintenance (O&M) Cost: $413,000
Estimated Present Worth Cost: $12,691,000

NRS-3 addresses the same remedial areas as NRS-2 but only includes excavation and disposal (no covers). Excavated soil with PCB concentrations less than 50 mg/kg would be disposed of in an onsite management area (the SSSMA), and soil with PCB concentrations greater than or equal to 50 mg/kg would be disposed of in a permitted offsite landfill.

NRS-3 would involve clearing trees and surface vegetation from the target remedial areas. The amount of vegetation removed varies between target removal areas. BMPs such as a silt sock or waddle would be placed between the excavation area and Snow Creek to prevent the erosion of loose soil into the creek. Bank soil would be excavated or stabilized as needed to meet the selected remedy for sediment and banks (the alternatives under consideration are presented further in the document).

Specific soil management activities would include active outreach with property owners, local City building departments, area utility companies, and county/state-wide transportation agencies regarding any plans to disturb soil in non-residential areas where construction activities could impact the non-residential or adjacent residential remedies.

Institutional controls such as deed notices or environmental easements/covenants are needed to ensure that owners are aware of residual PCBs present on properties and that they handle them properly. The EPA and the community are working with local officials to determine if more formal institutional controls can be established to prevent future exposures.

The following components are part of Alternative NRS-3:

- Excavate non-residential soil to meet PCB and non-PCB RGs.
- Dispose of excavated soil with total PCB concentrations less than 50 mg/kg in an onsite soil management area and soil with total PCB concentrations greater than or equal to 50 mg/kg in an approved TSCA offsite disposal facility.
- All PCB disposal decisions will be based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.
- Backfill and re-vegetate as needed to re-establish natural grades and prevent erosion.
- Manage PCB residuals in non-residential soil.

The duration to implement the field construction components of NRS-3(a) is one to two years. O&M activities would continue in perpetuity, though cost estimates are provided for a 30-year duration. Energy use for NRS-3(a) is approximately 5,500 MMBtu, and the greenhouse gas emissions are approximately 440 CO_2e.

ALTERNATIVE NRS-4
Excavate Soil, Offsite Disposal, and Manage PCB Residuals

(a) For RG 21 mg/kg Estimated Capital Cost: $2,679,000
Estimated Annual Operation &Maintenance (O&M) Cost: $413,000

Estimated Present Worth Cost: $10,425,000

(b) For RG 9mg/kg ***Estimated Capital Cost: $5,462,000***
Estimated Annual Operation &Maintenance (O&M) Cost: $413,000
Estimated Present Worth Cost: $14,600,000

NRS-4 would remove non-residential surface soil consistent with the approach used for NRS-3. The only difference is the exclusive use of offsite disposal. It would involve clearing trees and surface vegetation from the target remedial areas. The amount of vegetation removed varies between target removal areas.

BMPs such as a silt sock or waddle would be placed between the excavation area and Snow Creek to prevent the erosion of loose soil into the creek. Bank soil would be excavated or stabilized as needed to meet the selected remedy for sediment and banks (the alternatives under consideration are presented further in the document).

Specific soil management activities would include active outreach with property owners, local City building departments, area utility companies, and county/state-wide transportation agencies regarding any plans to disturb soil in non-residential areas where construction and demolition activities could impact the non-residential or adjacent residential remedies.

Institutional controls such as deed notices or environmental easements/covenants are needed to ensure that owners are aware of residual PCBs present on properties and that they handle them properly. The EPA and the community are working with local officials to determine if more formal institutional controls can be established to prevent future exposures.

The following components are part of Alternative NRS-4:

- Excavate non-residential soil to meet PCB and non-PCB RGs.
- Dispose of excavated soil in an approved TSCA offsite disposal facility.
- All PCB disposal decisions will be based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.
- Backfill and re-vegetate as needed to re-establish natural grades and prevent erosion.
- Manage PCB residuals in non-residential soil.

The duration to implement the field construction components of NRS-4(a)a is one to two years. O&M activities would continue in perpetuity, though cost estimates are provided for a 30-year duration. Energy use for NRS-4(a) is approximately 5,870 MMBtu, and the greenhouse gas emissions are approximately 470 CO_2e.

ALTERNATIVE NRS-5
Excavate Soil, Offsite Treatment, and Manage PCB Residuals

(a) For RG 21 mg/kg ***Estimated Capital Cost: $9,729,000***
Estimated Annual Operation &Maintenance (O&M) Cost: $413,000
Estimated Present Worth Cost: $21,000,000

(b)For RG 9mg/kg ***Estimated Capital Cost: $26,558,000***
Estimated Annual Operation &Maintenance (O&M) Cost: $413,000
Estimated Present Worth Cost: $46,242,000

Alternative NRS-5 is the same as alternative NRS-4 with the exception that PCB contaminated soil would be incinerated at a permitted offsite facility rather than disposed of in a permitted landfill. NRS-5 would involve transporting excavated material offsite for treatment. For PCB containing materials, treatment options are limited and offsite incineration is the most likely treatment alternative. Materials would be transported to one of the two TSCA-permitted facilities in Texas, incinerated, and the resulting ash would be disposed of by the incineration facility.

NRS-5 would involve clearing trees and surface vegetation from the target remedial areas. The amount of vegetation removed varies between target removal areas. BMPs such as a silt sock or waddle would be placed between the excavation area and Snow Creek to prevent the erosion of loose soil into the creek. Bank soil would be excavated or stabilized as needed to meet the selected remedy for sediment and banks (the alternatives under consideration are presented further in the document).

Specific soil management activities would include active outreach with property owners, local City building departments, area utility companies, and county/state-wide transportation agencies regarding any plans to disturb soil in non-residential areas where construction and demolition activities could impact the non-residential or adjacent residential remedies.

Institutional controls such as deed notices or environmental easements/covenants are needed to ensure that owners are aware of residual PCBs present on properties and that they handle them properly. The EPA and the community are working with local officials to determine if more formal institutional controls can be established to prevent future exposures.

The following components are part of Alternative NRS-5:

- Excavate non-residential soil to meet PCB and non-PCB RGs.
- All disposal decisions will be based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.
- Transport PCB contaminated soil offsite for incineration, to one of two TSCA-permitted facilities in Texas for incineration and dispose of the resulting ash at the incineration facility.
- Dispose of non-PCB contaminated soil offsite.
- Backfill and re-vegetate as needed to re-establish natural grades and prevent erosion.
- Manage residual PCBs in non-residential soil.

The duration to implement the field construction components of NRS-5(a)a is one to two years. O&M activities would continue in perpetuity, though cost estimates are provided for a 30-year duration. Energy use for NRS-5(a) is approximately 502,600 MMBtu, and the greenhouse gas emissions are approximately 35,750 CO2e.

ALTERNATIVE NRS-6
Excavate Soil, Onsite Treatment by Thermal Desorption, and Manage PCB Residuals

(a) For RG 21 mg/kg ***Estimated Capital Cost: $8,464,000***
Estimated Annual Operation &Maintenance (O&M) Cost: $413,000
Estimated Present Worth Cost: $19,102,000

(b) For RG 9mg/kg ***Estimated Capital Cost: $20,104,000***
Estimated Annual Operation &Maintenance (O&M) Cost: $413,000
Estimated Present Worth Cost: $36,561,000

Alternative NRS-6 is the same as alternative NRS-5 with the difference that soil would be treated onsite as opposed to treatment at an offsite facility. It is likely that the preferred onsite treatment would be thermal desorption, as it is expected that the only other viable onsite option (incineration) would not be practical for the relatively small amount of soil requiring treatment. Thermal desorption would be conducted onsite, creating a high-concentration PCB waste oil that would be transported offsite for incineration and lower concentration treated soil that would be below 50 mg/kg and could be disposed on onsite in the onsite soil management area.

NRS-6 would involve clearing trees and surface vegetation from the target remedial areas. The amount of vegetation removed varies between target removal areas. BMPs such as a silt sock or waddle would be placed between the excavation area and Snow Creek to prevent the erosion of loose soil into the creek. Bank soil would be excavated or stabilized as needed to meet the selected remedy for sediment and banks (the alternatives under consideration are presented further in the document).

Specific soil management activities would include active outreach with property owners, local City building departments, area utility companies, and county/state-wide transportation agencies regarding any plans to disturb soil in non-residential areas where construction activities could impact the non-residential or adjacent residential remedies.

Institutional controls such as deed notices or environmental easements/covenants are needed to ensure that owners are aware of residual PCBs present on properties and that they handle them properly. The EPA and the community are working with local officials to determine if more formal institutional controls can be established to prevent future exposures.

The following components are part of Alternative NRS-6:

- Excavate non-residential soil to meet PCB and non-PCB RGs.
- Treat PCB contaminated soil with thermal desorption.
- Transport high-concentration PCB waste oil from thermal desorption process offsite for incineration.
- Dispose of lower concentration treated soil with PCB concentrations less than 50 mg/kg onsite in the soil management area.
- Backfill and re-vegetate as needed to re-establish natural grades and prevent erosion.
- Manage residual PCBs in soil.

The estimated duration to implement NRS-6(a) would include about six months to a year for planning and permitting, followed by approximately one to three years and is highly dependent on reliable operation of the low-temperature thermal desorption treatment system. Energy use for

NRS-6(a) is approximately 31,600 MMBtu, and the greenhouse gas emissions are approximately 2,250 CO2e.

9.7 Remedial Alternatives for Groundwater and Principal Threat Waste at T-11

One area was identified during the RI where PCB contaminated soil was leaching PCBs to groundwater. The contaminated area is adjacent to Snow Creek, creating a high potential for discharge of PCB contaminated groundwater to surface water.

Well T-11 was installed in the area because there were relatively high PCB concentrations in surface and subsurface soil. Groundwater tests from T-11 consistently detected PCBs in groundwater at concentrations greater than the MCLs (i.e., 0.5 µg/L). PCB concentrations were identified as principal threat wastes (PTW) for both toxicity and mobility in this area. Because this was the only area away from the facility where PCB groundwater impacts were found, a separate set of alternatives were considered for this area.

Six remedial approaches were screened to address groundwater and soil contamination at the relatively isolated T-11 area. The T-11 area is located in the eastern most portion of EU5 and is bounded by Snow Creek to the west and south, and railroad tracks to the north and east. The range of remedial approaches carried through the screening process includes excavating the materials with high PCB concentrations immediately surrounding the T-11 groundwater well and using different cover and cap materials to limit infiltration. The one remedial approach eliminated during the screening process was placing cover soil directly over the overall T-11 area. This remedial approach was eliminated due to concerns for increasing local flooding. Placing the cover material directly on the ground surface would raise the elevation and reduce the cross-sectional flow area in this portion of the floodway. One of the remedial approaches includes groundwater extraction and treatment.

Key ARARs for groundwater and PTW alternatives include:

- Regulations at 40 Code of Federal Regulations (C.F.R.) Part 262.11(a)-(d) for the management and disposal of remediation wastes.
- Regulations at 40 C.F.R. Part 761 for the management, storage and disposal of PCB remediation wastes.
- Regulations at 40 C.F.R. § 761.61(c) for risk-based disposal of PCB remediation wastes.
- State and Federal Safe Drinking Water Act MCLs.
- Regulations at ADEM Admin. Code r. 335-6-6-.04 and ADEM Admin. Code r. 335-6-6-.14 for discharge of treated groundwater to surface water.
- Regulations at ADEM Admin. Code r. 335-9-1-.05 and ADEM Admin. Code r. 335-9-1 -.06 for construction of new extraction wells.

The groundwater (GW) remedial alternatives developed for detailed analysis are summarized below and the remedial area is shown in Figure 9-10:

- Remedial Alternative GW-1 – No Action

- Remedial Alternative GW-2 – Excavate Area and Install Soil Cap

- Remedial Alternative GW-3 – Excavate Area and Install Low-Permeability Cap
- Remedial Alternative GW-4 – Excavate Area, Install Low Permeability Cap, and Extract and Treat Contaminated Groundwater

ALTERNATIVE GW-1
No Action

Estimated Capital Cost: $0
Estimated Annual Operation &Maintenance (O&M) Cost: $0
Estimated Present Worth Cost: $0

Alternative GW-1 is the no action alternative, which means that no remedial actions would be conducted in the T-11 area of EU5. Groundwater impacts would continue to be present and discharges of PCBs to surface water remain possible. This alternative is intended to serve as a baseline for comparison with the other alternatives.

ALTERNATIVE GW-2
Excavate Area and Install Soil Cap

Estimated Capital Cost: $1,316,000
Estimated Annual Operation &Maintenance (O&M) Cost: $15,000
Estimated Present Worth Cost: $2,206,000

Alternative GW-2 includes excavating material immediately surrounding well T-11 and removing a 12-inch layer of soil over the broader T-11 area. The extent of the excavation should ensure that the non-residential PCB surface soil RG of 21 mg/kg and the PCB subsurface soil RG of 97 mg/kg are met outside and around the covered area. The soil immediately surrounding T-11 would be excavated and transported to an approved offsite facility for disposal. The planned depth of excavation in the area immediately surrounding the well is approximately four (4) feet based on existing data that show this to be the vertical limits of impacted materials. The samples (CA-05-8583-14), collected at depths of 2–3 feet and 3–4 feet near well T-11, indicate the presence of Aroclor-1232, which may have contributed to the groundwater impacts in the area. Aroclor-1232 and other lower chlorinated Aroclors were not detected in soil samples collected from approximately 10 feet in each direction from T-11. In order to remove the impacted soil, the excavation would extend 20 feet in each direction from T-11. The deeper excavation immediately surrounding groundwater well T-11 would encompass these sample locations. The materials excavated from this area (approximately 200 cubic yards of soil) would be loaded into trucks and taken to an approved offsite disposal facility. The excavation area would be backfilled with clean fill materials once the excavation is complete.

The 12-inches of soil removed over the broader T-11 area would be backfilled with soil and vegetated. The final surfaces of the covered area would be gently graded into the surrounding terrain, and no significant or noticeable changes from the existing topography are anticipated. Prior to disturbing surface soil, appropriate temporary erosion and sedimentation control measures and surface water management structures would be put in place to prevent migration of soil and particulates during excavation. Air monitoring would be conducted at the location of soil disturbances.

ICs, such as a deed restrictions or environmental easements/covenants, should be included to restrict access to groundwater and to restrict future uses of the property. Monitoring and O&M of the proposed remedial components, including further groundwater monitoring, are included in this alternative.

The following components are part of Alternative GW-2:

- Excavate PCB impacted soil acting as PTW (approximately 200 cubic yards) and 12-inches of soil over the broader impacted area (approximately 2800 cubic yards).
- Dispose of excavated soil at an approved offsite disposal facility.
- All PCB contaminated soil disposal decisions will be based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.
- Backfill excavated areas with clean fill materials.
- Cover the area:
  - Geotextile marker layer
  - Minimum 12-inches of clean backfill and topsoil protective soil cover
  - Vegetative cover
- Restrict deed or process environmental easement/covenant to prevent access to groundwater and use of the property.
- Monitor and conduct O&M, including groundwater monitoring.

The estimated duration to implement GW-2 would include approximately 6 to 12 months to gain the necessary approvals and construct the appropriate access and another 6 to 12 months to construct. Energy use for GW-2 is approximately 2,250 MMBtu, and the greenhouse gas emissions are approximately 180 CO_2e.

ALTERNATIVE GW-3
Excavate Area and Install Low-Permeability Cap
Estimated Capital Cost: $2,023,000
Estimated Annual Operation &Maintenance (O&M) Cost: $15,000
Estimated Present Worth Cost: $3,266,000

Alternative GW-3 is similar to GW-2 with the exception of installing a low-permeability cap around well T-11 area (Figure 9-10). In order to accommodate the thickness of the cap without changing surface water drainage, the excavation of the broader area around T-11 would be slightly deeper (18 inches) than the 12 inches included under GW-2. The capping system would consist of a 40-mil geomembrane liner, a geocomposite drainage layer, and protective soil cover (Figure 9-4). The final surfaces of the capped areas would be gently graded into the surrounding terrain, and no significant or noticeable changes from the existing topography are anticipated. The extent of the excavation should ensure that the non-residential PCB surface soil RG of 21 mg/kg and the PCB subsurface soil RG of 97 mg/kg are met outside and around the covered area.

ICs, such as a deed restriction or environmental easements/covenants, would be included to restrict access to groundwater and to restrict future uses of the property. Monitoring and O&M of the proposed remedial components, including further groundwater monitoring, are included in this alternative.

The following components are part of Alternative GW-3:

- Excavate PCB impacted soil acting as PTW (approximately 200 cubic yards) and 18-inches of soil over the broader impacted area (approximately 4200 cubic yards).
- Dispose of excavated soil at an approved offsite disposal facility.
- All PCB contaminated soil disposal decisions will be based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.
- Backfill excavated areas with clean fill materials and preparing surface for the cap.
- Install a low-permeability cap over the area:
  - 40-mil geomembrane liner
  - Geocomposite drainage layer
  - Minimum 18-inches clean backfill and topsoil protective soil cover
  - Vegetative cover
- Restrict deed or process environmental easement/covenant to prevent access to groundwater and use of the property.
- Monitor and conduct O&M of the cap, including groundwater monitoring.

The estimated duration to implement GW-3 would include approximately 6 to 12 months to gain the necessary approvals and construct the appropriate access and another 6 to 12 months to construct. Energy use for GW-3 is approximately 3,220 MMBtu, and the greenhouse gas emissions are approximately 260 CO2e.

ALTERNATIVE GW-4
Excavate Area, Install Low Permeability Cap, and Extract and Treat Groundwater
Estimated Capital Cost: $2,366,000
Estimated Annual Operation &Maintenance (O&M) Cost: $40,000
Estimated Present Worth Cost: $4,169,000

The soil removal and capping components of GW-4 are identical to GW-3. GW-4 adds installation of a groundwater pump-and-treat system to address groundwater concentrations measured in the T-11 area (Figure 9-10). The system would include two extraction wells with pumps that operate using solar power, a temporary carbon filter, and an NPDES discharge to Snow Creek. During the remedial design phase, alternate methods for groundwater extraction, treatment, and disposal may be considered.

The operation of the groundwater extraction and treatment system will be evaluated during remedial design using the Adaptive Site Management (ASM) approach. Initially, at least two pore volumes of groundwater from the impacted area will be removed and groundwater conditions will be monitored to evaluate rebound. More groundwater will be extracted if PCB MCLs are not reached. Once the PCB MCL is achieved a period of monitoring will be necessary to demonstrate that rebound is not likely to reoccur. Extraction of two pore volumes is estimated to take approximately one year. Solar powered equipment will be used at the isolated location. An NPDES permit will be required to discharge treated surface water to Snow Creek.

The following components are part of Alternative GW-4:

- Excavate PCB impacted soil acting as PTW (approximately 200 cubic yards) and 18-inches of soil over the broader impacted area (approximately 4300 cubic yards).
- Dispose of excavated soil at an approved offsite disposal facility.
- All PCB contaminated soil disposal decisions will be based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.
- Backfill excavated areas with clean fill materials and preparing the surface for the cap.
- Install a low-permeability cap over the area:
  - 40-mil geomembrane liner
  - Geocomposite drainage layer
  - Minimum 18-inches clean backfill and topsoil protective soil cover
  - Vegetative cover
- Install a pump-and-treat system:
  - two extraction wells
  - two pumps that operate using solar power,
  - a temporary carbon filter system
- Restrict deed or process environmental easement/covenant to prevent access to groundwater and use of the property.
- Monitor and conduct O&M of the cap, including groundwater monitoring.

The estimated duration to implement GW-4 would include approximately 6 to 12 months to gain the necessary approvals and construct the appropriate access and another 6 to 12 months to construct. Energy use for GW-4 is approximately 3,370 MMBtu, and the greenhouse gas emissions are approximately 260 CO2e. These quantities reflect the use of solar energy to power the groundwater extraction, treatment, and discharge system.

9.8 Remedial Alternatives for Sediment and Creek Banks

The alternatives developed for sediment and creek banks involve a similar footprint. Some sediment concentrations were estimated based on nearby deposits. A preliminary design investigation will be needed for the sediment deposits that have yet to be characterized. Six remedial approaches (including the no action alternative) for sediment and creek banks were considered during the screening process. Two of the approaches were screened out, including monitored natural recovery (MNR) and capping the in-creek sediment deposits. MNR was screened out as a remedial approach due to concerns regarding effectiveness as a standalone remedy. In place capping was screened out based on concerns regarding localized flooding as a result of raising the elevation of the creek bed with the cap profile. The elevated cap profile would be associated with the relatively thick layer of riprap armor stone that would be placed over the sediment deposits to protect the underlying capping material (sand or a reactive cap material) from erosion during high flow conditions. One of the retained alternatives has a slightly smaller remedial footprint as it targets sediment deposits with average PCB concentrations greater than or equal to 10 mg/kg.

Two PCB RGs were considered in the FS to protect ecological receptors and limit the continuing downstream migration of contaminants: 3 mg/kg (Figures 9-11a-j) and 1 mg/kg (Figures 9-12a-j). Sediment RGs for chromium, cobalt, manganese, mercury, nickel, and vanadium were also

considered in the alternatives. All of the alternatives include removing of an estimated 1600 cubic yards of sediment accumulated in the Highway 202 culverts. Table 9-1 lists the Snow Creek sediment deposits and their significant characteristics.

The remedial alternatives for sediment are focused on the sediment deposits from the OU1/OU2 portion of Snow Creek with PCBs and metals exceeding their respective RGs. In addition, several creek bank areas are targeted for stabilization. The creek bank areas are included with the sediment alternatives to address materials with PCB concentrations above the RG that could enter the aquatic system. These areas include EU5 and EU10, especially at the upstream end of EU5 near the confluence of the 11th Street Ditch and the downstream end of EU5 where it merges with EU10. Hardened or engineered approaches for bank stabilization such as riprap, gabion rock baskets, or articulated concrete mats are included with the alternatives and were estimated for creek banks that have sharp changes in flow direction to decrease the potential for stream bank erosion. A more natural approach for stabilizing the creek banks along the remainder of EU5 and along the banks of the creek between EU12 and EU13 has also been included. These natural measures could include allowing the vegetation to reestablish itself along the creek bank instead of having it regularly cut to ground surface as part of routine maintenance activities and/or augmenting the creek banks with natural features such as large tree stumps or logs. Of the 1,400 feet of bank area identified for stabilization (shown on Figures 9-11a-j and Figures 9-12a-j), approximately 350 feet are targeted for engineered approaches and approximately 1,050 feet are targeted for a naturalized bank stabilization using the range of potential techniques identified above. All of these assumptions will be evaluated further in the remedial design.

The following are key ARARs:

- Regulations at 40 Code of Federal Regulations (C.F.R.) Part 262.11(a)-(d) for the management and disposal of remediation wastes.
- Regulations at 40 C.F.R. Part 761 for the management, storage and disposal of PCB remediation wastes.
- Regulations at 40 C.F.R. § 761.61(c) for risk-based disposal of PCB remediation wastes.
- Regulations at 40 C.F.R. § 131.36 for the chronic AWQC and the parallel regulations under the State of Alabama's Administrative Code 335-6-10.
- Regulations at 40 C.F.R. § 230 regarding dredging and filling in the creek.
- Regulations at U.S.C 4001 et seq. and 4101 regarding alternation of the creek.
- Section 404(b)(1) of the CWA for mitigation of wetlands.

The sediment and creek bank (SED) remedial alternatives developed for detailed analysis are summarized below:

- Remedial Alternative SED-1 – No Action

- Remedial Alternative SED-2 – Combination Excavation, Onsite and Offsite Disposal, and Monitored Natural Recovery

- Remedial Alternative SED-3 – Excavation and Onsite/Offsite Disposal

- Remedial Alternative SED-4 – Excavation and Offsite Disposal

ALTERNATIVE SED-1
No Action

Estimated Capital Cost: $0
Estimated Annual Operation &Maintenance (O&M) Cost: $0
Estimated Present Worth Cost: $0

Alternative SED-1 is the no action alternative, which means that no remedial actions would be conducted on sediments or creek banks. SED-1 would not be protective of the environment. Sediment and creek bank soil would remain in place with concentrations above the RGs developed for ecological receptors. Also, this alternative will not reduce the contaminant sources available to downstream receptors. This alternative is intended to serve as a baseline for comparison with the other alternatives.

ALTERNATIVE SED-2
Combination Excavation, Onsite and Offsite Disposal, and Monitored Natural Recovery

(a) For RG = 3 mg/kg Estimated Capital Cost: $1,619,000
Estimated Annual Operation &Maintenance (O&M) Cost: $15,000
Estimated Present Worth Cost: $2,661,000

Remedial alternative SED-2 uses an average target PCB concentration of 10 mg/kg to define which sediment deposits will be removed and monitored natural recovery (MNR) to achieve the long term goal of 3 mg/kg. The excavated sediment would be disposed of offsite if total PCB concentrations are greater than or equal to 50 mg/kg; onsite disposal would be used for materials with PCB concentrations less than 50 mg/kg. The majority of sediment to be excavated under this alternative are located upstream of the Highway 202 culverts. Only one sediment deposit, located downstream of the Highway 202 culvert, would be excavated based on having an average PCB concentration above 10 mg/kg. The average PCB concentrations for the sediment deposits remaining following implementation under this remedial alternative would be 1.9 mg/kg.

SED-2 also addresses three small sediment deposits where the average PCB concentration does not exceed 10 mg/kg, but the RGs for one or more metals are exceeded. The total resulting removal volume is estimated to be 2,300 cubic yards. Prior to implementing this remedial alternative, a PDI would be implemented for the Snow Creek sediment deposits that had not been sampled.

A combination of onsite and offsite disposal of the excavated materials would be used. Onsite disposal in a soil management area (the SSSMA) would be used for sediment with PCB concentrations less than 50 mg/kg and offsite disposal would be used for sediment with PCB concentrations greater than or equal to 50 mg/kg and non-PCB contaminated sediment.

There are 1.5 acres of tree clearing associated with SED-2. Most of this clearing is located directly along the edge of the creek in the riparian buffer zone. Removing sediment is likely to cause a short-term increase in suspended sediment in the surface water column and an associated increase in concentrations of COCs in surface water. Stabilizing the creek banks would require

hard engineering (such as riprap or concrete) in places, which would permanently affect the aesthetics of the creek banks. This alternative assumes that approximately 75% of the creek bank stabilization (1,050 linear feet of 1,400 linear feet of bank stabilization areas) can be stabilized using natural techniques. There are significant, but manageable, logistical issues associated with accessing and removing sediment from the Highway 202 culverts.

The following components are part of Alternative SED-2:

- Excavate sediment with an average target PCB concentration greater than or equal to 10 mg/kg (approximately 2,700 cubic yards).
- Dispose of sediment with total PCB concentrations greater than or equal to 50 mg/kg offsite and dispose of sediment with total PCB concentrations less than 50 mg/kg onsite.
- Disposal will be based on in-place total PCB concentrations from grab samples not more than 6 inches in depth, that includes Aroclor-1268 as an analyte or total PCBs based another method that will represent all homologues and congeners.
- Stabilize banks with hard engineer methods or natural techniques.
- Monitor natural recovery of sediment until it achieves the long term goal of 3 mg/kg.
- Monitor bank stability and sediment concentrations to ensure the sediment remedy is maintained.

The duration to implement the field construction components of SED-2 is 6 to 12 months recognizing that the time to achieve the RGs may be longer as the alternative relies on a combination of source control and MNR, and the elimination of upstream sources. Energy use for SED-2 is approximately 1,400 million British Thermal Units (MMBtu), and the greenhouse gas emissions are approximately 110 tons of carbon dioxide equivalents (CO2e).

ALTERNATIVE SED-3
Excavation and Onsite/Offsite Disposal

(a) For RG = 3 mg/kg Estimated Capital Cost: $1,751,000
Estimated Annual Operation &Maintenance (O&M) Cost: $15,000
Estimated Present Worth Cost: $2,859,000

(b) For RG = 1 mg/kg Estimated Capital Cost: $2,608,000
Estimated Annual Operation &Maintenance (O&M) Cost: $15,000
Estimated Present Worth Cost: $4,142,000

Remedial alternative SED-3 is similar to SED-2 with the exception that the alternative targets the remediation of sediment deposits with lower PCB RGs. SED-3 also includes the removal of sediment deposits with average concentrations exceeding the non-PCB RG values. The approach for sediment disposal under alternatives SED-2 and SED-3 are identical where a combination of onsite and offsite disposal is used for the excavated materials.

There are 1.9 acres of tree clearing associated with implementing SED-3. Most of this clearing is located directly along the edge of the creek in the riparian buffer zone. Removing sediment is likely to cause a short-term increase in suspended sediment in the surface water column and an

associated increase in concentrations of COCs in surface water. Stabilizing the creek banks would require hard engineering (such as riprap or concrete) in places, permanently affecting the aesthetics of the creek banks. Approximately 75% of the creek bank stabilization (1,050 linear feet of 1,400 linear feet of bank stabilization areas) would be stabilized using natural techniques. There are significant, but manageable logistical issues associated with accessing and removing sediment from the Highway 202 culverts.

The following components are part of Alternative SED-3:

- Excavate sediment with an average target PCB concentration greater than or equal to the RG.
- Dispose of sediment with total PCB concentrations greater than or equal to 50 mg/kg offsite and dispose of sediment with total PCB concentrations less than 50 mg/kg onsite.
- Disposal will be based on in-place total PCB concentrations from grab samples not more than 6 inches in depth, that includes Aroclor-1268 as an analyte or total PCBs based another method that will represent all homologues and congeners.
- Stabilize banks with hard engineer methods or natural techniques.
- Monitor bank stability and sediment concentrations to ensure the sediment remedy is maintained.

The anticipated duration to construct SED-3 is 6 to 12 months. The RGs for sediment would be achieved following implementation, but, the surface water RG may take some time to achieve as upstream sources are controlled over time. Energy use for SED-3 is approximately 1,530 MMBtu, and the greenhouse gas emissions are approximately 120 CO2e.

ALTERNATIVE SED-4
Excavation and Offsite Disposal

(a) For RG = 3 mg/kg Estimated Capital Cost: $1,897,000
Estimated Annual Operation &Maintenance (O&M) Cost: $15,000
Estimated Present Worth Cost: $3,078,000

(b) For RG = 1 mg/kg Estimated Capital Cost: $2,837,000
Estimated Annual Operation &Maintenance (O&M) Cost: $15,000
Estimated Present Worth Cost: $4,487,000

SED-4 is similar to SED-3 with the exception of the approach used for sediment disposal. SED-4 targets the removal of sediment deposits with average PCB concentrations exceeding the PCB RG and sediment deposits where the PCB RG is not exceeded but the RG for one or more metals is exceeded. Once removed, the sediment would be transported to and disposed of in a permitted offsite facility.

There are 1.9 acres of tree clearing associated with implementing SED-4. Most of this clearing is located directly along the edge of the creek in the riparian buffer zone. Removing sediment is likely to cause a short-term increase in suspended sediment in the surface water column and an associated increase in concentrations of COCs in surface water. Stabilizing the creek banks would require hard engineering (such as riprap or concrete) in places, permanently affecting the

aesthetics of the creek banks. Approximately 75% of the creek bank stabilization (1,050 linear feet of 1,400 linear feet of bank stabilization areas) would be stabilized using natural techniques. There are significant, but manageable logistical issues associated with accessing and removing sediment from the Highway 202 culverts.

The following components are part of Alternative SED-4:

- Excavate sediment with an average target PCB concentration greater than or equal to the RG.
- Dispose of sediment at an appropriate offsite disposal facility.
- Disposal will be based on in-place total PCB concentrations from grab samples not more than 6 inches in depth, that includes Aroclor-1268 as an analyte or total PCBs based another method that will represent all homologues and congeners.
- Stabilize banks with hard engineer methods or natural techniques.
- Monitor bank stability and sediment concentrations to ensure the sediment remedy is maintained.

The anticipated construction duration of SED-4(a) is 6 to 12 months. The RGs for sediment would be achieved following implementation, but the surface water RG may take some time to achieve as upstream sources are controlled over time. Energy use for SED-4(a) is approximately 1,720 MMBtu, and the greenhouse gas emissions are approximately 140 CO2e.

10.0 COMPARATIVE EVALUATION OF ALTERNATIVES

Each alternative was evaluated using the nine evaluation criteria in the National Contingency Plan (NCP), 40 C.F.R. Section 300.430(e)(9)(iii). Two of the nine criteria, overall protection of human health and the environment, and compliance with ARARs, are threshold criteria. If an alternative does not meet these two criteria, it cannot be considered as a remedy for the category being compared in OU1/OU2.

- **Overall protection of human health and the environment** addresses whether each alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled, through treatment, engineering controls, and/or institutional controls.

- **ARARs** - Section 121(d) of CERCLA, as amended, specifies, in part, that remedial actions for cleanup of hazardous substances must comply with requirements and standards under federal or more stringent state environmental laws and regulations that are applicable or relevant and appropriate (i.e., ARARs) to the hazardous substances or particular circumstances at a site or obtain a waiver. See also 40 C.F.R. § 300.430(f)(1)(ii)(B). ARARs include only federal and state environmental or facility siting laws/regulations and do not include occupational safety or worker protection requirements. Compliance with OSHA standards is required by 40 C.F.R. § 300.150 and, therefore, the CERCLA requirement for compliance with or wavier of ARARs does not apply to OSHA standards.

Under CERCLA Section 121(e)(1), federal, state or local permits are not required for the portion of any removal or remedial action conducted entirely onsite as defined in 40 C.F.R. § 300.5. See also 40 C.F.R. §§ 300.400(e)(1) & (2). Also, CERCLA actions must only comply with the "substantive requirements," not the administrative requirements of a regulation. Administrative requirements include permit applications, reporting, record keeping and consultation with administrative bodies. Although consultation with state and federal agencies responsible for issuing permits is not required, it is recommended for determining compliance with certain requirements such as those typically identified as Location-Specific ARARs.

Applicable requirements, as defined in 40 C.F.R. § 300.5, means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, or contaminant, remedial action, location, or other circumstance at a CERCLA site. Only those state standards that are identified by the state in a timely manner and that are more stringent than federal requirements may be applicable.

Relevant and appropriate requirements, as defined in 40 C.F.R. § 300.5, means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, or contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at a CERCLA site that their use is well suited to the particular site.

Per 40 C.F.R. § 300.400(g)(5), only those state standards that are promulgated, are identified in a timely manner, and that are more stringent than federal requirements may be applicable or relevant and appropriate. For purposes of identification and notification of promulgated state standards, the term promulgated means that the standards are of general applicability and are legally enforceable. State ARARs are considered more stringent where there is no corresponding federal ARAR, where the State ARAR provides a more stringent concentration of a contaminant, or the where a State ARAR is broader in scope than a federal requirement.

In addition to ARARs, the lead and support agencies may, as appropriate, identify other advisories, criteria, or guidance to be considered for a particular release. The "to-be-considered" (TBC) category consists of advisories, criteria or guidance that were developed by the EPA, other federal agencies, or states that may be useful in developing CERCLA remedies. See 40 C.F.R. § 300.400(g)(3). TBCs are not considered legally enforceable and, therefore, are not considered to be applicable for a site but are evaluated along with ARARs as part of the risk assessment to set protective cleanup goals. TBCs can be used in the absence of ARARs, when ARARs are insufficient to develop cleanup goals, or when multiple contaminants may be posing a cumulative risk. See the EPA, OSWER Directive No. 9234.0-05, Interim Guidance on Compliance with Applicable or Relevant and Appropriate Requirements (July 9, 1987).

For purposes of ease of identification, the EPA has created three categories of ARARs: Chemical-, Location- and Action-Specific. Under 40 C.F.R. § 300.400(g)(5), the lead and support agencies shall identify their specific ARARs for a particular site and notify each other in a timely manner as described in 40 C.F.R. § 300.515(d). Chemical- and Location-Specific ARARs should be identified as early as the scoping phase of the RI, while Action-Specific ARARs are identified as part of the FS for each remedial alternative. See 40 C.F.R. §§ 300.430(b)(9) & 300.430(d)(3).

In accordance with 40 C.F.R. § 300.400(g), the EPA and the State of Alabama have identified the potential ARARs and TBCs for the evaluated alternatives. The Chemical-, Location-, and Action-Specific ARARs/TBCs for the Selected Remedy will be discussed in Section 13.

Five of the criteria are balancing criteria: long-term effectiveness and permanence; reduction of toxicity, mobility, or volume of contaminants through treatment; short-term effectiveness, implementability, and cost. The EPA can make tradeoffs between the alternatives with respect to the balancing criteria.

- **Long-term effectiveness and permanence** refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once clean-up levels have been met. This criterion includes the consideration of residual risk that will remain onsite following remediation and the adequacy and reliability of controls.

- **Reduction of toxicity, mobility or volume through treatment** refers to the anticipated performance of the treatment technologies that may be included as part of the remedy. This criterion evaluates an alternative's use of treatment to reduce harmful effects of contaminants, their ability to move in the environment, and the amount of contamination present.

- **Short-term effectiveness** addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers, the community and the environment during construction and operation of the remedy until cleanup levels are achieved.

- **Implementability** addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability of services and materials, administrative feasibility and coordination with other governmental entities are also considered.

- **Cost** - This criterion evaluates the estimated capital and O&M costs as well as present worth costs of each alternative based on a 7% discount rate. Present worth costs are the total cost of an alternative over time in terms of today's dollars (i.e., present worth costs correct for expected inflation). The cost estimates are order-of-magnitude estimates, which are expected to be accurate within the range of +50 to -30 percent.

Two of the criteria are modifying criteria, state/support agency acceptance and community acceptance. These modifying criteria are formally taken into account after public comment is received on the Proposed Plan and RI/FS, and may be used by the EPA to modify the proposed remedy.

- **State/Support Agency Acceptance** is important to the EPA. ADEM received draft documents and engaged in discussions about draft plans, data, and alternatives. ADEM is a valued partner in protecting the environment. The EPA would like to receive ADEM's concurrence on the selected remedy.

- **Community Acceptance** has been considered to some degree during the RI/FS development. The Community Advisory Group and community Technical Advisor have received draft documents and engaged in discussions about draft plans, data, and alternatives. Community acceptance will be gauged based on input received during the comment period.

This section summarizes the comparison of each category of alternative to the nine CERCLA evaluation criteria and to each other.

10.1 Residential Soil

The cleanup of PCBs in residential soil has been implemented at most yards/properties where the residential RGs were exceeded. PCBs remain above RGs where access has not been granted and where wooded/overgrown conditions are preventing current residential exposure. Residual PCB remediation wastes (soil with PCB concentrations greater than 1 mg/kg) remain at depth and under structures on a number of residential properties.

In addition to completing the cleanup at properties that have not been cleaned up yet, RS-2 would use a soil management approach (i.e., operations and maintenance) to monitor PCB residuals at depth beneath previously remediated yard areas and to monitor locations where structures may be removed over time. The only difference between RS-3 and RS-2 is the approach to address the PCB residuals at depth. Under RS-3, subsurface soil with PCB concentrations between 1 mg/kg and 10 mg/kg would be removed and disposed of onsite. Soil management would only be required to monitor locations where structures may be removed over time and the potential for additional evaluations and/or removal actions at these locations. The onsite soil management area would be used for the disposal of materials with PCB concentrations less than 10 mg/kg that have been characterized with five-point composite samples.

Overall Protection of Human Health and the Environment

Alternative RS-1 would meet this criterion for the properties where removals have been conducted, but would not meet this criterion for the few remaining residential properties with surface soil concentrations above 1 mg/kg and where removals have not been conducted. Alternative RS-1 would not provide for future management of residual PCBs in the subsurface of some properties or under structures. Therefore, Alternative RS-1 will not be evaluated further. Alternatives RS-2 and RS-3 would provide for overall protection of human health and the environment.

Compliance with ARARs

Alternatives RS-2 and RS-3 would both require proper handling and disposal of PCB remediation waste. Both alternatives will meet ARARs.

Long-Term Effectiveness and Permanence

Alternatives RS-2 and RS-3 would both provide protection by completing the necessary removal actions as required and conducting long-term residuals management. Alternative RS-3 provides a higher level of permanence through the removal of subsurface PCB remediation waste (soil with PCB concentrations greater than 1 mg/kg). Alternative RS-3 may result in impacted residential properties reaching unrestricted use/unrestricted exposure (UU/UE) status, when potential contamination under structures is confirmed and cleaned up, if necessary.

Reduction of Toxicity, Mobility, or Volume through Treatment

The RS alternatives are not treatment alternatives and thus do not reduce the toxicity, mobility or volume of the materials. Because access to properties for excavation is sporadic and spread out over time, only small quantities of low level PCB contaminated soil are typically handled at any time, making it impractical to treat the contamination.

For residential exposures, soil with PCB concentrations greater than 100 mg/kg are considered to be a PTW based on toxicity.[8] Only one property remains to be cleaned up with a PCB surface soil concentration greater than 100 mg/kg (Calhoun County property identification number 31093). This property is targeted for clearing and cleanup to protect trespassers. The volume of soil from this property is expected to be relatively small, easily disposed of at a landfill in the State of Alabama.[9] Therefore, onsite treatment was not evaluated for residential soil.

Short-Term Effectiveness

Short-term impacts are much higher for alternative RS-3 than under RS-2. These impacts are associated with returning to properties where surface soil was previously removed and repeating the process to remove subsurface soil with PCB concentrations between 1 mg/kg and 10 mg/kg. RS-3 will have a larger environmental impact in terms of energy use and greenhouse gas emissions than RS-2. RS-3 will also take two to three years longer to implement than RS-2.

Implementability

Both RS-2 and RS-3 alternatives are implementable. RS-2 has been or will be implemented in the same manner as previously conducted for the residential properties. RS-3 would be conducted in the same manner, but is slightly more difficult to implement given that it would require excavating to greater depths around structures and other obstructions.

[8] A Guide on Remedial Actions at Superfund Sites with PCB Contamination. Quick Reference Fact Sheet, U.S. EPA, Office of Emergency and Remedial Response. OSWER Directive 9355.4-01FS, 5 pp, Aug 1990.
[9] The entire parcel is 0.17 acres in size.

Cost

RS-2 is estimated to cost $7.3 M, and RS-3 is estimated to cost $15.7M. The additional $ 8.4 M investment would not reduce current risk, but would ensure no future recontamination from PCBs in subsurface soil, provided soil management of PCBs under structures was maintained.

State/Support Agency Acceptance

State acceptance is important to the EPA. ADEM received draft documents and engaged in discussions about draft plans, data, and alternatives. ADEM is a valued partner in protecting the environment. The EPA expects to receive ADEM's concurrence on the selected remedy.

Community Acceptance

The Community Advisory Group and community Technical Advisor have received draft documents and engaged in discussions about draft plans, data, and alternatives. The community wants all PCBs in surface and subsurface soil to be removed.

Residential Soil Summary

RS-1 was eliminated because it does not provide overall protection where cleanups have not yet been performed and does not provide for management of residual PCBs on residential properties. RS-2 and RS-3 are similar in that surface soil on most of the affected residential properties have already been effectively addressed. Alternative RS-2 provides more short-term effectiveness but lower long-term effectiveness, while RS-3 provides more long-term effectiveness but lower short-term effectiveness. The primary differences between RS-2 and RS-3 are the increased level of community impact and implementability challenges under RS-3, and the slight increase in permanence that RS-3 provides. There is also a substantial difference in cost between the two approaches ($8.4M). Table 10-1 provides a summary level of the comparative analysis for the RS alternatives.

10.2 Special Use Property Soil

Surface soil in high activity areas of special use properties (i.e., schools, churches, day-care centers, community centers, playgrounds, and parks) has been addressed similar to residential soil; PCBs greater than or equal to 1 mg/kg in surface soil and PCBs greater than or equal to 10 mg/kg in subsurface soil have been excavated, disposed of onsite and offsite, backfilled with clean soil, and re-vegetated. The special use property alternatives were developed to address PCBs concentrations in low activity surface and subsurface soil, residual PCBs in subsurface soil in high activity areas, and the future sampling and cleanup of PCBs beneath structures after demolition. SU-1 is the no further action alternative. SU-2 focuses on soil management for the PCB residuals at depth within high activity areas with concentrations between 1.0 and 10.0 mg/kg, monitoring locations where structures may be removed over time and the potential need for additional evaluations and/or removal actions at these locations, and treating the low activity areas of these properties as non-residential soil with a PCB cleanup goal of 21 mg/kg. Under SU-3, the low activity areas on special use properties would be cleaned up to 1.0 mg/kg, the most stringent non-residential cleanup goal (i.e., 1 x 10^{-6} cancer risk to young children in a future school or daycare setting). For SU-4, the removals would be further expanded to include

removing both surface and subsurface soil above 1.0 mg/kg in high and low activity portions of the special use areas. Consistent with the alternatives for residential soil, the onsite soil management area would be used for the disposal of materials with PCB concentrations less than 10 mg/kg that have been characterized with five-point composite samples.

Overall Protection of Human Health and the Environment

Alternative SU-1 (no further action) does not include a mechanism for addressing low activity areas, residuals at the high activity areas, or for monitoring potential changes in land use or the removal of structures, and thus, SU-1 does not fully meet this threshold criterion. Alternatives SU-2, SU-3, and SU-4 would meet the overall protection of human health and the environment threshold criterion.

Compliance with ARARs

SU-2 through SU-4 require proper handling and disposal of PCB remediation waste. Both alternatives will meet ARARs.

Short-Term Effectiveness

Since the high activity area removals have already been implemented and no low activity areas need to be addressed in SU-2, the comparative short-term impacts are higher for SU-3 and highest for alternative SU-4. The short term impacts of SU-3 would include remediation in low-activity areas. The impacts in SU-4 are associated with addressing low activity areas as well as returning to high activity areas where surface soil were previously removed and repeating the process to remove subsurface soil with PCB concentration between 1 mg/kg and 10 mg/kg. SU-4 will have a larger environmental impact in terms of energy use and greenhouse gas emissions than SU-2 and SU-3. SU-4 will also take longer to implement.

Long-Term Effectiveness and Permanence

SU-2, SU-3, and SU-4 alternatives would provide some long-term effectiveness and permanence where soil removals have been or will be completed. SU-3 would provide a slightly higher level of permanence through the removal of surface soil from low activity areas to concentrations less than 1.0 mg/kg. SU-4 would provide even a higher level of permanence by removing all soil (surface and subsurface) above 1.0 mg/kg from all the high activity and low activity areas.

Reduction of Toxicity, Mobility, or Volume through Treatment

The SU alternatives are not treatment alternatives and thus do not reduce the toxicity, mobility or volume of the materials. Like the residential category, access to special use properties for remediation has historically been sporadic and spread out over time, only small quantities of low level PCB contaminated soil are typically handled at any time, making it impractical to treat the contamination. No residual PCBs on special use properties exceed the 100 mg/kg threshold for PTW based on toxicity on a residential property.

Implementability

All of the SU alternatives are implementable. The work remaining under SU-2 is just soil management and thus the easiest to implement. SU-3 is more difficult to implementable given

the work would need to be conducted in the low activity areas. SU-4 would be conducted in the same manner as SU-3, but is more difficult to implement given the surface and subsurface removals in the low activity areas and the need to return to high activity areas where the surface soil has already been remediated to address residuals at depth.

Cost

The estimated cost for SU-2 is approximately $0.5M, assuming that no non-residential cleanup is required in low activity areas to reach the non-residential goal (only soil management required). The cost for SU-3 is approximately $3.1M. SU-4 is estimated to cost approximately $3.9M.

Special Use Properties Summary

Because the high activity areas of the special use properties have already been addressed, SU-2 would provide the additional long-term effectiveness through soil management to address PCBs PCB residuals at depth or potential residuals beneath structures. O&M would be conducted to monitor potential changes of areas from low activity to high activity. SU-3 would provide an additional level of long-term protectiveness by addressing low activity portions of special use areas using the most stringent non-residential RGO (i.e., 1 x 10^{-6} cancer risk to young children in a school or daycare setting). SU-4 would be similar to SU-3 except that it would include conducting removals at depth at the low activity and high activity portions of the special use areas. There is a difference in cost between SU-2, SU-3 and SU-4 ($0.5M for SU-2, $3.1M for SU-3, and $3.9M for SU 4). Table 10-2 provides a summary level of the comparative analysis for the SU alternatives.

10.3 Interim Measures

Four alternatives were evaluated to address interim measures, IM-1 through IM-4. IM-1 requires no further action. IM-2 includes expansion of soil and liner caps over portions of the IMs that are currently lacking in spatial coverage to meet the non-residential RG of 21 mg/kg. IM-3 expands the spatial extent of the caps in the same manner as IM-2 with the exception that soil in the vicinity of sample PB-RR-37 would be removed rather than capped. IM-4 relies upon soil excavation and offsite disposal to address the proposed IM enhancement areas. IM-2 through IM-4 would all include long-term O&M and IC requirements.

Overall Protection of Human Health and the Environment

IM-1 would leave some areas without adequate cover or controls and, therefore, would not be protective. IM-2 and IM-3 would provide protection of human health and the environment. IM-4 would provide an additional level of protection over IM-2 and IM-3 by excavating and disposing of impacted soil.

Compliance with ARARs

IM-2, IM-3, and IM-4 would comply with ARARs as PCB impacted soil would be covered to prevent migration or disposed of in accordance with all requirements.

Short-Term Effectiveness

IM-2, IM-3, and IM-4 would be effective as soon as they are implemented. Because of the location of the IM areas, the short-term negative impacts to the public would be minimal. Potential impacts to workers would be addressed in the same manner as other construction work conducted for the Site. IM-2 would be easier to implement and would disturb less high-concentration soil in the vicinity of PB-RR-37 than IM-3. IM-3 would also require water diversion and water control procedures during excavation to minimize the potential for erosion and surface water runoff during the excavation of high-concentration soil. IM-4 would be the most difficult to implement as it would require the excavation and removal of a larger quantity of impacted soil prior to placing a minimum 12-inch clean soil cover over the removal areas. However, IM-4 would not impact the drainageway profile the way IM-2 and IM-3 would.

The environmental footprints of the three active IM alternatives are similar with a slightly larger footprint for IM-4. The energy use for IM-2 and IM-3 are very close—IM-2 at 690 MMBtu and IM-3 at approximately 750 MMBtu. IM-3 has a slightly higher quantity of greenhouse gas emissions (60 CO2e) versus IM-2 (55 CO2e). This difference is associated with the transportation of excavated soil to an offsite TSCA disposal facility for soil excavated from the PB-RR-37 portion of the Eastside Area. IM-4 has a higher quantity of greenhouse gas emissions (300 CO2e) versus each of the other alternatives. This difference is associated with the transportation of excavated soil to an offsite TSCA disposal facility for soil excavated from the IM areas.

Long-Term Effectiveness and Permanence

Both IM-2 and IM-3 would provide long-term effectiveness and permanence through isolation, O&M, and ICs. The cap will also protect the soil from direct contact or erosion from surface water flow. To maintain the current surface water flow conditions in the local area, a culvert would be placed in the area prior to capping. IM-4 would provide the highest degree of long-term effectiveness and permanence with the removal of impacted soil in areas previously not covered by existing IMs. If the PCB impacted soil is removed, maintenance of the cap is not required to ensure protection.

Reduction of Toxicity, Mobility, or Volume through Treatment

The IM alternatives are not treatment alternatives and would not reduce the toxicity, mobility or volume of the materials. The volume of material is relatively low and can be effecting contained or excavated and disposed of offsite. The PCBs in soil at sample PB-RR-37 are definitely PTW by toxicity, and groundwater in the area may need to be investigated to ensure additional subsurface excavation is not required.

Implementability

The IM alternatives could be implemented in a manner similar to work that has been performed previously at the Site. IM-3 would be more difficult to implement than IM-2, as it would involve surface water controls and diversion and the removal, transport, and disposal of the materials near PB-RR-37. IM-4 would be more difficult to implement than IM-3, as it would involve more excavation and offsite transport and disposal than the other alternatives.

Cost

The costs for IM alternatives IM-2 and IM-3 are comparable, with both IM-2 and IM-3 estimated at approximately $2.6M. The cost for implementing IM-4 is significantly higher than the other alternatives at approximately $4.3M.

Interim Measures Summary

The three active IM alternatives (IM-2, IM-3, and IM-4) would effectively address the current gaps in spatial coverage for the previously implemented IMs. These actions, in combination with O&M and ICs would provide long-term effectiveness and permanence for each alternative. IM-2 would be easier to implement; while IM-4 would provide higher long-term effectiveness and permanence through soil removal. Soil in the area of PB-RR-37 would be removed under IM-3 and IM-4, and this would include additional controls to manage surface water runoff during construction and additional truck traffic associated with offsite disposal operations. Truck traffic would be further increased with the implementation of IM-4. The costs for IM-2 and IM-3 are similar ($2.6M), while the cost for IM-4 is higher ($4.3 M). Table 10-3 provides a summary of the comparative analysis.

10.4 Dredge Spoil Pile Summary

In addition to no action (DSP-1), there are four active alternatives to address the dredge spoil piles (DSP-2 through DSP-5). DSP-2 and DSP-3 are the same with the exception of how materials are disposed. Both DSP-2 and DSP-3 are assumed to include removal and disposal of dredge spoil pile SC-8 to meet the non-residential RG of 21 kg/mg. A PDI for dredge spoil pile SC-2 would be conducted under DSP-2 and DSP-3 to confirm the assumption that it would not need to be removed. The remaining piles would be evaluated for perennial vegetation and the effectiveness of that vegetation in ensuring stability. Alternatives DSP-2 and DSP-3 would remove the dredge spoil piles with EPCs calculated as greater than 21 mg/kg and would remove and backfill 12-inches of underlying soil. The excavated materials would be transported to an offsite disposal facility under alternative DSP-2. For alternative DSP-3, the excavated materials would be transported to an onsite soil management area for disposal, provided that the materials have PCB concentrations less than 50 mg/kg. Alternatives DSP-4 and DSP-5 would involve excavation of each of the four dredge spoil piles and 12 inches of underlying soil. DSP-4 would involve offsite disposal at a nonhazardous landfill. DSP-5 would dispose of material onsite if the concentrations are confirmed to be less than 50 mg/kg. For each of the active alternatives, the remaining backfilled areas would be managed using the same approach as selected for non-residential soil.

Overall Protection of Human Health and the Environment

The no action alternative (DSP-1) would not be protective of human health and the environment. Each of the remaining 4 DSP alternatives would provide protection. The non-residential RG in DSP-2 and DSP-3 results in the removal of SC-8 which has a PCB EPC of 29 mg/kg. DSP-4 and DSP-5 require removal and offsite disposal of all dredge spoil piles which is also protective as it reduces the chance that soil from the piles will become sediment in the future.

Compliance with ARARs

Each of the active DSP alternatives will meet ARARs and appropriately dispose of PCB remediation waste.

Short-Term Effectiveness

Each of the active DSP alternatives would be similar in short-term effectiveness and short-term negative impacts. Each active alternative would achieve the PCB RG immediately upon completion and would have short-term negative impacts associated with clearing, truck traffic, the potential for fugitive emissions, noise, and dust. There is slightly less truck traffic with DSP-3 and DSP-5 (i.e., onsite disposal alternatives) than with DSP-2 or DSP-4, as under the offsite disposal option, the trucks are on the local roadways for a longer period of time due to the increased distance between the excavation area and the offsite disposal facilities.

The differences in energy consumption between DSP-2 (1,200 MMBtu) and DSP-3 (750 MMBtu) is associated with use of an onsite soil management area under DSP-3 as opposed to the offsite facility used under DSP-2. The same rationale applies to greenhouse gas emissions—100 CO2e for DSP-2 and 60 CO2e for DSP-3. DSP-4 the largest environmental footprint as all four dredge spoil piles are excavated and transported to an offsite landfill.

The differences in energy consumption between DSP-4 (1,780 MMBtu) and DSP-5 (1,120 MMBtu) is associated with use of an onsite soil management area under DSP-5 as opposed to the offsite facility used under DSP-4. The same rationale applies to greenhouse gas emissions—140 CO2e for DPS-4 and 90 CO2e for DPS-5. DSP-4 the largest environmental footprint as all four dredge spoil piles are excavated and transported to an offsite landfill.

Long-Term Effectiveness and Permanence

Each of the active alternatives would effectively meet the PCB non-residential RG. DSP-2 and DSP-3 would reduce the exposure to concentrations below 21 mg/kg and would stabilize the remaining spoils. DSP-4 and DSP-5 would effectively and permanently remove all of the remaining dredge spoil piles, regardless of concentration. DSP-4 and DSP-5 would provide long-term permanence over DSP-2 and DSP-3 because the dredge spoil piles would no longer be available to re-contaminate Snow Creek if stabilization of the piles deteriorates over time.

Reduction of Toxicity, Mobility, or Volume through Treatment

The DSP alternatives are not treatment alternatives and do not change the toxicity, mobility, or volume of the PCBs in soil. There are no concentrations high enough to be considered PTW. The volume of material associated with the piles is relatively low and can be effecting contained or excavated and disposed of onsite or offsite. Current data indicates that PCB concentrations are below 50 mg/kg and do not require disposal in a TSCA approved chemical waste landfill.

Implementability

All of the DSP alternatives have similar levels of implementability. DSP-4 and DSP-5 would require more property access and shoreline clearing to implement and would include the

excavation and disposal of more materials (4,900 cubic yards for DSP-2 and DSP-3, and 7,300 cubic yards for DSP-4 and DSP-5).

Cost

The costs for the DSP alternatives are highly dependent on the disposal costs. The PCB concentrations of dredge spoil pile SC-8 and the 12-inch layer of soil beneath SC-8 are less than 50 mg/kg. Based on this, these materials could be disposed of in the om-site disposal area and would significantly reduce the cost for DSP-3 and DSP-5 as compared to DSP-2 and DSP-4. The cost for DSP-2 (with offsite disposal) is approximately $0.9M, and the cost with onsite and offsite disposal (DSP-3) is significantly less ($0.5M). The cost for DSP-4 is $1.4M and the cost for DSP-5 is $0.7M.

Dredge Spoil Pile Summary

The four active dredge spoil alternatives are expected to have similar levels of effectiveness; however, more contaminated soil would be removed under DSP-4 and DSP-5. DSP-2 and DSP-3 would have less short-term impacts during implementation because the smaller volume of soil being removed would cause less disruption. There are more impacts under the offsite disposal options (DSP-2 and DSP-4) as the trucks would be on the local roadways for a longer period of time than if the materials were disposed of in the SSSMA. The costs for the alternatives are $0.5M (DSP-3), $0.7M (DSP-5), $0.9M (DSP-2), and $1.4M (DSP-4). A tabular summary of the comparative analysis is presented in Table 10-4.

10.5 Unapproved Waste Disposal Areas

The four alternatives for the areas where auto fluff was found are UWDA-1 through UWDA-4. Alternative UWDA1 is the no action alternative. UWDA-2 and UWDA-3 involve a cover system to protect residential owners (Ashley/Legrande), commercial workers and visitors (Wilborn), and trespassers. UWDA-2 is a simple soil cap, and UWDA-3 is a multi-layer cap over each of the UWDA areas. UWDA-4 is significantly more intrusive and includes excavating all of the waste and transporting the materials to an offsite disposal facility.

Overall Protection of Human Health and the Environment

The no action alternative (UWDA-1) would not be protective of human health and the environment from contaminants above the RGs in surface soil. Each of the remaining alternatives would provide protection to all receptors.

Compliance with ARARs

Each of the active UWDA alternatives would comply with potential ARARs. No capping ARAR was identified, so the capping alternatives range from a simple soil cap to a more complicated multi-layer cap. PCB disposal requirements can be achieved with the final alternative.

Short-Term Effectiveness

The two capping alternatives (UWDA-2 and UWDA-3) would have similar short-term effectiveness. They would have similar issues with truck traffic, dust, and noise. Each capping

alternative would achieve surface soil RGs immediately upon completion. UWDA-4 (waste removal and disposal) would be a much larger construction project and would involve the excavation, handling, and transport of PCB-containing materials; include a range of unknown waste materials; and have more dust and emissions and proportionally more truck traffic to transport waste and backfill materials. These unknown waste materials may include constituents such as lead or other metals that may require pretreatment through stabilization prior to disposal at the landfill. UWDA-4 also presents significant challenges and the potential to impact the local community and surrounding creeks/drainageway areas. Implementing a large open excavation project in the floodplain where unknown waste material is to be excavated has the potential for significant short-term impacts. To address these uncertainties, significant efforts would be required to characterize materials prior to excavating, monitor and control emissions during implementation, and protect the creeks and drainageway areas that border the UWDAs. The construction duration for UWDA-4 is difficult to estimate, but the time to complete the process of excavating, offsite transport and disposal, backfilling, and restoring the areas, is approximately one to two years. PDI efforts would also be needed to ensure that the excavation areas were stable during implementation. This includes portions of the UWDAs where deep excavations—up to 18 feet below the current grade—would be necessary.

These PDI efforts would focus on preventing damage to adjoining properties and structures during project implementation. Instead of capping approximately 4.5 acres, UWDA-4 would require excavation and offsite disposal of approximately 100,000 cubic yards of material from the same 4.5-acre area. The environmental footprints of UWDA-2 and UWDA-3 are similar with a significant increase for UWDA-4 that is approximately 50 times larger than UWDA-2 and UWDA-3.

Long-Term Effectiveness and Permanence

Each of the active UWDA alternatives would provide some long-term effectiveness and permanence. The soil and marker layer cap (UWDA-2) has been shown to be effective for soil contamination throughout the Site, but has not been used in waste disposal areas. RCRA-type capping has been used effectively on many sites and provides a barrier to prevent water from reaching waste and direct contact with waste if erosion of surface soil occurs (UWDA-3). However, excavation and removal of the waste is the most effective and permanent solution (UWDA-4).

Reduction of Toxicity, Mobility, and Volume through Treatment

Two of the UWDA alternatives (UWDA-2 and UWDA-3) do not include treatment and thus do not reduce the toxicity, mobility, or volume of waste materials. There is a possibility that a portion of the materials excavated under UWDA-4 would require pretreatment with stabilization for leachable metals. This pretreatment would reduce the mobility of the metals (and the PCB) but would increase the volume of the waste material requiring disposal.

Implementability

The capping alternatives (UWDA-2 and UWDA-3) are equally implementable as demonstrated on this and other sites. UWDA-4 would be an enormous excavation and backfilling effort. Although excavation and backfilling are also known and reliable technologies, the magnitude of

the effort, the duration of construction, and the possible implications of large open excavations of unknown materials would make UWDA-4 a very complex alternative to implement.

Cost

The costs for the active UWDA alternatives vary widely, with UWDA-2 estimated at $1.6M, UWDA-3 estimated to be $2.8M, and UWDA-4 estimated to be $41.2M.

Unapproved Waste Disposal Areas Summary

Capping is a containment technology that has been implemented at both on and off site with success. UWDA-4 would require a much higher effort to construct and would take one or more years longer to implement compared to the capping alternatives. In addition, the associated short-term impacts for UWDA-4 would be higher than the capping alternatives due to increased construction activities. The costs for the alternatives are $1.6M (UWDA-2), $2.8M (UWDA-3) and $41.2M (UWDA-4). Table 10-5 provides a summary of the comparative analysis for the UWDA alternatives.

10.6 Non-residential Soil

Six non-residential soil alternatives were evaluated. As with all the categories, the first alternative (NRS-1) would be no action. NRS-2 involves placing clean cover soil over the area and in areas where impacts due to flooding are expected to be minimal, and excavation of the 12-inch surface soil layer in areas where placing a soil cover directly over the current grade could cause unacceptable flooding. The excavated areas would be backfilled with a 12-inch layer of clean soil to return the areas to grade. Alternatives NRS-3 through NRS-6 each involve excavating 12 inches of surface soil and replacing the areas with clean backfill materials. NRS-3 would allow excavated materials with a concentration less than 50 mg/kg to be disposed of onsite in the SSSMA. NRS-4 involves disposing of all excavated materials offsite. NRS-5 would include offsite treatment of excavated soil, instead of simply disposing of the soil. NRS-6 would treat soil onsite using thermal desorption. The PCB concentration of the treated solids would be less than 50 mg/kg and would be disposed of onsite. The high-concentration PCB oil from the thermal treatment process would be shipped offsite for destruction using incineration. Each alternative, with the exception of NRS-1, would include soil management for the alternatives to be effective over the long term. ICs are included to prevent improper handling and disposal of PCB remediation waste in subsurface soil and beneath structures, and to prevent improper disposal of PCBs in soil at concentrations above 50 mg/kg.

Overall Protection of Human Health and the Environment

The no action alternative (NRS-1) would not be protective of human health and the environment from contaminants above the RGs in surface soil. Each of the remaining alternatives would provide protection to all receptors. Therefore, Alternative NRS-1 will not be evaluated further. Alternatives NRS-2 through RS-6 would provide for overall protection of human health and the environment.

Compliance with ARARs

Each of the remaining non-residential soil alternatives will meet ARARs and relevant waste disposal requirements can be met.

Short-Term Effectiveness

NRS-2 through NRS-5 would have similar short-term impacts on a local level. NRS-6 would involve more local impacts, as the treatment system and support operations would be more visible, take more space, have the potential for air-borne emissions, and require offsite long-distance truck transport for the extracted PCB-containing oils. Each alternative addresses the same geographical footprint and would require the same access and truck traffic. NRS-5 and NRS-6 would involve trucks transporting the excavated materials or PCB oil to the offsite incineration facility. These trucks could be traveling on highways for several hundred miles and have a higher risk for transportation-related mishaps.

NRS-2 would take slightly less time to implement than the other alternatives. This is because NRS-2 only includes excavating and backfilling in three of the candidate remedial areas, and the other alternatives include excavating soil and backfilling in all of the remedial areas. All five of the active alternatives involve some level of truck traffic to and from the Site to remove materials and bring in clean cover.

There is a wide range in energy requirements and greenhouse gas emissions for the NRS alternatives. NRS-5 has the largest energy consumption at 502,600 MMBtu and the highest quantity of greenhouse gas emissions (35,750 CO2e). The energy usage between the remaining active alternatives ranges from 2,300 MMBtu to 31,600 MMBtu. This difference is driven by the limited quantity of excavation, backfill and disposal under NRS-2 as opposed to alternatives NRS-3 and NRS-4. There is also a slight difference between NRS-3 and NRS-4 where the use of an onsite soil management area under NRS-3 has a reduced impact (5,500 MMBtu for NRS-3 versus 5,870 for NRS-4). The CO2e values for NRS-2 through NRS-4 range from 185 to 470, and the reasons for the differences are identical to the energy use as described above.

The lower cleanup goal would approximately double the volume of soil and increase the short-term impacts on the community.

Long-Term Effectiveness and Permanence

Each of the remaining non-residential soil alternatives would result in surface soil concentrations less than the RGs. Each alternative provides slightly improved permanence. NRS-3 -NRS-6 remove more PCBs from the impacted areas than NRS-2. NRS-3 and NRS4 provides onsite and offsite disposal, respectively. NRS 5 would remove contamination from the Site and take it for treatment and disposal in another location, which is the most effective and permanent solution. NRS-6 would treat contaminated soil onsite and required disposal of treatment soil onsite and offsite treatment of smaller volume of PCB waste oil extracted from the treated soil.

The lower cleanup goal will approximately double the volume of soil and increase the long-term effectiveness.

Reduction of Toxicity, Mobility, or Volume through Treatment

NRS-2, NRS-3, and NRS-4 do not include treatment that reduces the toxicity, mobility, or volume of waste materials. NRS-5 and NRS-6 are the only two remedial alternatives that would reduce the toxicity, mobility, and volume of PCB-containing materials through treatment. NRS-5 will destroy PCBs in soil through incineration. NRS-6 will concentrate PCBs in soil to a much small, more concentrated waste stream.

Implementability

NRS-2 through NRS-5 have similar implementability challenges; capping and excavating soil can be implemented while offsite disposal is more work that onsite disposal. NRS-6 would involve procurement and permitting-type approvals for the onsite treatment of PCB- and metal-containing soil. The implementability challenges for transporting 9,100 cubic yards of soil 644 miles to an offsite incinerator (NRS-5) are significant when compared to the shipment of soil to landfills located in Alabama. Setting up and operating an onsite thermal treatment unit would involve air modeling and extensive stack testing of emissions prior to and during operations. NRS-6 would also involve the offsite transport of high-concentration oil for incinerator destruction. Although this would be significantly less volume than NRS-5, NRS-6 would involve both local traffic when transporting solid materials to and from the treatment facility and to the onsite soil management area, as well as offsite long distance transport to an approved incinerator facility.

If the lower cleanup goal is selected, it will approximately double the volume of soil and increase the implementability challenges.

Cost

Costs for the remaining alternatives with an RG of 21 mg/kg range from $7.9M to $21.0M. NRS-2 does not include as much excavation as the other alternatives and has the lowest cost ($7.9M). The costs for offsite disposal (NRS-4) and onsite/offsite disposal (NRS-3) are similar and are estimated to be $10.4M and $10.0M, respectively. This is because a majority of the soil (approximately 68%) for both of these alternatives is expected to have PCB concentrations greater than or equal to 50 mg/kg, and, thus, the unit cost for offsite disposal drives the overall cost for both alternatives. The cost for offsite treatment is the significant influence for the overall cost under NRS-5 ($21.0M). NRS-6 would cost $19.1M.

The lower cleanup goal will approximately double the volume of soil and increase the costs (from $10.1M to $46.2M).

Non-residential Soil Summary

The five non-residential soil alternatives that meet the threshold criteria are similar with respect to most of the evaluation criteria. NRS-2 may have slightly reduced long-term permanence, as less of the materials are removed from the Site, and could be susceptible to erosion. NRS-3, NRS-4, and NRS-5 would be similar in the onsite implementation and the resulting effectiveness. NRS-3 would be slightly less costly to implement, as it would be less costly to dispose of even the small proportion of acceptable material onsite. NRS-5 and NRS-6 are the only treatment alternative that would reduce the toxicity, mobility, and volume of the material

through treatment. NRS-6 would have more short-term negative impacts and require more design work, coordination, advanced planning, and permitting-type activities, as well as monitoring prior to and during implementation to protect against potential airborne emissions. NRS-6 would also involve an offsite incineration component. The small advantages to either offsite (NRS-5) or onsite (NRS-6) treatment are disproportionate to the implementability challenges and higher costs for the treatment of PCBs. Table 10-6 provides a summary of the comparative analysis.

10.7 Groundwater and PTW at T-11 Summary

Four alternatives were evaluated to address the one area identified with PTW and groundwater impacts. GW-1 is the no action alternative, and the other three alternatives sequentially increase in complexity to address PCBs in soil and the associated concentrations in groundwater at the T-11 area. GW-2 would excavate soil immediately around well T-11 to a depth of 4 feet (the vertical extent of high concentrations in soil in this area) and would excavate 12 inches of material across the broader area around T-11. All of the excavation areas under GW-2 would be backfilled with clean materials. GW-3 would include a similar excavation with the exception that 18 inches of soil would be removed, as opposed to the 12-inch layer of soil that would be removed under GW-2. The primary difference between GW-2 and GW-3 is the placement of a low permeability cap (rather than backfill only) over the broader T-11 area. GW-4 is almost identical to GW-3 (excavation and capping) with the addition of extracting and treating groundwater from extraction wells that would be installed at the current location of groundwater well T-11. The extracted groundwater would be treated with activated carbon and discharged to Snow Creek.

Overall Protection of Human Health and the Environment

Each of the GW alternatives, with the exception of GW-1 (no action), would be protective of human health and the environment. GW-2 through GW-4 would eliminate any direct contact threat when construction is complete. Groundwater would be restored more quickly with alternative GW-4.

Compliance with ARARs

GW-2 through GW-4 are expected to reduce groundwater concentrations over time with the expectation that MCLs would be met in the future. Discharge of treated water to Snow Creek would require an NPDES permit. All of the active alternatives can be designed to meet ARARs, with GW-2 taking the longest time and GW-4 taking the least time.

Short-Term Effectiveness

Each of the active alternatives would have similar manageable short-term impacts associated with excavation and truck traffic. This includes the construction of a temporary or permanent bridge across the creek to access the area. There would be more impacts associated with GW-4 than with GW-2 and GW-3. This is due to the need to provide continued access to the area throughout the extraction period which is expected to take approximately one year. O&M personnel and equipment would be routinely accessing the area to service the treatment plant under GW-4. Extraction of groundwater under GW-4 should also reduce the timeframe to achieve the MCL.

The energy uses and greenhouse gas emissions are similar between the alternatives; GW-2 has the lowest values due to a smaller quantity of soil being excavated and transported to an offsite disposal facility (2,250 MMBtu and 180 CO2e). The other two alternatives are equivalent with a slightly higher footprint for GW-4 (3,370 MMBtu and 260 CO2e for GW-4 and 3,220 MMBtu and 260 CO2e for GW-3). The environmental footprint of these two alternatives is considered to be equivalent through a combination of the similar values and the use of solar power as part of GW-4.

Long-Term Effectiveness and Permanence

Each of the active alternatives would provide a level of long-term effectiveness and permanence that increases with the complexity of the remedy. Each of the active alternatives would remove the highest PCB concentrations in soil immediately around the groundwater well (T-11). The surrounding surface soil layer (upper 12 to 18 inches) would also be removed from the broader T-11 area bounded by Snow Creek and the railroad tracks. These actions are expected to result in an effective remedy for direct contact exposures. GW-3 and GW-4 also include a low permeability cap that limits infiltration over the broader T-11 area which reduces the input of water to soil that might be leaching, if any remains after excavation. GW-4 extracts and treats groundwater to ensure restoration of groundwater to drinking water standards occurs more quickly.

P/S did not determine what concentrations of PCBs could be left in place that would not cause groundwater contamination. Therefore, excavation of PCB impacted soil in the area of T-11 with a soil cap as described in GW-2 may not be effective at prevent groundwater contamination or the discharge of contaminated groundwater to the adjacent surface waters of Snow Creek. While the excavation of PCB impacted soil in the area of T-11, coupled with the installation of a low-permeability cap in GW-3, should reduce the ongoing impact of on PCBs on groundwater, no information about when PCB concentrations in groundwater will decline to drinking water standards, or how surface water impacts will be prevented was described. Of all the remedies proposed, GW-4 is the most likely to achieve ARARs in a reasonable time period because it includes active groundwater restoration that will create a gradient away from Snow Creek, thereby prevent PCB released to surface water.

Reduction of Toxicity, Mobility, or Volume through Treatment

GW-4 is the only treatment alternative; it reduces the mobility, toxicity, and volume through the groundwater extraction and treatment processes. It does not provide for the treatment of contamination in soil.

Implementability

Each of the GW alternatives is implementable using proven technologies. GW-4 has the largest implementability challenges at the T-11 area, which is an island bounded by Snow Creek and an active railway line. In order to operate the extraction well and groundwater treatment plant, continued access to the area would be required. Prior to implementing GW-4, a PDI would be needed to support the remedial design process. This would include obtaining a NPDES discharge permit. The PDI and permit would not be required for GW-2 or GW-3.

Cost

The cost of the groundwater alternatives increases with complexity. GW-2 is estimated as $2.2M. GW-3 is estimated as $3.3 M, and GW-4 is estimated as $4.2M.

Groundwater and PTW at T-11 Summary

The active alternatives for groundwater and PTW near T-11 (GW-2, GW-3, and GW-4) progressively increase in complexity, short-term impacts, and implementability challenges. However, the effectiveness of GW-4 is higher than GW-2 and GW-3 because it reduces the expected time to achieve the MCL between these active alternatives. Alternative GW-4 is the only alternative to include a treatment component. The costs for the alternatives are $2.2 M (GW-2), $3.3 M (GW-3) and $4.2 M (GW-3). Table 10-7 provides a summary of the comparative analysis for the groundwater alternatives.

10.8 Sediment and Creek Bank Summary

Four alternatives are evaluated to address sediment in Snow Creek and the creek banks. SED-1 is the no action alternative and SED-3 and SED-4 both require excavation of the same footprint to achieve the RG. SED-3 and SED-4 differ only in that SED-4 would dispose of all material offsite and SED-3 would use a combination of onsite and offsite disposal. SED-2 requires excavation of a smaller footprint based on the source control target PCB concentration of 10 mg/kg and is combined with MNR to achieve sediment RG over the long term, whereas, SED-3 and SED-4 require excavation to achieve sediment RG. SED-2 also includes an Adaptive Site Management (ASM) process for systematically adjusting the remedy, if needed, to meet the RGs including the chronic AWQC for surface water. The stabilization of 1,400 linear feet of creek bank areas is included for all three active alternatives using a combination of engineered and natural approaches is the same under all three active alternatives.

Overall Protection of Human Health and the Environment

The no action alternative (SED-1) does not protect receptors in Snow Creek. The three active alternatives, would provide protection.

Compliance with ARARs

Each of the active sediment alternatives could be designed and constructed in compliance with ARARs. A number of federal, state, and local ARARs would be involved for work in this waterway.

Short-Term Effectiveness

SED-3 and SED-4 would have similar short-term effectiveness and associated short-term negative impacts and include the same footprint for excavation and shoreline impacts associated with tree removal, temporary access roads and staging areas, truck traffic, noise, and air issues. SED-2, SED-3, and SED-4 would each excavate the Highway 202 culverts and involve the same logistical issues with accessing and working safely in this area. SED-2 would excavate less material from fewer deposits and would only include one deposit downstream of Highway 202. With a smaller remediation footprint, SED-2 would be less intrusive, especially in the

downstream portion of the creek. This alternative would require less tree cutting and fewer access roads and would have less surface water impacts during remediation. Because SED-2 has less tree removal, restoration, tree replacement, and growing time are not as significant as for SED-3 and SED-4. SED-2 relies on MNR to achieve the PCB RG of 3 mg/kg in the downstream deposits. SED-2 also provides an ASM process to guide achievement of the RG and the chronic AWQC over a reasonable period.

The estimated field construction timeframe for SED-2, SED-3 and SED-4 is 6 to 12 months. It is expected that SED-2 would take less time than SED-3 and SED-4 as there are fewer sediment deposits to address and less shoreline areas to clear and grub. The estimated difference in time to implement SED-2 as compared to the other two active alternatives (approximately one to two months) is shorter than the expected variability in the overall field construction schedule. This schedule will likely be driven by sediment removal productivity constraints associated with the potential for confined space work inside the Highway 202 culverts and surface water flow conditions in Snow Creek that fluctuate throughout the year.

The three active alternatives have similar environmental footprints; where there are differences, they are associated with the use of an onsite management area and in the case of SED-2, the removal of a smaller volume of sediment. The energy consumption ranges from 1,720 MMBtu for SED-4 to 1,400 MMBtu for SED-2. The greenhouse gas emissions have the same distribution with 140 CO2e for SED-4 and 110 CO2e for SED-2. All of the active alternatives include natural stabilization techniques for 75% of the creek bank areas. This includes 1,050 linear feet of natural bank stability measures over 1,400 feet of creek bank that were identified as needing stabilization measures. The remaining 350 linear feet of creek bank would be stabilized with engineered measures that are considered to be less sustainable.

The lower cleanup goal will approximately double the volume of sediment and increase the short-term impacts on the community.

Long-Term Effectiveness and Permanence

SED-2, SED-3, and SED-4 would effectively and permanently remove sediment with elevated concentrations of PCB and metals. It is expected that the sediment removal will also achieve a long-term reduction in surface water concentrations, even under high-flow conditions. Long-term effectiveness and permanence will also be determined by the contribution of multiple historical and ongoing sources to Snow Creek. The Anniston area is industrial with multiple possible sources for discharges and runoff into the creek. Although environmental awareness and enforcement has reduced the number and magnitude of the many possible direct sources of discharge to Snow Creek, discharges and surface runoff will probably continue to contribute concentrations of organic chemicals and metals to the sediment and surface water of Snow Creek. With the remediation measures already taken and those anticipated to be taken in OU3 and in soil areas in OU1/OU2, the concentration of PCBs entering the creek from discharge and runoff is expected to continue to decrease over time.

The lower cleanup goal will approximately double the volume of sediment and increase long-term effectiveness of the remedy.

Reduction of Toxicity, Mobility, or Volume through Treatment

None of the sediment alternatives include treatment and thus would not reduce the mobility, toxicity, or volume of that material. PTW is generally not present in sediment.

Implementability

Each of the active sediment alternatives has a similar level of implementability with SED-2 being more implementable than the two other active alternatives (SED-3 and SED-4). SED-2 requires less access and clearing (approximately 1.4 acres) than SED-3 and SED-4 which require the clearing and grubbing of 1.9 acres of land and access from eight landowners. For Snow Creek, the adjoining landowners in many cases own the rights to the creek and formal access is required. This is in contrast to other larger creeks where the creek bed is typically owned by the State.

The lower cleanup goal will approximately double the volume of sediment and make the remedy more difficult to implement.

Cost

The costs for the three active SED alternatives are comparable ranging from $2.7M to $3.1M. The cost for offsite disposal only (SED-4) is slightly higher ($3.1M) than the combination of onsite and offsite disposal (SED-3; $2.9M). SED-2 would remove and dispose of less material and is, therefore, the lowest cost alternative at $2.7M.

The lower cleanup goal will approximately double the volume of sediment and increase the cost of the remedy. The costs for the alternatives with a cleanup goal of 1 mg/kg are $4.1M (SED-3) and $4.5M (SED-3). Sediment in Snow Creek upstream of the 11 Street Ditch and in the 9th Street Ditch would need to be remediated to 1 mg/kg to protect the remedy downstream, further increasing the cost of the remedy.

Sediment and Creek Bank (SED) Summary

The three active sediment alternatives are comparable for most of the evaluation criteria. SED-3 and SED-4 are essentially the same, with SED-3 offering a slightly lower cost by disposing of some materials onsite rather than transporting everything offsite. SED-2 would be less effective than SED-3 and SED-4 because a smaller amount of contaminated sediment would be removed and MNR would be used to achieve the RG of 3 mg/kg over time. SED-2 would have fewer short-term negative impacts than SED-3 and SED-4, especially downstream of Highway 202. The costs for the alternatives with a cleanup goal of 3 mg/kg are $2.7M (SED-2), $2.9M (SED-3) and $3.1M (SED-3). The costs for the alternatives with a cleanup goal of 1 mg/kg are $4.1M (SED-3) and $4.5M (SED-3). Table 10-8 provides a summary of the comparative analysis.

11.0 PRINCIPAL THREAT WASTE

CERCLA 121, the NCP and EPA guidance specify requirements related to addressing PTW through a CERCLA response action. A general rule of thumb is to consider PTW as source materials with toxicity and mobility characteristics that combine to pose a potential risk several orders of magnitude greater than the risk level that is acceptable for the current or reasonably

anticipated future land use, given realistic exposure scenarios. Based upon those requirements, the EPA mandates that any PTW must be identified in the OU1/OU2 FS in order to develop and properly evaluate remedial alternatives to address such wastes. Additionally, PTW must be identified in order to select a remedy that satisfies CERCLA's preference to treat wastes to the maximum extent practicable (or publish an explanation why it is not practicable).[10] The identification in the FS of certain PCB wastes, located in OU1/OU2 at concentrations > 500 ppm, which constitute PTW, is necessary to select remedies consistent with the statutory and regulatory requirements of CERCLA.

As noted above, CERCLA 121(b)(1) contains a preference or expectation for selecting remedial actions that utilize treatment technologies and permanent solutions to the maximum extent practicable. If the selected remedy does not comply with this preference, the EPA must publish an explanation as to why a treatment remedy was not selected. The basis for this statutory provision is that EPA believes that treatment is the best way to address certain hazardous source materials given the technical limitations with the long-term reliability of containment technologies and the seriousness of the human health and environmental consequences of exposure should a release occur.[11] These PTWs are those source materials that contain highly toxic or highly mobile wastes and liquids for which treatment is preferred.[12]

No threshold of toxicity or risk has been established to equate to a "principle threat".[13] For PCB contamination or PCB waste at Superfund sites, principal threats will generally include material contaminated at concentrations exceeding 100 ppm for sites in residential areas and concentrations exceeding 500 ppm for sites in industrial areas.[14]

When PTWs are not practicable to treat or remove, reliable and effective long-term containment options can be considered in the FS. In demonstrating impracticability, EPA considers such factors as the media involved, the volume and concentration of contamination, the size and depth of the area impacted, whether containment is even possible, whether groundwater is or is likely to be impacted, the accessibility to the waste material, the onsite containment costs, the availability of effective ICs and engineering controls and the likely threat of exposure over time. Applying these considerations to the portions of OU2 that contain contamination > 500 ppm, the EPA believes it can prevent exposure over the long-term through the proposed alternatives that involve both excavation and containment.

[10] See CERCLA Section 121(d)(1), 40 C.F.R. Section 300.430(a)(1)(iii)(A), 40 C.F.R. Section 300.430 (f)(1)(2)(E), A Guide to Principal Threat and Low Level Threat Wastes (OSWER Directive No. 9380.3-06FS, November 1991), A Guidance on Remedial Actions at Superfund Sites with PCB Contamination (OSWER Directive No. 9355.4-01FS, August 1990).
[11] A Guide to Principal Threat and Low Level Threat Wastes (OSWER Directive No. 9380.3-06FS, November 1991).
[12] Id., Page 2.
[13] Id., Page2.
[14] Guidance on Remedial Actions for Superfund Sites with PCB Contamination, U.S. EPA, August 1990, (EPA/540/G-90/007), at Page iv.

12.0 SELECTED REMEDY

Based on consideration of the requirements of CERCLA, the detailed analysis of the remedial alternatives, and public comments, EPA has selected the following eight alternatives as the Selected Remedy for OU1/OU2:

- For residential soil Alternative RS-2, Complete the Non-Time-Critical Removal and Manage PCB Residuals;
- For special use properties Alternative SU-3, Excavate Surface Soil in Low Activity Areas to a PCB Remedial Goal of 1 mg/kg and Manage PCB Residuals;
- For interim measures Alternative IM-4, Excavate Soil to Non-residential RGs where not Covered by Existing Measures and Dispose Offsite, Address PTW if Present, and ICs;
- For dredge spoil piles Alternative DSP-4, Excavate All Dredge Spoil Piles and Offsite Disposal;
- For unapproved waste disposal areas Alternative UWDA-3, RCRA Subtitle D Cap;
- For non-residential soil Alternative NRS-4, Excavate and Offsite Disposal;
- For groundwater and PTW at T-11 Alternative GW-4, Excavate Area, Install Low Permeability Cap, and Extract and Treat Groundwater; and
- For Snow Creek sediment and creek bank soil Alternative SED-4, Excavation and Offsite Disposal.

12.1 Summary for the Rationale for the Selected Remedy

Based on information currently available, the EPA believes the Proposed Remedy meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. These remedial alternatives include removal of contaminated soil and sediment exceeding the remedial goals, onsite disposal of excavated soil with low levels of PCBs from residential and special use properties, offsite disposal of excavated soil and sediment around interim measures, in non-residential areas, and from Snow Creek. All of the Dredge Spoil Piles will be removed and disposed of offsite. The Unapproved Waste Disposal Areas will be capped with a RCRA Subtitle D equivalent low-permeability cap. The contaminated groundwater and PTW soil at T-11 will be remediated through removal of contaminated soil exceeding the cleanup goals, extracting contaminated groundwater, and constructing a low-permeability cap over the area.

These remedial actions were selected for a number of reasons:

- PCBs in subsurface soil do not create a risk to current receptors and the PRPs have demonstrated that they are capable of managing residual PCBs in subsurface soil and under structures. For that reason, RS-2 was selected instead of RS-3 (the alternative suggested by a number of individuals and community groups during the comment period). RS-2 is $8.4M less costly than RS-3.

- PCBs in low activity areas on special use properties are of concern because the properties are typically located near residential areas and children are likely to play on parts of the properties. It would be difficult to restrict use of just the low activity portions of these properties. It is more protective for young children living near and playing on special use properties to require the cleanup of low activity areas to a more stringent remedial goal than other non-residential properties so that if the area is used for high activity by children without anyone's knowledge, the soil concentrations will be protective. For that reason, SU-3 was selected instead of SU-2 (the alternative recommended by P/S during the comment period). SU-3 is $3.6M costlier than SU-2. SU-3 was selected instead of SU-4 (the alternative suggested by a number of individuals and community groups during the comment period) because the PRPs have demonstrated that they are capable of managing residual PCBs in subsurface soil and under structures. SU-3 is $0.8M less costly than SU-4.

- PCBs near IMs are located in drainage areas or sloped areas. The original decision to cover the drainage areas within the IMs would probably not have been the first choice under CERCLA, since high PCB concentrations could have been excavated and disposed of instead of being left in place. However, since the IMs are already in place and there is no indication that groundwater is negatively affected, the IMs were not modified. Rather than continue to cover high PCB concentrations in soil at the IMs, the selected remedy requires that the PCBs be excavated and disposed offsite. For that reason, IM-4 was selected instead of IM-2 or IM-3 which was suggested by P/S during the comment period. IM-4 is $1.7M costlier than IM-2 or IM-3.

- PCBs in dredge spoil piles were originally located in Snow Creek sediment. The sediment was moved to the side of Snow Creek to allow for increased flow in the creek. The primary reason for selecting removal of all dredge spoil piles is that the 2012 evaluation of the piles indicated that they had diminished in size, which means that either the materials was moved and used as fill or it eroded back into Snow Creek. Although there is now vegetation on the piles and erosion controls could be used to prevent more degradation, it is less likely that the piles will be a source for recontamination of the creek if they are removed and disposed. DSP-4 which requires all piles to be removed is $0.452M costlier that DSP-2 which requires that only one pile that exceeds the non-residential RG be removed. Offsite disposal of all the piles (DSP-4) is also $0.7M costlier than DSP-5 which allows for onsite disposal.

- PCBs are present in UWDAs because of the type of waste (auto fluff) and because they are located in the contaminant transport pathway from the Facility. The EPA selected a RCRA Subtitle D Cap (UWDA-3) because it will be used to cover actual solid waste rather than just contaminated soil. Soil caps have been used by P/S to cover contaminated soil in many locations, but not to cover waste. As has been pointed out by a number of commenters, there is no record of what was disposed of at the UWDA locations, so the more protective cap is an appropriate remedy. UWDA-3 is $1.1M costlier than a soil cap (UWDA-2), and $38.5M less costly than a total excavation and offsite disposal remedy (UWDA-4). Flexibility has been added to UWDA-3 to allow for consolidation of the waste to reduce the footprint of the cap where appropriate and offsite disposal of a

portion of the waste if determined to be appropriate during remedial design, though costs have not been adjusted to reflect the flexibility.

- PCBs in non-residential soil above RGs are for the most part located along Snow Creek or in drainage areas of the Snow Creek floodplain. Excavation was selected rather than a combination of excavation and capping, because of concern about the effect capping the areas might have on the rest of the area. Offsite disposal was selected because most of the material is at concentrations that require offsite disposal, and the community prefers offsite disposal rather than bring more material to the Facility. Onsite treatment of non-residential soil was not selected because this is already a heavily impacted community with concerns about PCBs in air. Offsite treatment was not selected because the cost is twice the offsite disposal cost, and it is an expense that would not provide additional protection to the community, but might threaten other communities during extended transit.

- The non-residential soil PCB RG of 21 mg/kg was selected rather than 9 mg/kg. The impacted areas are not locations where commercial visitors will typically be present, and the risk to commercial visitors is well within the risk range at a PCB RG or 21 mg/kg. The volume and cost of the alternative would greatly increase if the goal was lowered and more businesses would be impacted for very little gain in protection. A lower RG may be considered in the future if the nature of the area changes (from industrial/commercial to recreational) or if the surface soil PCB concentrations are negatively affecting the sediment RG (i.e., erosion of PCBs in surface soil prevents sediment from meeting the RG longterm).

- PCBs in soil and groundwater at investigation well T-11, groundwater extraction in addition to soil excavation and capping will result in attainment of PCB drinking water standards in groundwater much more quickly. P/S did not provide any time frames or estimates about the time it will take to restore the aquifer near T-11 with just removal of PTW and a soil cap or a low-permeability cap. In addition, no effort was made to determine how groundwater is affecting surface water adjacent to the area. GW-4 will restore groundwater more quickly and thereby reduce the chance that PCBs in groundwater are discharging to surface water.

- PCBs in sediment were deposited over many years during PCB production and after production was stopped. Undoubtedly there have been contributions from other sources that use PCBs, but the primary source was the former production Facility and its adjacent landfills. Excavation to the sediment RG was selected rather than less excavation and MNR because Snow Creek affects downstream waterways where fish are heavily impacted. Restoration of fish tissue in downstream waterways depends on reducing impacts from Snow Creek.

- The sediment PCB RG of 3 mg/kg was selected rather than 1 mg/kg because upgradient concentrations average 1.9 mg/kg. Without additional cleanup upstream, the chance of maintaining a 1 mg/kg RG is low. Sediment monitoring will be conducted to ensure that

3 mg/kg can be maintained. If floodplain sources within OU1/OU2 negatively impact the ability to maintain the sediment cleanup goal, a low soil RG will be considered.

- Offsite disposal of excavated soil (from IM, DSP, NRS, GW, and SED alternatives) was selected because the community has expressed concern about additional waste streams being allowed to be disposed of in the community (at the Facility); only low level PCB contaminated soil (i.e., tPCB < 10 mg/kg) from the residential and special use properties are currently managed onsite.

- A soil management program will be implemented by P/S, as part of the remedial alternative for residential soil and special use properties where PCB concentrations between 1 mg/kg and 10 mg/kg will remain in subsurface soil underlying areas that were previously remediated or under structures. The soil management program will extend to dealing with property owners, local government agencies, and utilities on non-residential properties, transportation corridors, and waterways where PCBs concentrations exceed 1 mg/kg in surface and subsurface soil. Soil management activities would include interactive outreach with local landowners or local municipalities.

12.2 Description of the Selected Remedy

The Selected Remedy for OU1/OU2 includes excavation with onsite and offsite disposal of contaminated soil from residential and special use properties (i.e., schools, churches, day-care centers, community centers, playgrounds, and parks). Residential soil and high activity areas, such as playgrounds, on special use properties have been, for the most part, cleaned up such that surface soil PCB concentrations are less than 1 milligram per kilogram (mg/kg) and subsurface soil PCB concentrations are less than 10 mg/kg. The Selected Remedy requires the residential properties identified for cleanup with access issues or exposure issues (wooded with excessive vegetation) continue to be targeted for cleanup and that low activity areas associated with special use properties be cleaned up to the most stringent non-residential standard for PCBs, 1 mg/kg, which provides the most protection allowable to children. Onsite disposal for soil with PCB concentrations less than 10 mg/kg was approved for previous non-time critical removal actions and will continue to be a disposal option for the few remaining residential cleanups, the special use property cleanups, and for management of residential and special use property soil with residual PCB concentrations in the subsurface or under structures. All other soil from residential and special use properties with PCB concentrations greater than or equal to 10 mg/kg will be disposed of at offsite approved disposal facilities.

The components for residential soil Alternative RS-2 (Complete the Non-Time-Critical Removal and Manage PCB Residuals) are as follows:

- Follow an approved soil management plan which requires:
    - periodic attempts to gain access to properties identified with PCBs in surface and/or subsurface soil;
    - PCB cleanup of soil on properties where wooded areas have been cleared and soil are now accessible; and

  - PCB sampling and cleanup, if needed, of soil below demolished structure (i.e., building, shed, or paved area that limits exposure) on properties where previous cleanups have occurred.

- When access is granted or wooded lots are cleared, excavate surface soil with PCB concentrations greater than or equal to 1.0 mg/kg and subsurface soil with PCB concentrations greater than or equal to 10.0 mg/kg (one wooded lot that exceeds the trespasser RG should be cleared and excavated prior to development if access is granted).
- If surface soil requires removal, sample and clean interior surfaces of homes with PCB dust concentrations above 1.0 mg/kg.
- If surface soil requires removal and there is a structure with an accessible crawl space, sample the crawl space and excavate or install barriers when the PCB concentration is greater than or equal to 1.0 mg/kg.
- Dispose of soil with PCB concentrations less than 10.0 mg/kg at an onsite soil management area located near the Facility, provided the material passes leachability testing.
- Dispose of soil with PCB concentrations more than 10.0 mg/kg PCBs, at an approved offsite disposal facility.
- Backfill excavated areas with clean soil and topsoil to approximately the same grades that existed prior to excavation.
- Re-vegetate the property as agreed to with the owner.
- Place deed notice to inform purchasers of residual or potential PCB impacts.

The components for special use properties Alternative SU-3 (Excavate Surface Soil in Low Activity Areas to a PCB Remedial Goal of 1 mg/kg and Manage PCB Residuals) are as follows:

- Follow an approved soil management plan which requires:
  - Monitoring to ensure subsurface soil with PCB concentrations greater than or equal to 1 mg/kg remain in the subsurface or are appropriately managed; and
  - Monitoring to ensure soil below structures near PCB impacted areas are sampled and cleaned up, as needed, following demolition.
- Excavate surface soil in high and low activity areas with PCB concentrations greater than or equal to 1 mg/kg and subsurface soil with PCB concentrations greater than or equal to 10 mg/kg in high activity areas and greater than equal to 97 mg/kg in low activity areas.
- Clean interior surfaces of occupied structures with dust concentrations above 1.0 mg/kg.
- Excavate or install barriers in accessible crawl spaces with PCB concentrations in surface soil above 1.0 mg/kg.
- Dispose of excavated soil with PCB concentrations less than 10.0 mg/kg at an onsite soil management area located near the Facility, provided the material passes leachability testing.

- Dispose of soil with PCB concentrations more than 10.0 mg/k, at an approved offsite disposal facility.
- Backfill excavated areas with clean soil and topsoil to approximately the same grades that existed prior to excavation.
- Vegetate or re-vegetate the property as agreed to with the owner.
- Place deed notice to inform purchasers of residual or potential PCB impacts.

The Selected Remedy incorporates as CERCLA remedies all of the interim corrective measures implemented at OU1/OU2 under ADEM's RCRA oversight, as well as the non-time critical Removal Action and any interim measures implemented under the EPA's CERCLA oversight, prior to issuance of this ROD. Additional excavation and offsite disposal of contaminated soil around interim measures is needed to make the northside area, eastside area, and eastside drainageway interim measures protective over the longterm.

The components of interim measures Alternative IM-4 (Excavate Soil to non-residential RGs Where Not Covered by Existing Measures and Dispose Offsite, Address PTW if Present, and ICs) are as follows:

- Excavate soil around the Northside Area, Eastside Area, and the Eastside Drainageway (including the drainage ditch to the north and PB-RR-37 area) IMs to meet the non-residential RG for PCBs in surface soil of 21 mg/kg and subsurface RG for PCBs of 97 mg/kg.
- Backfill excavated areas with clean soil and topsoil to approximately the same grades that existed prior to excavation.
- Re-vegetate backfilled area or enhance the soil cover to prevent erosion.
- Dispose of excavated soil at an approved offsite disposal facility.
- All disposal decisions will be based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.
- Restrict deed or process environmental easement/covenant to prevent access to groundwater and use of the property.
- Soil management of residual PCBs in the subsurface may be needed in the excavation areas.
- Conduct operations, monitoring, and maintenance of the existing components.
- Further investigate potential groundwater impacts from high subsurface PCB concentrations located within the Eastside Properties IM and at sample PB-RR-37. If PCB impacts to groundwater are greater than the MCL, excavation of PCB impacted subsurface soil within the IM or at PB-RR-37 may be required as determined in design.

The Selected Remedy requires complete removal and offsite disposal of soil in four (4) dredge spoil piles adjacent to Snow Creek. The spoil piles contain PCBs, and are susceptible to erosion

back into the creek. The EPA opted to remove the piles rather than stabilize and/or maintain vegetation on the spoils and the adjacent banks to eliminate their erosion potential.

The components of the dredge spoil pile Alternative DSP-4 (Excavate All Dredge Spoil Piles and Offsite Disposal) are as follows:

- Excavate all dredge spoil pile soil.
- Excavate soil beneath the dredge spoil pile footprints as needed to meet the non-residential soil PCB RG in surface soil of 21 mg/kg and PCB RG in subsurface soil of 97 mg/kg.
- Backfill excavated areas with clean soil and topsoil to approximately the same grades that existed prior to the dredge spoil piles.
- Re-vegetate backfilled area.
- Dispose of excavated soil at an approved offsite disposal facility.
- All disposal decisions will be based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.
- Manage residual PCBs in dredge spoil areas and in soil beneath the footprint of the dredge spoil piles footprint along with other non-residential soil, as needed.

The Selected Remedy requires containment of contamination in unapproved waste disposal areas at locations west and east of the Facility where auto fluff waste was found mixed with significant PCB and lead contamination in soil. The low-permeability containment offered by a RCRA Subtitle D cap is typical of what is currently required at waste disposal sites across the country.

The components of the unapproved waste disposal areas Alternative UWDA-3 (RCRA Subtitle D Cap) are as follows:

- Clear and prepare surface for cover.
- Consolidate waste into a smaller footprint or dispose of a portion of the waste offsite as determined appropriate during design.[15]
- Install a RCRA Subtitle D multi-layer cap consisting of at a minimum:
  - 40-mil geomembrane liner,
  - geocomposite drainage layer, and
  - 18-inch-thick protective soil cover.
- Vegetate surface or provide other erosion protection for cap.
- Execute environmental covenants to restrict future use of these areas and to protect the cap.

[15] Flexibility was added to UWDA-3 to accommodate some limited excavation and offsite disposal as may be determined necessary during remedial design; this flexibility has not been reflected in cost estimate assumptions, but should be covered by the contingency funds built into the estimates.

- Conduct O&M and monitoring of the cap.

On other non-residential properties, such as commercial/industrial properties, the Selected Remedy requires excavation to meet the non-residential surface soil cleanup goals for PCBs (21 mg/kg), chromium (382 mg/kg), polychlorinated aromatic hydrocarbons (PAHs) (153 mg/kg), and dioxins (PCDD/DF/DL-PCBs) (0.73 nanograms per kilogram (ng/kg). Offsite disposal of contaminated soil at approved facilities is also required.

The components of the non-residential soil Alternative NRS-4(a) (Excavate Soil, Offsite Disposal, and Manage PCB Residuals) are as follows:

- Excavate non-residential surface soil to meet PCB RG of 21 mg/kg and the non-PCB RGs.
- Excavate non-residential subsurface soil to meet PCB RG of 97 mg/kg and the non-PCB RGs.
- Dispose of excavated soil in an approved offsite disposal facility.
- All PCB disposal decisions will be based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.
- Backfill and re-vegetate as needed to re-establish natural grades and prevent erosion.
- Manage PCB residuals in non-residential soil.

In the general area around groundwater investigation well T-11, the Selected Remedy protects against exposure to PCB contamination in surface soil, PCBs leaching to groundwater, and restoration of groundwater to drinking water standards, through excavation of principal threat waste, installation of a low permeability cap, and groundwater extraction and treatment. Treated groundwater will be discharged to Snow Creek. Offsite disposal of contaminated soil at approved facilities is required.

The components of the groundwater and PTW at T-11 Alternative GW-4 (Excavate Area, Install Low Permeability Cap, and Extract and Treat Groundwater) are as follows:

- Excavate PCB impacted soil acting as PTW (approximately 200 cubic yards) and 18-inches of soil over the broader impacted area (approximately 4300 cubic yards).
- Dispose of excavated soil at an approved offsite disposal facility.
- All PCB contaminated soil disposal decisions will be based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte.
- Backfill excavated areas with clean fill materials and preparing the surface for the cap.
- Install a low-permeability cap over the area:
  - 40-mil geomembrane liner
  - Geocomposite drainage layer
  - Minimum 18-inches clean backfill and topsoil protective soil cover

  - Vegetative cover
- Install a pump-and-treat system (to treat groundwater until PCBs concentrations are 0.5 µg/L):
  - two extraction wells
  - two pumps that operate using solar power,
  - a temporary carbon filter system
- Restrict deed or process environmental easement/covenant to prevent access to groundwater and use of the property.
- Monitor and conduct O&M of the cap, including groundwater monitoring.

In Snow Creek, the Selected Remedy requires the excavation of contaminated sediment in Snow Creek to meet sediment goals for PCBs (3 mg/kg), barium (322 mg/kg), chromium (111 mg/kg), cobalt (59 mg/kg), lead (128 mg/kg), manganese (1,100 mg/kg), mercury (1 mg/kg), nickel (46 mg/kg), vanadium (41 mg/kg), and the offsite disposal of contaminated sediment. Additionally, 1,400 linear feet of bank area is identified for stabilization, approximately 350 feet are targeted for engineered approaches and approximately 1,050 feet are targeted for a naturalized bank stabilization using the range of potential techniques. No compensatory mitigation for loss of habitat resulting from the cleanup is anticipated as a result of the Selected Remedy.

The components of the Snow Creek sediment and creek bank Alternative SED-4(a) (Excavation and Offsite Disposal) are as follows:

- Excavate sediment to meet PCB RG of 3 mg/kg and the non-PCB RGs.
- Dispose of sediment at an appropriate offsite disposal facility.
- All PCB disposal decisions will be based on in-place total PCB concentrations from grab samples that include Aroclor-1268 as an analyte or total PCBs based on another approved method that will represent all homologues and congeners.
- Stabilize banks with hard engineer methods or natural techniques.
- Monitor bank stability and sediment concentrations to ensure the sediment remedy is maintained.
- Monitor surface water at upstream end and downstream end of OU1/OU2.

Based on information currently available, the EPA believes the Selected Remedy meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with the respect to the balancing and modifying criteria. Remedial goals are summarized in Table 12-1.

The remedy may change somewhat as a result of the remedial design and construction processes. Changes to the Selected Remedy described in this ROD will be documented using a technical memorandum in the Administrative Record, an Explanation of Significant Differences (ESD), or ROD amendment.

12.3 Summary of Estimated Selected Remedy Costs

The estimated total present worth cost for the Selected Remedy is $36.6M. The total capital cost is $16.7M and the periodic costs were estimated to be $756,000 annually. Detailed costs associated with implementing the Selected Remedy are presented in Table 12-2a-i. Costs per year of the remedy based on a 7% discount rate applied to all costs incurred after the first year to find the present worth cost of the Selected Remedy. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the Selected Remedy. Major changes may be documented in the form of a memorandum in the Administrative Record file, an ESD, or a ROD amendment. The cost estimate is an order-of magnitude engineering estimate that is expected to be within +50 to -30% of the actual project cost.

12.4 Institutional Controls

Institutional controls are required as part of the Selected Remedy. A final Institutional Controls Implementation Plan (ICIP) will be developed during the remedial design and will identify the ICs available to help protect the remedy. Currently available ICs are limited to the following:

- Deed restrictions or environmental easements/covenants to prohibit excavation within capped areas at the Interim Measure Areas, UWDAs, and the area surrounding groundwater investigation well T-11.
- Requesting property owners with residual PCB concentrations greater than 1 mg/kg in surface or subsurface soil to voluntarily place a notice on their deeds for prospective purchasers.

In addition to ICs, a soil management program would be implemented, in perpetuity, as part of the remedial alternative for residential properties, special use properties, and non-residential properties where residual PCB concentrations above 1 mg/kg remain in subsurface soil underlying areas that were previously remediated. Soil management activities would include interactive outreach with local landowners or local municipalities regarding any plans to remove the current access constraints such as granting permission to access the property, clearing of land, demolition of buildings/structures, etc.

12.5 Five Year Reviews

Five-year Reviews will be conducted at the Site to evaluate the implementation and performance of the Selected Remedies in all OUs, and in order to determine if the remedies continue to be protective of human health and the environment. Five-year reviews are required under CERCLA and the NCP§300.430(f)(4)(ii) if the remedial action results in hazardous substances, pollutants, or contaminants remaining onsite above levels that allow for unlimited use and unrestricted exposure. PCB remediation waste is being left on residential and non-residential properties, three new containment cover systems are being constructed, and several interim measures that involve containment are being approved as final actions.

12.6 Expected Outcome of the Proposed Remedy

The intent of the Selected Remedy is to be protective of human health and the environment by reducing risks from the following: PCB contamination on residential properties; PCBs, PAHs, chromium, and dioxin (PCDD/PCDF/DL-PCBs) contamination on non-residential properties; PCBs, barium, chromium, cobalt, lead, manganese, mercury, nickel, and vanadium in sediment; PCBs in groundwater near investigation well T-11, and PCBs, lead, and chromium contamination in surface water. The Selected Remedy will actively address contaminated soil, sediment, and groundwater within the Site, thereby reducing exposure to contaminant concentrations in other media such as surface water, which will significantly reduce human health and ecological risks at the Site to acceptable levels. Remediation of the sediment at the Site will also reduce migration of contaminants to Choccolocco Creek and the Coosa River. Addressing areas with contaminated groundwater will also reduce loading to surface water and reduce exposure to benthic invertebrate organisms living in sediment. Stabilization of contaminated creek banks should be conducted in conjunction with the soil and sediment actions, thereby eliminating additional sources of contamination that impact creek sediment and water quality.

13.0 STATUTORY DETERMINATION

The purpose of this section is to provide a brief, site-specific description of how the Selected Remedy satisfies the statutory requirements of CERCLA §121 (as required by NCP §300.430(f)(5)(ii)) and explain the five-year review requirements for the Selected Remedy. The Selected Remedy is expected to be the final remedy for OU1/OU2 and represents the best balance of trade-offs among alternatives with respect to pertinent criteria.

13.1 Protection of Human Health and the Environment

The Selected Remedy will adequately protect human health and the environment through excavation and offsite disposal, containment, groundwater extraction and treatment, engineering controls, and institutional controls. Excavation and capping will eliminate direct contact with contaminants above levels necessary to protect human health and the environment. Groundwater extraction and treatment, in conjunction with capping to reduce infiltration will control groundwater migration. Extraction and monitoring will lead to restoration of groundwater to beneficial use.

Exposure levels will be reduced to ARAR levels or to within the EPA's generally acceptable risk range of $1x10^{-4}$ to $1x10^{-6}$ for carcinogenic risk and below the HI of 1 for non-carcinogens.

The implementation of the Selected Remedy will not pose unacceptable short-term risks. Precautions will be taken to protect the public during the implementation of the remedy. The remedy seeks to reduce and eliminate soil to groundwater impacts, soil to surface water impacts, groundwater to surface water impacts, and soil and groundwater to air impacts.

Ecological receptors will be protected from contaminants of concern in sediment and surface water. Although the proposed remedy does not address terrestrial ecological interests, excavation and capping of areas where contamination exists will help protect any ecological receptors that

might be present. A full ecological risk assessment is being performed for more appropriate habitats in OU4.

13.2 Compliance with Applicable or Relevant and Appropriate Requirements

The Selected Remedy will comply with Federal and State Action-Specific ARARs for both soil, groundwater, and sediment remedial components. The key ARARs for the selected remedy are identified below.

- Regulations at 40 Code of Federal Regulations (C.F.R.) Part 262.11(a)-(d) for the management and disposal of remediation wastes.
- Regulations at 40 C.F.R. Part 761 for the management and disposal of PCB remediation wastes.
- Regulations at 40 C.F.R. § 761.61(c) for risk-based disposal of PCB remediation wastes.
- Regulations at ADEM Admin. Code r. 335-13-14-.17, 19, and 20.
- State and Federal Safe Drinking Water Act MCLs.
- Regulations at ADEM Admin. Code r. 335-6-6-.04 and ADEM Admin. Code r. 335-6-6-.14 for discharge of treated groundwater to surface water.
- Regulations at ADEM Admin. Code r. 335-9-1-.05 and ADEM Admin. Code r. 335-9-1 -.06 for construction of new extraction wells.
- Regulations at 40 C.F.R. § 131.36 for the chronic AWQC and the parallel regulations under the State of Alabama's Administrative Code 335-6-10.
- Regulations at 40 C.F.R. § 230 regarding dredging and filling in the creek.
- Regulations at U.S.C 4001 et seq. and 4101 regarding alternation of the creek.

More information about the ARARs for the Selected Remedy are provided on Tables 13-1, 13-2, and 13-3.

13.3 Cost-Effectiveness

The Selected Remedy is determined to be cost effective. In making this determination, the following definition set forth in the NCP was used: "A remedy shall be cost-effective if its costs are proportional to its overall effectiveness." *See* 40 CFR §300.430(f)(1)(ii)(D). This was accomplished by evaluating the "overall effectiveness" of those alternatives that satisfy the threshold criteria.

Overall effectiveness was evaluated by assessing three of the five balancing criteria in combination (long-term effectiveness and permanence; reduction of toxicity, mobility, and volume through treatment; and short- term effectiveness). With O&M, the capping remedy will be effective long-term. Treatment is not a part of the Selected Remedy, but this Remedy is highly effective in the short term, because no contaminated material is excavated, which reduces possible exposure during construction and operations.

Overall effectiveness was then compared to costs to determine cost effectiveness. The relationship of the overall effectiveness of this remedial alternative was determined to be

proportional to its costs, and, hence, this alternative represents a reasonable value for the money to be spent. The estimated present worth cost of the selected remedy is as follows:

Alternative RS-2	$ 7,342,000
Alternative SU-3	$ 3,128,000
Alternative IM-4	$ 4,315,000
Alternative DSP-4	$ 1,399,000
Alternative UWDA-3	$ 2,751,000
Alternative NRS-4	$10,425,000
Alternative GW-4	$ 4,169,000
Alternative SED-4	$ 3,078,000
Total Present Worth Cost	$36,607,000

13.4 Utilization of Permanent Solutions or Alternative Treatment Technologies

The Selected Remedy does not use treatment as a major element for soil, but does use carbon treatment to remove PCBs from groundwater at investigation well T-11. The rationale for not making treatment a major element for soil in this Selected Remedy is:

- For most of OU1/OU2 concentrations of PCBs in soil are below the PTW level, making disposal in a landfill and containment appropriate technologies.
- Groundwater monitoring of IMs, where PTW concentrations (PCBs greater than 500 mg/kg in industrial areas and PCBs greater than 100 mg/kg in residential areas) do not leach to groundwater, make full removal and treatment unnecessary.
- Confirmation sampling is required to demonstrate that no PCB PTW is leaching to groundwater near high subsurface concentrations in the Eastside Properties Area and at sample location PB-RR-37.
- The institutional controls will eliminate or minimize the chance of a receptor being exposed to the contaminated groundwater or soil in the future.
- Monitoring of the groundwater from OU3 will provide a warning if contaminant levels downgradient of OU3 increase significantly.

13.5 Preference for Treatment as a Principal Element

The statutory preference for treatment which permanently and significantly reduces the volume, toxicity, or mobility of hazardous substances is not satisfied by this ROD. The soil portion of the Selected Remedy includes separating PTW soil from non-PTW soil at investigation well T-11 so that the onsite containment area does not include high PCB concentrations of the lower chlorinated Aroclors that are suspected of leaching to groundwater. The PTW is being shipped offsite for disposal, but the separation reduces the volume of hazardous substances onsite. Given the concentrations in soil and the depth to groundwater, containment under surface caps is a viable option to eliminate exposure pathways and prevent future releases. Institutional controls are proposed to prevent future exposures to remaining PCBs in subsurface soil.

13.6 Five-Year Review Requirements

Because this Selected Remedy will result in hazardous substances, pollutants, or contaminants remaining on site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of the remedial action and every five years thereafter to ensure that the remedy is, or will be, protective of human health and the environment.

14.0 DOCUMENTATION OF SIGNIFICANT CHANGES

During the public comment period on the Proposed Plan, the EPA received comments from individuals, community groups, non-residential property owners, and potentially responsible parties. The comments targeted either one category of remedies or all categories of the Preferred Alternative (Alternatives RS-2, SU-3, IM-4, DSP-4, UWDA-3, NRS-4, GW-4, and SED-4) in the Proposed Plan released for public comment in March 2017. The Proposed Plan identified the same Preferred Alternative that was ultimately chosen as the Selected Remedy. There were, however, some changes to the proposed remedy that should be noted.

In a comment on the Proposed Plan, P/S noted that since the OU-1/OU-2 HHRA was approved in 2012, the EPA updated the cancer slope factor (CSF) that should be used for PAHs. The EPA also published a reference dose (RfD) that can be used to estimate non-cancer risks for benzo(a)pyrene. Using the most recent toxicity information, the RG in soil for PAHs (as BaPE) associated with a cancer risk of 1×10^{-4} would be 153 mg/kg, and the non-cancer RG for an HQ of 1 would be 186 mg/kg. The EPA's risk assessment team agreed with the change and the revised goal was reflected in the ROD.

Several individuals commented that wooded lots should be cleared and PCBs in soil removed by P/S now rather than waiting for the property owner to clear the land when it is ready for development. One argument was that a trespasser could be exposed on the property. The HHRA determined that the PCB remedial goal for trespassers ranges from 8 mg/kg (the 1×10^{-6} cancer goal) to 46 mg/kg (the goal at an HI of 1). The non-residential PCB cleanup goal of 21 mg/kg was determined to be protective for trespassers. Only one wooded property has a PCB concentration greater than 21 mg/kg and greater than 46 mg/kg. The EPA modified the residential soil preferred alternative to require that the one wooded property that exceeds the non-residential PCB RG be prioritized for clearing of vegetation and cleanup as soon as access is granted from the property owner.

One comment recommended that the UWDA remedy be more flexible, allowing for consolidation of waste into a smaller footprint and some offsite disposal, if it is determined to be more cost effective during remedial design. The EPA added language in the selected remedy portion as follows: "consolidate waste into a smaller footprint or dispose of a portion of the waste offsite as determined appropriate during design." Major remedial design changes may be documented in the form of a memorandum in the Administrative Record file, an ESD, or a ROD amendment.

P/S noted a large number of inconsistencies and typographical errors that they found in the Proposed Plan. All of that information was used to improve and correct the text when it was part of the ROD. The errors were not significant enough to mislead readers or to require that the Proposed Plan be re-issued.

PART 3 – RESPONSIVENESS SUMMARY

1. OVERVIEW

This responsiveness summary provides a summary of the public's comments submitted to the U.S. Environmental Protection Agency (EPA) regarding the Proposed Plan for Operable Unit 1 (0U1) and Operable Unit 2 (OU2) of the Anniston PCB Site (Site), and the EPA's responses to the comments. A responsiveness summary is required by the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) at 40 Code of Federal Regulation (CFR) § 300.430(f)(3)(F). All comments summarized in this document have been considered in EPA's final decision for the selection of the remedy for OU1/OU2.

The EPA has worked closely with community members and other stakeholders throughout the development of the remedial investigation, feasibility study, and Proposed Plan for OU1/OU2. Community participation played an essential role in the development of the Proposed Plan and ROD for OU1/OU2 at the Site.

A total of 19 individual comment submissions were received about the Proposed Plan, while one (1) comment submission was received about the Feasibility Study, one (1) comment submission was received about the National Remedy Review Board Recommendations, and one (1) comment submission was received about the EPA's March 7, 2017 letter. Comments were received by mail, email, submission of written comments at public meetings, and submission of oral comment at public meetings (stenographer's transcript). Many comments were clearly personal thoughts (typed or hand written), often with personal commentary added. Each submission was given a sequential individual comment ID number. Names of individuals who submitted comments are not available to the public due to EPA's Privacy Policy and commitment to protect personally identifiable information. Names of businesses, organizations, and government entities submitting comments are listed in Table 1 below.

2. PROPOSED PLAN COMMENTS

2.1 **Comment:** One citizen asked when vegetables can be grown on his land. (ID 1)

Response: Members of the community should feel free to plant vegetables on their residential properties without concern about PCB contamination unless they live on one of the properties that have not been cleaned up. If any of the residential property owners on properties with PCBs between 1 mg/kg and 10 mg/kg in subsurface soil (soil greater than one foot below the surface) are concerned about gardening in the impacted area, they may contact the PRPs to arrange for additional soil removal. Another option is to create a raised bed with clean soil for growing vegetables. To lessen concerns about contamination of any kind (e.g., pesticides or harmful bacteria), citizens should remember to wash produce and hands well before eating.

Table 1. Comments received on the OU1/OU2 Proposed Plan and Related Administrative Record Documents During the Comment Period from March 13 through May 12, 2017.

Proposed Plan Comment ID	Date	Name	Number of Comments	Delivery
1	3/14/2017	General Public	4	Mail
2	3/16/2017	General Public	2	Mail
3	3/21/2017	General Public	8	CAG Meeting
4	3/21/2017	General Public	7	CAG Meeting
5	3/23/2017	General Public	3	PP Meeting
6	3/23/2017	General Public	5	Transcript
7	3/24/2017	General Public	5	Transcript
8	3/27/2017	General Public	2	Mail
9	3/29/2017	General Public	5	Email
10	4/7/2017	General Public	2	Mail
11	4/16/2017	General Public	1	Mail
12	5/3/2017	General Public	1	Mail
13	5/3/2017	General Public	1	Email
14	5/4/2017	Community Advisory Group	10	Email
15	5/8/2017	MADPCH	13	Email
16	5/9/2017	Anniston Community Education Foundation	1	Email/Mail
17	5/9/2017	City of Anniston	1	Email
18	5/9/2017	Technical Advisor for West Anniston Foundation	41	Email
19	5/10/2017	MRC Holdings	6	Email/Mail
20	5/12/2017	Williams Scrap Metal	6	Email
21	5/12/2017	Pharmacia and Solutia	178	Email/Mail
Feasibility Study Comment ID	**Date**	**Name**	**Number of Comments**	**Delivery**
1	5/12/2017	Pharmacia and Solutia		Email/Mail
NRRB Recommendations Comment ID	**Date**	**Name**	**Number of Comments**	**Delivery**
1	5/12/2017	Pharmacia and Solutia	21	Email/Mail
EPA's 3/7/2017 Letter Comment ID	**Date**	**Name**	**Number of Comments**	**Delivery**
1	5/12/2017	Pharmacia and Solutia		Email/Mail

2.2 **Comment:** Several citizens commented about not being able to sell their property because of contamination from the Site. (ID 1, 3, 8)

Response: The EPA's experience is that as the cleanup process continues and the fear of contamination and liability associated with the contamination is removed, property transactions tend to resume at Superfund Sites. The EPA hopes that once the Site cleanup is complete, concerns about contamination that may have prevented property sales from going forward will be alleviated. The EPA will work with the PRPs to develop an information tool (i.e., comfort letter) to describe the completed cleanup activities which should help eliminate that concern for lenders and buyers.

2.3 **Comment:** One citizen asked how to remove PCBs in the body. (ID 1)

Response: The EPA defers to the public health departments and the Agency for Toxic Substances and Disease Registry (ATSDR) on issues dealing with physical health. ATSDR has compiled health related data about PCBs that can be found at https://www.atsdr.cdc.gov/phs/phs.asp?id=139&tid=26. In reviewing the ATSDR information, the EPA could not find recommendations about steps to take to reduce levels of PCBs in the body, though there are recommendations about how to reduce your exposure to PCBs. The recommendations included obeying all fish advisories and exercising good hygiene in the form of careful handwashing practices after working in the garden. Congress awarded funding to ATSDR to conduct a health study in Anniston, Alabama. The results of that study can be found at https://www.atsdr.cdc.gov/sites/anniston_community_health_survey/overview.html.

2.4 **Comment:** One citizen asked whether people are leaving the area because of the contamination or because of jobs. (ID 1)

Response: The EPA does not have the data to answer this question adequately. By cleaning up contamination from the Anniston PCB Site, the EPA hopes to eliminate any concerns about the impacts of the contamination, thus allowing for more home sales, development, and job growth opportunities.

2.5 **Comment:** One citizen stated that his property was not safe to live in because of contamination around and under the house. (ID 2)

Response: Residential property contamination was targeted for sampling and cleanup early in the Superfund process to ensure that properties were safe for citizens at this Site. Almost all properties contaminated with PCBs above the level considered to present a risk to human health have been cleaned up. The only properties not cleaned up are either significantly wooded and overgrown, such that no residential exposure is currently occurring, or where access has not been granted by the property owner to clean up the property. PCBs beneath structures do not generally pose a risk to human health unless the structure is removed. If the property has an accessible crawl space, either contaminated soil has been removed or a protective layer of geotextile and gravel has been installed to prevent exposure. The EPA has determined that the

properties where cleanup is complete do not represent an unacceptable risk from contamination. In other words, from an exposure risk due to contamination perspective, they are considered safe. If there are residual PCBs in the subsurface or potential PCBs under structures or paved areas, the PRPs have plans to handle the impacted soil, if it is disturbed, to prevent future exposure.

2.6 **Comment:** One citizen stated that his property has no value because of contamination, but he is still required to pay taxes on the property with no prospect for putting the property into productive use. (ID 2)

Response: Property tax equity should be addressed with the local taxing authority. The taxing authority has determined that the property has value and placed a tax on it. Additionally, as stated in the response to Comment 2.2, the EPA's experience is that once the fear of contamination and liability is eliminated after the contaminated soil is removed, property transactions are restored at many Superfund Sites.

2.7 **Comment:** Several citizens stated that the PRPs be required to remove structures and vegetation (i.e. trees) if needed to remove all PCBs. (ID 2)

Response: The final decision for PCBs in surface soil on residential properties in OU1/OU2 requires that wooded properties designated for future residential use be cleared by the PRPs (provided access is granted) if PCB concentrations in surface soil exceed or are equal to the non-residential RG (i.e., 21 mg/kg). Wooded properties with PCB concentrations greater than 1 mg/kg and less than 21 mg/kg, are protective for trespassers and will not be prioritized for cleanup unless the property is ready for development. For properties with PCBs greater than or equal to 21 mg/kg, the PRPs will be required to clear the trees and dispose of vegetation within the soil (i.e., the roots) and any low lying shrubbery to allow for cleanup. Additional sampling will be conducted to minimize the areas requiring disturbance.

2.8 **Comment:** Several citizens stated that the PRPs should compensate property owners for their loses, as well as, the past and future potential of their property. (ID 2)

Response: The EPA does not have the authority to compensate property owners for such damages. The PRPs at this Site have been involved with a number of private tort lawsuits to address community concerns similar to those expressed in this comment. Decisions about cleanup of residential properties are based on the EPA's authority under CERCLA to take action due to current or future unacceptable risk to human health and the environment.

2.9 **Comment:** One citizen stated that NRS-6 (i.e., excavation of non-residential surface soil, onsite treatment, and soil management) is the best remedial action. (ID 3)

Response: In selecting a remedy, EPA considered the factors set out in CERCLA §121, 42 U.S.C. §9621, by conducting a detailed analysis of the viable remedial

response measures pursuant to the NCP, 40 CFR §300.430(e)(9). The EPA proposed and selected alternative NRS-4 instead of NRS-6 for several reasons:

- onsite thermal desorption could create addition air pollution concerns in a community already sensitive and angry about the current exposure of PCB concentrations in air;
- excavation and offsite disposal provides a faster remedy to the local community than thermal desorption, though additional truck traffic may affect other communities; and
- both alternatives result in equal long term protection, while NRS-4 is much less expensive.

Overall, the EPA determined that NRS-4 was the most appropriate remedy.

2.10 **Comment:** Two citizens do not like containment and management of PCBs (or any other dangerous chemicals) in soil. (ID 3, 4)

Response: The selected remedy includes capping/containment only in the areas where waste has already been disposed (UWDAs) and in an isolated area of groundwater contamination. The other components of the overall remedy are primarily digging and hauling contamination offsite to a landfill not located near the community. PCBs have an affinity to soil and can be reliably contained. The landfills where the PCB contaminated soil will be disposed are lined with low-permeability materials to prevent contact with the surrounding environment and will be covered with low-permeability caps to entomb the contaminated soil when the landfills close. Landfills are a common way to effectively handle and contain both non-hazardous and hazardous waste.

2.11 **Comment:** Two citizens wondered why the Solutia Facility was not being addressed by the current action, because PCBs are still present at the Facility. Another citizen asked why Solutia still has PCBs on its property if EPA has completed the cleanup. (ID 3, 4)

Response: The Solutia Facility and the two adjacent landfills were investigated and are being cleaned up as part of Operable Unit 3 (OU3). The OU3 ROD was finalized on September 29, 2011, and the Consent Decree settlement that governs the OU3 remedy was entered by the Federal District Court on April 17, 2013.

2.12 **Comment:** Two citizens stated that contaminated residential lots that have not been cleaned up because they are wooded and overgrown should be cleaned up to protect trespassers. (ID 3, 4)

Response: The EPA agrees that the comment is valid and has changed the proposed remedy as stated in the response to Comment 2.7. This change reflects that wooded properties designated for future residential use should be cleared, as needed, by the PRP, provided access is granted, and remediated if PCB concentrations in surface soil exceed or are equal to 21 mg/kg, the non-residential RG that is protective for trespassers. One of the 43 wooded properties identified in the ROD meets this

criterion. Wooded properties with PCB concentrations greater than 1 mg/kg and less than 21 mg/kg, are protective for trespassers and will not be prioritized for cleanup unless the property is cleared by the property owner as desired for the future use and ready for residential development. Once the trees are cut down, the PRPs will be required to clear and dispose of vegetation within the soil (i.e., the roots and stumps) and any low lying shrubbery or vegetation.

2.13 **Comment:** Two citizens pointed out that surface soil continues to erode and impact Snow Creek, and not cleaning up surface soil on wooded properties will lead to continued recontamination of Snow Creek. The PRPs are responsible and should pay to have trees taken out. (ID 3, 4)

Response: Heavily wooded and overgrown properties are not expected to be a significant threat or source of contamination in terms of erosion. The operation and maintenance plan for OU1/OU2 will include requirements to inspect contaminated wooded lots and provide erosion control improvements or silt fences as necessary to reduce the erosion potential in contaminated areas, provided owner access is granted. Sediment traps will be installed in drainage features and sampling of material in the traps will be used to determine is additional response measures are needed to protect adjacent properties or downstream locations.

2.14 **Comment:** Two citizens pointed out that Solutia owns many wooded lots and other properties in the community and would like to know how many of them have not been cleaned up? One citizen stated that the PRPs should have to clean up their own properties too. (ID 3, 4)

Response: No wooded lots have been cleaned up as part of the Anniston PCB Site before this ROD. The PRPs have cleaned up: 18 residential properties they own with surface soil PCB concentrations greater than or equal to 1 mg/kg; three (3) residential properties with surface soil PCB and lead concentrations greater than or equal to 1 mg/kg and 400 mg/kg, respectively; and one (1) residential property with surface soil lead concentrations greater than or equal to 400 mg/kg.

2.15 **Comment:** One citizen wants to know why Solutia bought some properties on Zinn Parkway and not others. He provided a letter showing that a local realtor will not even list properties with residual PCB impacts. He noted that the presence of contamination has destroyed the property value and turned it into a liability. (ID 3)

Response: The EPA understands that some residential properties were purchased as part of tort litigation settlements between the PRPs and residents or to provide for part of the drainage improvement projects (Interim Measures) implemented by the PRPs in the 1990s. As discussed in the response to Comment 2.2, the EPA hopes that once the Site cleanup is complete, concerns about the contamination that may have prevented past property sales will be alleviated. The EPA will work with the PRPs to develop an information tool (i.e., comfort letter) to help address that concern for lenders and buyers. EPA is not in a position to address the opinions or

recommendations of any particular realtor, other than to say that many properties have been sold that were the subject of prior CERCLA cleanup actions.

2.16 **Comment:** Two citizen questioned why community members received different fact sheets or no fact sheets about the cleanup. (ID 3, 4)

Response: The EPA prepared one (1) overall fact sheet that presented alternatives for the eight (8) categories evaluated in OU1/OU2 and it also prepared eight (8) individual, more detailed fact sheets about each of the categories (residential soil, special use properties, interim measures, dredge spoil piles, unapproved waste disposal areas, non-residential soil, groundwater at investigation well T-11, and Snow Creek sediment and creek banks). The mailing list for each of the factsheets was developed to inform people impacted by the proposed remedial actions. In addition, all the factsheets were made available on the EPA webpage for the Anniston PCB Site. Numerous advertisements in the local newspapers and reports by local media informed the greater Anniston area about the Proposed Plan and public meetings held by the EPA. Table 2 below identifies the groups that were targeted by the mail-outs and which fact sheets they should have received through the mail. The intent of the communication strategy in Table 2 was to provide an overall summary of the Proposed Plan to everyone with impacted property and to provide a more detailed plan to for each category evaluated. The information repository copies and online copies of all the fact sheets and Proposed Plan were available to the whole community and any outside interested parties. The public comment period was open to anyone interested in the Site.

Table 2. Written Communication Plan for OU1/OU2 Proposed Plan and Fact Sheets for the Anniston PCB Site.

Organization/ Individual	***Materials Communicated***	***Date of communication***
Residents: Owners and Tenants	Overall Factsheet and Residential Factsheet	03/13/2017
Non-Residential Properties Owners	Overall Factsheet and Non-residential Factsheet	03/13/2017
UWDA Property Owners and PRPs	Overall Factsheet and UWDA Factsheet	03/13/2017
Special Use Properties Owners	Overall Factsheet and Special Use Factsheet	03/13/2017
State and Federal Elected Officials	Overall Factsheet	03/13/2017
Local Elected Officials	All Factsheets	03/13/2017
ADEM	All Factsheets and Proposed Plan	03/13/2017
Natural Resource Trustees	All Factsheets and Proposed Plan	03/13/2017

Organization/ Individual	***Materials Communicated***	***Date of communication***
CAG	All Factsheets and Proposed Plan	03/13/2017
Technical Advisor	All Factsheets and Proposed Plan	03/13/2017
PRPs	All Factsheets and Proposed Plan	03/13/2017

2.17 **Comment:** One citizen complained that the cleanup conducted on their property created drainage issues that did not exist before the cleanup. (ID 4)

Response: Before beginning each residential removal, the PRP's contractor went through a pre-removal checklist with the owner. The intent was to remove the required soil and restore the property as close to its pre-removal condition as possible. That being said, plans changed occasionally based on homeowner preferences. The EPA will pass along the concerns of this property owner to Solutia and work with the homeowner as much as possible to address his concerns.

2.18 **Comment:** Several citizens commented that PCBs have affected their health and the health of animals in the Anniston area. Some believe that cancer rates are higher in Anniston. (ID 5, 10)

Response: As discussed in response to comment 2.3, the EPA defers to the public health departments and the Agency for Toxic Substances and Disease Registry (ATSDR) on issues dealing with physical health. Congress awarded funding to ATSDR to conduct a health study in Anniston, Alabama. Jacksonville State University was part of a group that worked on the study that can be found at https://www.atsdr.cdc.gov/sites/anniston_community_health_survey/overview.html. The selected remedial action will provide reduced exposure to from Site contaminants animals, as well as, human health.

2.19 **Comment:** One citizen requested retesting of soil, retesting of citizens, research of PCB related death rate, and compensation to those who deserve to be compensated for being exposed to the PCBs. The resident believes that previous settlements did not compensate the affected population fairly. (ID 5)

Response: Additional soil testing will be conducted as needed to design the remedial actions selected in the ROD for OU1/OU2, but the original testing conducted to determine the nature and extent of the Site contamination will not be repeated. Participants in the Anniston Health Study have been retested as part of the study. Follow the link in the response to Comment 2.18 to find out more about the health study. As stated in the response to Comment 2.8, the EPA does not have the authority to compensate residents for the concerns raised in this comment.

2.20 **Comment:** One citizen stated that the best solution is to move the people and businesses. (ID 5)

Response: Relocation of residents and businesses would only be considered and required if there was no way to protect citizens from the contamination in any other way. Based on sampling results and risk assessments conducted at the site, the EPA believes that the community can be protected by conducting the remedial alternatives selected in the ROD. Longterm monitoring and Five-Year Reviews of the selected remedy will allow the EPA to ensure that the remedy remains protective over time.

2.21 **Comment:** One citizen asked how SED-2 (i.e., excavation, onsite/offsite disposal, and MNR) will be monitored and suggested that it was a better alternative than the one proposed because it included monitoring. (ID 6)

Response: Because SED-2 relies on natural erosion of clean surface soil and erosion of sediment to reduce concentrations of sediment to acceptable levels, periodic sampling of sediment is needed to confirm that sediment concentrations are decreasing. It should be noted that even though this is the only alternative that relies on monitoring over time to confirm that final goals have been met, all of the other alternatives will require monitoring of sediment moving through the system to ensure that the remedial goals are maintained, because sediment goals are lower than non-residential soil goals.

2.22 **Comment:** One citizen asked whether the project sampled the sewage treatment plant in Anniston. (ID 6)

Response: The Anniston Waste Water Treatment Plant (AWWTP) is located in the OU4 portion of the Site. We do have samples from the AWWTP area, but that data was not presented in the OU1/OU2 Proposed Plan. The data is available upon request and will be presented in the RI for OU4 in 2018. Alternatives to address contamination in OU4 will be presented in the FS for OU4.

2.23 **Comment:** One citizen commented that he personally had worked on digging up water lines near the Facility in the affected areas, and expressed some concern about that. (ID 6)

Response: The Construction and utility worker pathways were evaluated in the human health risk assessment for OU1/OU2. The construction/utility worker remedial goal selected for PCBs in the subsurface soil is 97 mg/kg, which is almost two orders of magnitude higher than residential remedial goal of 1 mg/kg, because the frequency of exposure is much lower (non-PCB contaminants did not exceed remedial goals in subsurface soil). There are very few locations where PCB concentrations in subsurface soil have been found that exceed the construction/utility worker remedial goal for PCBs. Those higher concentrations were primarily found in areas where containment is proposed and not where future excavation will be allowed once the remedy is implemented.

2.24 **Comment:** One citizen asked which dredge spoil piles were removed near Glenn Addie, and whether natural filtration such as rainfall has lowered the levels of PCBs in these areas. (ID 6)

Response: Dredge spoil pile SC-3 was located at 710 Pine Street and was removed when the property was cleaned up in June and July 2009. Piles SC-4, SC-5, and SC-6 were located next to Snow Creek adjacent to W 6th Street and were removed during the Snow Creek sediment removal project conducted by the City of Anniston and the PRPs in November 2009. The PCBs are for the most part attached to surface soil particles and do not infiltrate to deeper soil deposits. The surface concentrations might be lower if surface soil erodes to ditches and creeks.

2.25 **Comment:** One citizen asked if the footnote on some pages of the Proposed Plan fact sheet applied to the whole text, because the location of the footnote could not be found. (ID 6)

Response: The EPA was unable to find a footnote in the Proposed Plan or the Proposed Plan fact sheets that was not associated with a specific portion of the text. There were some definitions below a table that applied to abbreviations in the table, but they were not identified as footnotes. Please contact the EPA with more information on the specific footnote and the EPA staff will try to answer your question.

2.26 **Comment:** One citizen stated that he did not understand how his property was not contaminated when two properties upgradient of his property were contaminated and needed cleanup. He felt that contaminated soil would have moved down gradient to his property. (ID 7)

Response: There are many instances at the Site where properties with PCB concentrations greater than the remedial goal are located next to properties with PCB concentrations that are less than the remedial goal or where PCB concentrations cannot be detected. Even though runoff from properties with higher PCB concentrations may move across adjacent property, it is possible that the runoff did not carry PCB impacted soil in significant amounts. The EPA relied on property specific samples to determine whether a property was contaminated and needed remediation.

2.27 **Comment:** One citizen asked why her property was not sampled even though it is in the floodplain and surrounded by properties that were cleaned up for PCBs. (ID 7, 12)

Response: The property in question does not have a house on it and is located near Snow Creek. Because of its low elevation, local authorities have restricted development of the property in question to non-residential use as it is part of the City of Oxford flood control zone. It is located in non-residential exposure unit EU 26 which is targeted for cleanup of non-residential soil because of high PCB

concentrations on the Tull Chemical Property. Samples will be collected during remedial design to ensure that the property in question does not exceed the non-residential PCB goal of 21 mg/kg in surface soil. A few adjacent residential properties were cleaned up because PCB concentrations were as high as 12.7 mg/kg, in excess of the residential PCB goal of 1mg/kg. The likelihood of a cleanup being required for this vacant property is low unless it becomes a higher activity area.

2.28 **Comment:** One citizen asked if it was legal to transport hazardous waste across state lines, and asked where the disposal facilities in the proposed alternatives are located. (ID 7)

Response: Provided federal laws are followed, it is legal to transport hazardous waste across state lines. The Hazardous Materials Transportation Act (HMTA), enacted in 1975, is the principal federal law in the United States regulating the transportation of hazardous materials under the authority of the United States Department of Transportation (DOT). The DOT's regulations are documented in 49 CFR 171-180. The HMTA is implemented through various agencies based on the mode of transportation and the type of hazardous material being transported. The regulations in 40 CFR 300.440 require that CERCLA wastes be placed in a facility operating in compliance with the Resource Conservation and Recovery Act (RCRA) or other applicable Federal or State requirements. Under the authority of RCRA, the EPA allows for the transportation of hazardous wastes from intrastate, interstate, and foreign commerce. The EPA coordinates its transportation ordinances with the requirements of the HMTA. The EPA standards applicable to transporters of hazardous wastes are located in 40 CFR 263. These EPA standards incorporate and require compliance with the DOT provisions on labeling, marking, placarding, using proper containers, and reporting discharges. The EPA's adoption of these DOT standards ensures consistency among the requirements as well as avoids establishing conflicting rules.

The proposed disposal facilities in the alternatives are as follows:

- The Three Corners Landfill is located at 2205 County Rd 6, Piedmont, Alabama. It provides nonhazardous waste disposal services to residential, commercial and industrial customers (including soil with PCB concentrations less than 50 mg/kg) from Alabama, Georgia and Tennessee.
- The Chemical Waste Management Landfill is located at 36964 Alabama Highway 17 North, Emelle, Alabama. It provides hazardous waste transportation, treatment and disposal services and is permitted for disposal of waste with PCB concentrations greater than 50 mg/kg.
- Veolia Environmental Services located at 7665 Highway 73, Port Arthur, Texas is a RCRA and TSCA permitted incineration facility.
- Clean Harbors Environmental Services, Inc. located at 2027 Independence Parkway South, La Porte, Texas is a RCRA and TSCA permitted incineration facility.
- The third incineration facility in Kansas was identified in the administrative records for OU1/OU2, but it no longer treats PCB-containing soil.

2.29 **Comment:** One citizen asked if we had found any core dumps along Snow Creek. (ID 7)

Response: The only unapproved disposal areas identified during the OU1/OU2 remedial investigation were the UWDAs located in EU1 and EU10. The citizen described a disposal area located in either EU22 or EU23. The only contaminant of concern that was identified in this area was a hot spot of chromium in EU22. The EPA will refer the information provided to ADEM for further investigation.

2.30 **Comment:** One citizen asked how we will keep sediment from washing downstream when the sediment under Highway 202 is removed from the culvert. (ID 7)

Response: The capacity of the culverts under Highway 202 which runs over Snow Creek exceeds the normal stormwater flow. During the cleanup, water will be diverted away from the work area to prevent sediment from washing downstream. All available best management practices will be used to prevent downstream migration of contaminants.

2.31 **Comment:** One citizen stated that the PRPs should be required to clear all impacted wooded properties and remove all PCBs so that there is no more potential risk or restrictions on properties. (ID 8)

Response: The EPA can take action to protect current or future unacceptable risk of human exposure to contamination. The only current exposure on a wooded lot is possible trespasser exposure. As described in the response to Comment 2.7 and Comment 2.12, the EPA agrees that concern for trespasser exposure is valid and has thus changed the proposed remedy to reflect that wooded properties designated for future residential use should be cleared, as needed, by the PRPs, provided access is granted, and remediated if PCB concentrations in surface soil exceed or are equal to 21 mg/kg, the non-residential RG. One of the 43 wooded properties identified in the ROD meet this criterion. Wooded properties with PCB concentrations greater than 1 mg/kg and less than 21 mg/kg, are protective for trespassers and will not be prioritized for cleanup unless the property is cleared as desired for the future use and ready for development. Once the trees are cleared, the PRPs will be required to clear and dispose of vegetation within the soil (i.e., the roots and stumps) and any low lying shrubbery or vegetation.

2.32 **Comment:** One citizen asked where the landfills are located that were "adjacent to" or near the "former Monsanto facility" that is mentioned in the introduction (in the information that was handed out at the meeting), that were addressed in a "separate Proposed Plan." (ID 9)

Response: The Record of Decision for the Facility and adjacent landfills can be found at the information repositories or at https://semspub.epa.gov/work/04/

10838640.pdf . There are figures in the ROD that show the location of the landfills adjacent to the Facility on Hwy 202.

2.33 **Comment:** One citizen asked for the address of the landfill used in Piedmont, Alabama - Three Corners Landfill. (ID 9)

Response: The Three Corners Landfill (Three Corners) is located at 2205 County Rd 6, Piedmont, Alabama.

2.32 **Comment:** One citizen asked for the addresses of the "two unapproved waste disposal areas" that were "auto fluff disposal areas." (ID 9)

Response: One UWDA is located at 830 W 10TH ST and the other UWDA encompasses some vacant lots between Le Grande Street and Ashley Street, west of the Facility.

2.33 **Comment:** One citizen asked if there is a specific portion of Choccolocco Creek that is being assessed or whether it is the entire creek. (ID 9)

Response: Choccolocco Creek and its floodplain from where Snow Creek discharges into the creek until the embayment of Lake Logan Martin is being investigated as part of Operable Unit 4 (OU4) of the Anniston PCB Site.

2.34 **Comment:** One citizen asked if routine water tests are conducted to check for PCBs in the water supply since groundwater contamination took place near OU3. (ID 9)

Response: The groundwater contamination around the Solutia Facility is being contained and treated onsite with carbon. The treated water is discharged to the waste water treatment plant. The local area receives water from Coldwater Springs, which is upgradient of the Facility and should never be impacted by groundwater from the Facility. However, the water utility is required to test the water periodically and can provide you with the results of the tests.

2.35 **Comment:** One citizen commented that no information about PCB contamination was provided prior to purchasing a PCB impacted property in Anniston. (ID 10)

Response: The existence of PCB contamination in the area is broadly known to residents and people from the area, including local governments and local real estate professionals. Property owners with PCB impacts or residual PCBs in subsurface soil or under structures receive correspondence every year to remind them to call and coordinate with the PRPs if the PCBs in soil on their property may be disturbed by future activities. The EPA and the PRPs will try to develop informational tools to help new residents understand the issue and the process to get more information.

2.36 **Comment:** One citizen commented that the property she purchased should have been torn down to the ground and cleaned up. (ID 10)

Response: The EPA determined that PCB contamination in surface soil could be reliably removed and replaced with clean soil, making the property protective for residential use. Because the structures on the property may be acting as a protective cap for more PCBs in soil beneath them, the PRPs have been tracking PCB impacted properties and conducting additional removals when structures are removed if soil tests indicate that removal goals are exceeded. Also, because there may be more PCBs below the top layer of clean soil on a few properties, the PRPs have informed property owners and provided them with documentation on where those locations are and how to contact the PRPs if subsurface soil in the impacted areas need to be disturbed. The residents of Anniston can be protected without structures being torn down or residents being removed from the area.

2.37 **Comment:** One citizen commented that the PCBs should be incinerated. A septic pump approach where the PCBs are pumped directly from the landfill into the incinerator was suggested. (ID 11)

Response: The two landfills adjacent to the current Solutia Facility were evaluated as part of Operable Unit 3 (OU3) and are not part of OU1/OU2. Incineration was an alternative considered in the OU3 decision document for contamination at the Facility. The EPA determined that the PCBs in the landfill and the landfills themselves were already effectively contained. An improved, updated cap over the three PCB cells in the South Landfill was selected because some PCB contamination was found in groundwater coming from the South Landfill. The groundwater at the perimeter of the South Landfill is currently being captured and treated.

2.38 **Comment:** One citizen provided an analysis of the Proposed Plan in relation to the Plain Writing Act of 2010, which requires that federal agencies write "clear government communication that the public can understand and use." The citizen determined that "the Proposed Plan Fact Sheet is too technical for the average citizen to understand with little if any attempt at making information understandable to the average person." The citizen went on to state that the EPA website is not accessible to many Anniston residents who have no access to computers or the internet. The citizen recommended that the EPA use plain language and clear communication, distribute using multiple low cost methods, pilot test documents with target audience to assess understanding and obtain feedback, assess reach of documents, and allow for longer period of time to review documents prior to the public meetings. (ID 13)

Response: The EPA appreciates the remarks and agrees that it is our goal to communicate information in an understandable way to the community. It is not always easy to write technical information so that it can be easily understood. The project team will work to make future information more clear as suggested. The EPA anticipated that the community might need help understanding the technical aspects of the Site and required the PRPs to fund participation of a Community Advisory Group (CAG) and award a grant to a local community group to hire a technical advisor to help them and the community at large understand the information

developed during the investigations and decisions at the Site. The EPA and the PRPs have been meeting regularly with the CAG since 2003 and the PRPs have funded services of a technical advisor hired by a local organization to work for the community.

2.40 **Comment:** The CAG and Mothers and Daughters Protecting Children's Health (MADPCH) prefers residential soil alternative RS-3 (i.e., excavate PCBs greater than or equal to 1 mg/kg at all depths and manage PCB residuals) in order to remove restrictions from properties. If the EPA chooses RS-2, the CAG and MADPCH recommend a readily available resource containing all residential sampling data for public access. Following all instances of excavation there should be confirmation sampling. (ID 14, 15)

Response: The EPA selected RS-2 instead of RS-3 because there is no current unacceptable risk from PCB concentrations less than or equal to 10 mg/kg in subsurface soil. Management of residual PCBs will be conducted to ensure that PCBs under structures or in the subsurface do not become available for future residential exposure. The EPA is aware that the community would like a publically accessible system to access residential sampling and removal information.

The PRPs have developed a data management system and maps that contain all parcel information as part of the non-time critical removal design/action for the Site. This GIS database is maintained and updated on a regular basis and can be readily accessed by the PRPs to supply parcel-specific information to the public. For privacy reasons, the information may not be able to be released in a way that allows for community access without contacting the PRPs or the EPA. This data will be shared with local governments as necessary to aid in issuing building permits, changing zoning, and other controls within the Site.

2.41 **Comment:** The CAG and MADPCH prefer special use property alternative SU-4 (i.e., excavate PCBs greater than or equal to 1 mg/kg in high and low activity areas and manage PCB residuals). This will provide unrestricted use of property to which the community is entitled. Following all instances of excavation there should be confirmation sampling. (ID 14, 15)

Response: The EPA selected SU-3 instead of SU-4 because there is no current unacceptable risk from PCB concentrations less than or equal to 10 mg/kg in subsurface soil. Management of residual PCBs will be conducted to ensure that PCBs under structures or in the subsurface do not become available for future residential exposure.

2.42 **Comment:** The CAG and MADPCH prefer interim measures alternative IM-4 (i.e., excavate around existing interim measures to meet non-residential goals, and excavate any principal threat waste found within interim measures if leaching to groundwater). Following all instances of excavation there should be confirmation sampling. (ID 14, 15)

Response: The EPA selected IM-4. Confirmation samples will be collected to ensure that remedial goals have been met, and if residual PCBs are present above 1 mg/kg but below subsurface remedial goals, they will be properly managed.

2.43 **Comment:** The CAG and MADPCH prefer dredge spoil piles alternative DSP-4 (i.e., excavate all dredge spoil piles and dispose offsite). Following all instances of excavation there should be confirmation sampling. (ID 14, 15)

Response: The EPA selected DSP-4. Confirmation samples will be collected to ensure that remedial goals have been met, and if residual PCBs are present above 1 mg/kg but below subsurface remedial goals, they will be properly managed.

2.44 **Comment:** The CAG and MADPCH prefer unapproved waste disposal areas alternative UWDA-3 (i.e., install RCRA Subtitle-D cap at both locations). (ID 14, 15)

Response: The EPA selected UWDA-3.

2.45 **Comment:** The CAG and MADPCH prefer non-residential soil alternative NRS-4a (i.e., excavate to greater than or equal to 21 mg/kg, dispose all contaminated soil offsite and manage PCB residuals). However, the CAG wants sediment to be monitored to ensure that the soil PCB cleanup to 21 mg/kg is sufficient to protect the sediment PCB cleanup goal of 3 mg/kg). Following all instances of excavation there should be confirmation sampling. (ID 14, 15)

Response: The EPA selected NRS-4a. Confirmation samples will be collected to ensure that remedial goals have been met, and if residual PCBs are present above 1 mg/kg but below subsurface remedial goals, they will be properly managed.

2.46 **Comment:** The CAG and MADPCH prefer groundwater alternative GW-4 (i.e., remove high concentrations of PCBs in the soil, provide a low permeability cap to prevent further groundwater contamination, and pumping and treating groundwater to drinking water standards). Following all instances of excavation there should be confirmation sampling. (ID 14, 15)

Response: The EPA selected GW-4. Confirmation samples will be collected to ensure that remedial goals have been met, and if residual PCBs are present above 1 mg/kg but below subsurface remedial goals, they will be properly managed.

2.47 **Comment:** The CAG and MADPCH prefer Snow Creek sediment and creek banks alternative SED-4a (i.e., excavate to 3mg/kg, dispose all contaminated soil offsite), provided routine monitoring is conducted to insure all goals are meet. (ID 14, 15)

Response: The EPA selected SED-4a. Sediment monitoring will be conducted as needed to ensure that recontamination does not occur.

2.48 **Comment**: After the Creek is clean, the CAG and MADPCH would like to have 50% of residential property adjacent to the Creek resampled to ensure that they are still protected. (ID 14, 15)

Response: Because residential soil was sampled and cleaned up before the sediment in the creek, it is reasonable to request confirmation samples to ensure that no recontamination has occurred. Because of changes in property use due to flooding, there are less than two dozen residential properties adjacent to the creek. Sampling a dozen properties for PCBs in surface soil to confirm they remain protective is a reasonable request that was added to the selected remedy requirements.

2.49 **Comment**: The air remains a health concern for the community. The CAG and MADPCH would like air monitoring with each Five-Year Review of the remedy and during all construction activities. MADPCH specifically recommended that there be a baseline air sampling campaign next year and each five years after that with a report by the air department from EPA to the community. MADPCH further recommended sampling at the plant site and within a 3-mile area surrounding the plant as PCB's were found in the bark of trees further out. MADPCH also recommended random sampling by EPA as well. (ID 14, 15)

Response: The EPA will work with P/S to develop a plan for monitoring air during construction as well as longterm so that the community can stay informed about PCB concentrations after the remedial action is complete. Five-Year Reviews will be conducted to ensure the remedy is protective and provide a good opportunity to evaluate whether remedial actions have had an effect on reducing the concentrations of PCBs in air.

2.50 **Comment:** The CAG, MADPCH, and Anniston Community Education Foundation (ACEF) ask for the EPA's support in negotiations with the PRPs for additional funding to the ACEF, to continue their mission and vision of assisting children of West Anniston and the impacted area. MADPCH further stated that the funding request is nothing compared to the damaged that has been done to the community by the PCB contamination. ACEF submitted 68 letters of support from local officials, school leaders, student recipients, and concerned community members. (ID 14, 15, 16)

Response: This comment is not related to the selection of a remedy for OU1/OU2. It is however an interesting comment for the EPA and P/S to consider during negotiations. The EPA appreciates this level of input and engagement from the community.

2.51 **Comment:** MADPCH stated that contaminated properties should not be designated as unsuitable for removal. Owners should not be expected to clear the trees in order to have the property cleaned up. Tree and vegetation removal cannot be done without disturbing the soil, and owners are not qualified to deal with the contaminated soil.

Their properties are then deemed non saleable by realtors in the areas so the owners are then left with a piece of property that he/she cannot use or sell. (ID 15)

Response: The EPA has responded to similar concerns in response to Comments 7, 12, and 31. There is no residential exposure occurring on the overgrown wooded properties. There is one property with possible unacceptable trespasser exposure that is targeted for cleanup. If property owners coordinate with the PRPs when clearing the trees, a PRP representative can be present to ensure that contaminated soil is handled properly.

2.52 **Comment:** Regarding crawl spaces underneath houses, MADPCH stated that the work done to make crawl spaces protective is an issue to the community that was never satisfactorily address. (ID 15)

Response: Crawl spaces were sampled to determine if unacceptable residential exposure to PCBs might occur. If PCBs were present in the crawl space, a barrier of geotextile fabric and gravel was used to prevent residential exposure. This decision was made to eliminate the exposure pathway in crawl spaces. In a few cases, siding was used to prevent access to the crawl space, so that exposure was eliminated. If a house with known or probable PCBs in the crawl space or under the foundation is demolished, P/S sample the soil and conduct a removal if necessary to ensure the remedial goal for the residential property is met.

2.53 **Comment:** MADPCH stated that the community has not been educated about the institutional control measures in the Proposed Plan and they are therefore not acceptable. The community feels that there needs to be a community friendly single database of all sampling results (not just properties that have residual PCB's on them) housed somewhere that the community has access to and is able to use at any time as we have a very fluid community. (ID 15)

Response: The EPA has discussed different types of institutional controls with the community on many occasions. In addition, the EPA met with local government officials to encourage them to consider establishing institutional controls to protect remedies that could be established throughout the community. The concept of developing an accessible public database of all sampling and cleanup results is discussed in the response to comment 2.40.

2.54 **Comment:** The City of Anniston stated that it would be beneficial for the City of Anniston to be included in the design phase of the project. There are multiple components of the project that have the potential to impact the floodplain, City assets, City maintenance responsibilities, etc. Therefore, the City of Anniston is requesting to be involved during these key decisions as the project is designed and continues toward construction. (ID 17)

Response: The EPA agrees that the City needs to be involved and will engage the appropriate departments and officials in the remedial design process.

2.54 **Comment:** WAF submitted the following community questions about gardening. How does the Proposed Plan protect me from planting a garden or planting a tree when there are only 12 inches of clean soil cover and no marker bed to let me know when I have passed the 12 inches of clean soil? Do I have to call Solutia to have access to my yard when I am planting a tree approximately 1 ½ feet deep? How do these options protect me when there is not a marker bed to distinguish new soil from old soil? (ID 18)

Response: P/S has provided property owners with diagrams that show the areas in approximately 95 yards where PCBs are present in subsurface soil at concentrations greater than 1 mg/kg and less than 10 mg/kg. P/S has requested that property owners contact them before digging in those areas. The majority of property owners that have granted access for cleanup do not have residual PCBs in subsurface soil and do not need to worry about digging on their properties.

2.55 **Comment:** WAF submitted the following community questions about uninformed residents. What if I see my neighbor, who is renting the property, digging and they have not been informed of the contamination on the property by their landlord who lives in another state? Perhaps the landlord did not receive or did not share the letter about the contamination and therefore, did not inform the tenant. Children have played in the yard the entire year and had been exposed to high concentrations over the year. How does options 2 or 3 of the Residential Proposed Plan protect these children? The children were crawling underneath the house playing in the high concentration of PCBs all year; the parents are unaware of the PCBs in the soil, does Solutia inform new tenants or property owners personally? (ID 18)

Response: The EPA and the PRPs will urge property owners to share information with tenants. Neighbors knowledgeable about the Site contamination are encouraged to share this information with uninformed owners and tenants as well. If necessary, residents can contact the PRPs if they feel that an exposure situation might be present in their community. The PRPs have provided property owners with diagrams that show the areas in approximately 95 yards where PCBs are present in subsurface soil at concentrations greater than 1 mg/kg and less than 10 mg/kg. P/S has requested that property owners contact them before digging in those areas. Owners should pass that information on to tenants. Crawl spaces were sampled to determine if unacceptable residential exposure to PCBs might occur. If PCBs were present in the crawl space, a barrier of geotextile fabric and gravel was used to prevent residential exposure. This decision was made to eliminate the exposure pathway in crawl spaces. In a few cases, siding was used to prevent access to the crawl space, so that exposure was eliminated.

2.56 **Comment:** WAF submitted the following community questions about remedial goals for sediment. The Remedial Goal for sediment was done under the Ecological Risk Assessment, but not for children playing in Snow Creek. Did the EPA disregard the community's concern about children playing in Snow Creek even though it had been stated in a number of CAG meetings about children playing in the ditch and in the

culvert at Highway 202? The RI report states that the highest concentration of PCBs are located near culverts (S-2-08=20.3 ppm/S-2-06b=12ppm/S-2-06c=30.1ppm/ and on the north side of the bridge S10134=60ppm). It is also stated that storm water movement during high water flow increases the distribution of PCBs in sediment. The backyards of many residential homes have direct access to Snow Creek. Can we put up a fence or a sign as a preventive measure? (ID 18)

Response: The EPA understands that children and adults may be exposed to sediment and surface water in contaminated creeks. However, when residential yards are also contaminated, the exposure from sediment and surface water is negligible by comparison. Because there is also no sustainable fishing from Snow Creek, the real threat of contamination in Snow Creek sediment and surface water is to ecological receptors. The selected remedy is to remove creek sediment in OU1/OU2 that exceed remedial goals. The remedial goal for PCBs in sediment in this portion of the creek was established at 3 mg/kg. All of the sediment in the culverts under Highway 202 will be removed. The EPA does not believe fencing or signs are needed along Snow Creek to make it protective for human health. Fencing may be used if during remedial design it is needed to protect the sediment and creek banks remedy.

2.57 **Comment:** WAF submitted the following questions about institutional controls on residential properties. The Proposed Plan states that property notices would be voluntary. If I am buying a house, does the Seller have to inform me that contamination is still on the property? And, if I am the Seller with contamination still left on my property (under the house or in the yard), do I have to inform the buyer? In all options of the Proposed Plan, 'disclosing is an option'; however, what if I am a renter? (ID 18)

Response: Property sellers are required to sign a disclosure form that includes a section about environmental issues with their property. The information provided by the PRPs about PCBs in subsurface soil or potential concentrations under structures should be shared with buyers because the purchaser will be receiving the correspondence from the PRPs in the future. The EPA and the PRPs will urge property owners to share information with buyers and tenants, but such disclosures during property transactions are controlled by the state and local laws, regulations and ordinances.

2.58 **Comment:** WAF submitted the following questions about protecting people who purchase properties. This concern is in reference to the TH Agriculture Pesticides Site (THAN) located in Montgomery, Alabama, which was a Superfund Site. A local businessman bought a building located on the property and was unaware that the property was contaminated with Pesticides. The sale of the property went through as usual. The property is now a vacant lot. If someone was buying property with Residual PCB left on the property, in accordance to the Plan, the seller does not have to inform the buyer that Residual PCB is on the property or reveal the location where the PCB residual contamination exist on the property. However, if the contamination was LEAD, the Seller of the property would have to disclose that LEAD

contamination was on the property. The sale of the property would fall under the Lead Residential Lead-Based Paint Disclosure Program (Section 1018 of Title X). The Lead Disclosure Rule was enacted to protect potential home Buyers. If the EPA can enact a Ruling to protect potential home buyers from Lead, why can't the EPA enact a Ruling to protect potential home buyer from the contamination of PCBs on property as well as other toxic chemicals that are located on properties? Lead and PCBs are both recognized by ATSDR and TSCA as being a toxic substance and can cause adverse health issues in humans. (ID 18)

Response: Alabama employs a rule known as *caveat emptor* for the sale of real property. *Caveat emptor* is Latin for "let the buyer beware," which means that the seller has no actual duty to advise the buyer of issues with the property's physical condition during the sale. Alabama places the responsibility of discovering defects upon the buyer, with three exceptions:

1. if a fiduciary (legal) relationship exists between buyer and seller,
2. if the seller knows the home may pose a health or safety risk to the buyer, and
3. if the buyer directly questions the seller on specific defects.

PCBs in subsurface soil and beneath structures are not a direct health and safety threat that would trigger the exception described above. The affected property owners can voluntarily place a notice on their deed to notify buyers about the potential for PCBs to be present in the subsurface soil and beneath structures. Other than that, developing educational tools to inform buyers, property inspectors, and real estate agents that impacted property owners receive annual notification letters may be all that the EPA and the PRPs can do to inform buyers about potential impacts from the Site.

The Lead Disclosure Rule was proposed by the EPA and enacted by Congress. The EPA has proposed additional disclosure rules, but they have not successfully been processed through Congress.

2.59 **Comment:** WAF submitted the following questions about disclosures about contamination. Can the sale of any property with PCB residuals found on the property be overturned in Court from not disclosing the hidden dangers of toxic chemical residue left on properties? (ID 18)

Response: Refer to the response to Comment 2.58. Under Alabama law, the failure to disclose that PCB residuals are present in subsurface soil or under structures may not be sufficient to hold a seller liable for any damages, depending upon the circumstances. Notwithstanding this response, this is really a question of state law or property transactions that is outside EPA's area of expertise.

2.60 **Comment:** WAF submitted the following comments and questions about the need for community run institutional controls program. The Proposed Plan stated that information will be located in the Carver Library branch. Will the librarian be available to answer questions concerning the Anniston PCB Site, or will there be

someone from the community a citizen can call to find out pertinent information such as a plumber who is trained to handle contaminated waste? In the Proposed Plan under Other Management Controls, who will be trained or educated to share this information with the public? These two topics are not a part of either option 1, 2, or 3, nor is there a cost for training or education. How will training and education be funded and how much money will available for these programs? Throughout the document there is the concern of recontamination. One way to avoid recontamination is to train and educate. As part of the IC Program, could a one stop office, staffed with a local presence, be developed to work within the community to provide pertinent information to citizens and new tenants in the area? The workers would know firsthand the tenant turnovers as well as ownership turnovers. The worker would also relate to members in the community on a personal level and be able to convey what actions need to be taken. When community members are involved in the day to day operation of an IC Program, the program works. (ID 18)

Response: The ROD does not include a (community member) staffed IC Program. That type of program is not needed since the past removal work and the proposed remedial work on residential properties requires excavation of the contaminated soil posing a risk. Other sites that have more robust IC Programs are most often run by local units of government and involve containment rather than excavation response actions. The PRPs have a significant local presence in the community and can answer questions about many issues related to the Site. The EPA is also available to answer such questions by telephone or email. The EPA and the PRPs will work closely with the community to determine what educational materials will be helpful to the community and how best to distribute the information. The PRPs also communicate with impacted property owners regularly and provides them with contact information directly.

2.61 **Comment:** WAF submitted the following comments and questions about air monitoring. One of the recommendations from the Board was to conduct air monitoring while remediation is being done to protect workers and the community. Will air sampling be a part of the five-year-review? (ID 18)

Response: Refer to the response to Comment 2.49.

2.62 **Comment:** WAF submitted the following questions about Five-Year Reviews. When will the Review process start? Who will be part of the review process? Who will review the reports? Who will be responsible to keep the community informed on the progress or failure of a remediation task? What do I do if my neighbor, whose yard was contaminated with PCBs, was dug-up, it rained and all that soil is on my property, who should I call? And how will it be determined if a five-year review is successful? (ID 18)

Response: Five-year Reviews generally are required by CERCLA or program policy when hazardous substances remain on site above levels that permit unrestricted use and unlimited exposure. Five-year reviews provide an opportunity to evaluate the

implementation and performance of a remedy to determine whether it remains protective of human health and the environment. Generally, reviews take place five years following the start of a CERCLA response action, and are repeated every succeeding five years so long as future uses remain restricted. Five-year reviews can be performed by EPA or the lead agency for a site. EPA retains responsibility for determining the protectiveness of the remedy.

The kickoff meeting for the OU3 remedial action was held on June 8, 2015. Therefore, first Five-Year Review will be completed by June 8, 2020. The Five-Year Review covers all OUs. A notice that the Five-Year Review is occurring will be placed in the local newspaper along with contact information. When the review is complete, the results will be made public and another notice will be placed in the newspaper. If there is interest, a meeting will be held to discuss the results of the review. The EPA is responsible for making sure Five-Year Reviews are completed.

The components of the Five-Year Review and information about the review can be found at https://semspub.epa.gov/work/HQ/174760.pdf. The EPA is responsible for making sure the Five-Year Review is complete, the community is informed, and any questions from the community are answered.

The response to comment 2.64 below provides more information about contamination from adjacent residential.

2.63 **Comment:** WAF submitted the following concern. I want to add a room to my house. This means digging a piling 4 feet deep and calling 811 (call before you dig). How are they going to help me when all they do is locate utility lines? (ID 18)

Response: The EPA National Remedy Review Board recommended that the Region consider coordinating with the Alabama 811 program to help protect against recontamination of surface soil from the disturbance of PCBs in the subsurface soil during construction. The Region's response was that the project would investigate coordinating with the Alabama 811 program. The concept is that notification of construction on potentially affected parcels would be referred to 811 administrators, who would notify the PRPs and the EPA.

2.64 **Comment:** WAF submitted the following questions about excavated soil. Who do I call to remove a pile of soil that was excavated and how long do I have to wait for someone to manage or remove the contaminated soil? Am I responsible for bringing in clean soil? (ID 18)

Response: Property owners or tenants who have been told that residual PCBs are present in the subsurface or may be present beneath structures should contact P/S or the EPA prior to excavation to ensure that PCB contaminated soil is handled properly. Only a fraction of the properties sampled at the Site should be cautious about future excavation of subsurface soil. If PCB impacted soil is removed from a property, clean soil will be provided by the PRPs if needed to refill the excavated area.

2.65 **Comment:** WAF submitted the following questions about contamination on adjacent properties. How does the Proposed Plan address the 19 properties that owners have denied access? Especially when one of the properties is next door to me and I am unaware that the owner denied access? How does the Proposed Plan address property owners that deny access? Isn't it the goal to clean-up all residential properties? (ID 18)

Response: The Proposed Plan and the selected remedy in the ROD require that the 19 residential properties where access has been denied be cleaned up the same way previous properties were cleaned up. Eventually, the EPA believes the current owner or a new owner will grant access to the property. The goal of the ROD is to ensure that all properties impacted by contamination from the Site are cleaned up.

2.66 **Comment:** WAF submitted the following questions about property values. My property has trees on it. My property has been tested and contamination was found on the property. My property value has declined and according to a Duke study, land values decreased around remediation sites by 14% (Gamper-Rabindran & Timmins, February 2012). What recourse do I have through the Proposed Plan when no one wants to buy my property with PCB contamination on the property and I am losing money because of the contamination? Where is the equity? (ID 18)

Response: See response to comments 2.6, 2.7, and 2.8.

2.67 **Comment:** WAF submitted the following questions about wooded properties. The Proposed Plan states that Solutia will address my property with trees only if I cut the trees and clear the land. Why do I have to cut the trees and clear the land when I did not contaminate my property? Also, I do not have the training or the people who I can employ with training to work in a contaminated environment. Is Solutia or the EPA going to provide the training for the workers? And what will be my liability to the workers? Who would be responsible for the cost of both medical and training to work in a contaminated environment? (ID 18)

Response: As stated in the response to Comment 2.7, the selected remedy was modified to reflect that wooded properties designated for future residential use should be cleared of trees, as needed, by the PRP, provided access is granted, and remediated if PCB concentrations in surface soil exceed or are equal to 21 mg/kg, the non-residential RG that is protective for trespassers. One of the 43 wooded properties identified in the ROD meet this criterion. Wooded properties with PCB concentrations greater than 1 mg/kg and less than 21 mg/kg, are protective for trespassers and will not be prioritized for cleanup unless the property is cleared as desired for the future use and ready for residential development. Once the trees are cut down and removed from the property, the PRPs will be required to remove and dispose of vegetation within the soil (i.e., the roots and stumps) and any low lying shrubbery or vegetation in the impacted area. The EPA's experience is that once the fear of contamination and any liability associated with contamination is removed,

property transactions resume at Superfund Sites. The EPA hopes that once the Site cleanup is complete, concerns about contamination that may have prevented property sales will be alleviated. The EPA will work with the PRPs to develop an information tool (i.e., comfort letter) to help alleviate that concern for lenders and buyers.

There should not be any need for special training or concerns about liability for workers cutting and removing trees above the ground surface. Contractors are already required to use best management practices to prevent soil from moving off the property (such as silt fences or hay bales) when cutting and removing trees. The PRPs will use trained personnel to handle and property remove and dispose of any contaminated soil that is involved with this work.

2.68 **Comment:** WAF submitted the following questions about utility workers. I am not a plumber and my water pipe burst at 3 am underneath my house or in the yard where the 12 inches of clean soil was placed. My first thought is that I have to repair that pipe before morning. I have a pregnant wife and kids to get off to school. Are you saying that I have to call Solutia before I can repair the leak? A response from Solutia may take days and the water bill is continually adding up. I do not have the training nor the protective clothing that the City worker or utility worker has. I was not informed by the previous owner that contaminated dirt was in the crawl space or that contaminated dirt was still on the property. Now I have contaminated dirt that I have brought into my house. How does either one of these options protect me and my family? When the risk for a worker is approximately 56 ppm and the risk for a resident is below 1ppm, wouldn't option 3 (remove all accessible soil to below 1ppm) provide the most protection for my family? (ID 18)

Response: Subsurface soil on certain residential properties contains PCBs at concentrations less than 10 mg/kg. A one-time exposure to subsurface soil with PCBs less than 10 mg/kg during an emergency situation will not create an unacceptable longterm exposure concern. The reason that P/S suggests residents contact them prior to excavating in areas with residual PCBs is so that the soil can be disposed of properly and in a way that ensures recontamination of the property does not occur. Simply turning off the water at the meter until morning might be the best way to handle a leak at 3 am in the morning. If it is not possible to contact P/S, the soil can be managed after the fact without concerns about exposure.

2.69 **Comment:** WAF submitted the following questions about underground piping. If the goal is to remediate residential properties, why leave PCB(s) in reach of residents' underground pipes? For example, if a water pipe burst and the protective cover is only 12 inches, and the residents' pipes are buried in the ground 48 inches wouldn't it be prudent to remove 60 inches of soil, 48 inches to reach the pipe, and 12 inches of separation so that any worker or plumber can repair the pipes without the fear of being in contaminated soil? I don't see where the EPA or Solutia will have a list of professionals to call. (ID 18)

Response: Again, the reason that P/S suggests residents contact them prior to excavating in areas with residual PCBs is so that the soil can be disposed of properly and in a way that ensures recontamination of the property does not occur. There is no unacceptable risk to utility workers from subsurface soil with PCB concentrations greater than 1 mg/kg and less than 10 mg/kg.

2.70 **Comment:** WAF submitted the following questions about special use properties. For special use properties, there are 19 special use properties with PCB concentration above 1 ppm in low activities areas. Why weren't low activities cleaned up under the NTC since some special use properties are located in areas where children can and do wander off and play? The Proposed Plan option SU-3 calls for all of these properties to be treated as residential properties. (ID 18)

Response: Special use properties (i.e., schools, churches, day-care centers, community centers, playgrounds, and parks) are non-residential properties. Special use properties were partially cleaned up by the NTC Removal Action using the same surface and subsurface removal action criteria for soil as required for residential properties by the Stipulation to the PCD. The playground area of a public park, the outdoor play or recess areas of a school, community center, or day-care center, and similar areas of any church property, generally comprised of areas less than one quarter acre in size, were designated as high activity areas subject to a residential cleanup. The low activity areas were intended to be addressed by the RI/FS process. The risk assessment looked at a number of different non-residential exposure pathways: commercial/industrial workers, commercial visitors, schools and daycare workers/students, recreational user, trespassers, and construction and utility workers. Because the high activity areas were already cleaned up to a residential standard, P/S proposed that the low activity areas be cleaned up to the same standard as all other non-residential properties, which is the goal for the commercial/industrial worker (Alternative SU-2). The EPA required that P/S also evaluate an alternative that cleaned up low activity areas to the most stringent non-residential standard, a child in a school or daycare setting, which is essentially the same cleanup value as the residential goal (Alternative SU3). The more stringent non-residential goal requires less concern about how the property is used going forward (i.e., if a playground is moved from a lower PCB impacted area to a higher PCB impacted area).

2.71 **Comment:** WAF submitted the following questions about the EPA budget. The new administration is calling for cuts in the EPA budget. How will the budget cut affect the Consent Decree? (ID 18)

Response: The EPA does not expect its budget to affect work at the Anniston PCB Site or any of the work required under the OU1/OU2 Consent Decree.

2.72 **Comment:** WAF submitted the following questions about auto fluff. What is auto fluff? Where are these Unapproved Waste Disposals Areas located? Are they going to be dug-up? (ID 18)

Response: Auto fluff is the nonmetallic material that remains after junked automobiles are stripped and then shredded to recover their metal and other valuable components. The composition of auto fluff varies, however, it is generally comprised of unrecovered scrap metal (wire, molding, etc.), plastic, rubber, vinyl, leather, cloth, sponge, foam, glass, and other noncombustible materials. In addition, traces of lead, cadmium, chromium, and mercury may be present along with organic compounds, such as oil, antifreeze, transmission and brake fluids, and polychlorinated biphenyls (PCB). The locations of the UWDAs are shown on Figure 5-6.

2.73 **Comment:** WAF submitted the following question about the location of T-11. Where is T-11 located and is T-11 located in an open area where children walk or play? (ID 18)

Response: T-11 is located on a piece of property located on the north bank of Snow Creek, across from First Missionary Baptist Church. It is surrounded by the Norfolk Southern Railroad and Snow Creek, so it is very isolated and overgrown. It was difficult for samplers to reach and is not an area where children would play or walk.

2.74 **Comment:** WAF submitted the following questions about the dredge spoil piles.: How many Dredge Spoil Piles are there? (ID 18)

Response: There are currently four dredge spoil piles along Snow Creek. There were originally eight pile, but four have been removed.

2.75 **Comment:** WAF asked how many non-residential properties there are, and where are they located? (ID 18)

Response: The non-residential properties around the Solutia Facility and downgradient along the Snow Creek floodplain were investigated in characterization areas shown on Figures 5-10 through 5-40 in the ROD. Because of the different issues encountered by the investigation, the non-residential properties were divided into five categories for evaluation of remedial alternatives: special use properties (41), interim measures (7), UWDAs (2), the groundwater at investigation well T-11 (1), and all other non-residential properties (approximately 170).

2.76 **Comment:** WAF submitted the following questions about the Dredge Spoil Piles. The Proposed Plan proposed to remediate by excavation the Dredge Spoil Piles, Snow Creek Sediment, and shore-up Snow Creek Banks. What impact, if any, will there be on OU-4 from these activities, removal and working in Snow? Will the EPA have to resample OU-4 sediment locations, since there are hot spots with high concentration of PCBs trapped within Snow Creek Sediment where the proposed work will be done? (ID 18)

Response: P/S will take measures to ensure that minimal sediment and soil is allowed to move downstream during work in Snow Creek and on the its banks. Managing the migration of impacted media may include scheduling the work during drier times of

the year, using temporary diversion methods (e.g., temporary diversion channels, pump-arounds, piped diversions, coffer dams) to keep water from areas where work is being conducted, and installing silt fences, silt curtains, and check dams where useful. Work in Choccolocco Creek will be conducted after the work in Snow Creek is complete. Additional sampling will be performed in OU4 during remedial design and remedial action to ensure that deposits of contaminated sediment above remedial goals are addressed.

2.77 **Comment:** WAF submitted the following questions about educational tools. What educational programs will there be for the children of Anniston to educate them of the dangers playing in and around PCB soil? This question pertains more to the children being educated on hygiene in schools and homes, and playing in neighbors' yards. One way of doing this is by having sound educational and management training available within the IC Program. The educational piece should include educating the children in hygiene since literature on PCB(s) states that the PCB(s) change is hard to break down. Also, the program could provide management training for those properties where PCB(s) are left in place on individual's properties? (ID 18)

Response: When the cleanup is complete, there should not be any concern about children playing around PCB contaminated soil. Educational tools such as fact sheets or handouts for property owners with PCB residuals in the subsurface, utility workers, and realtors may need to be developed. The EPA already has many non-site specific tools oriented to educate children about hazards in the environment.

2.78 **Comment:** WAF submitted the following questions about warning signs. Why can't the EPA post signs to warn citizens of the on-going dangers in Snow Creek as well as other properties adjacent to Snow Creek which contains PCBs in the soil? There are neighborhoods adjacent to commercial properties or across the street. (ID 18)

Response: Prior to cleanup, the EPA will work with the PRPs and property owners to determine if warning signs can be installed in areas where unacceptable exposure might occur. After cleanup, warning signs are not required or needed as the remedial goals selected for all exposure pathways make the Site protective. The industrial/ commercial worker remedial goal selected (21 mg/kg) represents a number in the middle of the EPA's acceptable carcinogenic risk range and is protective of commercial visitors, trespassers, recreational users, and construction and utility workers. The sediment goal of 3 mg/kg is based on ecological receptors and is within the acceptable risk range for human health.

2.79 **Comment:** WAF submitted the following questions about creek bank stabilization. Is the EPA proposing the use of tree logs to help with creek stabilization? If this is the case, the trees will decay and rot away, therefore, losing the ability to stabilize the banks. (ID 18)

Response: Logs are just one of the natural materials that can be used to help stabilize creek banks. They will decay over time, but during that time, sediment can build up

allowing vegetation to take root and provide a natural stable slope, which is environmentally better than hard structures. The banks will be monitored, and if natural methods are not effective, other stabilization techniques may be required.

2.80 **Comment:** WAF asked if the community will be a part of this clean-up? (ID 18)

Response: The community is an important stakeholder in all Superfund Site activities. The community at this Site was involved even before the EPA Superfund Program got involved. The EPA expects that this community will be involved with and provide input on all Site activities even after the cleanup activities are complete.

During the remedial action phase, the community will be informed about the work to be done including planned work hours, truck traffic, and health and safety precautions. P/S has encouraged its contractors to hire qualified local workers as much as possible. The EPA will request that P/S continue to encourage contractors to hire locally.

2.81 **Comment:** WAF submitted the following questions about erosion. Will the heavy rains wash away the top soil covering what was laid down in yards? Who will re-sod the yard if a heavy rain washes away the cover, or will the citizens be responsible for the care of the top 12 inches of cover? (ID 18)

Response: Homeowners are expected to maintain their yards the way they did before the cleanup. When grass dies or bare patches appear and begin to erode, homeowners typically fill in low areas and plant new grass. It would take a long period of neglect for 12 inches of soil to erode in a typical yard. There are a limited number of yards with possible PCBs greater than 1 mg/kg in subsurface soil. If those property owners have concerns about erosion, they should contact the EPA and P/S about solutions.

2.82 **Comment:** WAF submitted the following questions about private property rights. It is written that a property owner is responsible for the complete ownership of his land; which includes being able to dig, plant, and build on his property without the oversight of another. In the entire Plan, the owner of the property is only in control of the top 12 inches of his property with PCB residual left on the property. Solutia is responsible for all residual PCB left on the property. Since Solutia is responsible for any residual left on the property, this would mean that Solutia is part owner of the property. Why shouldn't Solutia be responsible for part of the property taxes for that property since ownership is defined by complete control of the property? (ID 18)

Response: Property rights are a complex and difficult topic, and the issues raised are very interesting from a legal perspective. The presence of PCBs in soil on private property does not create any ownership rights for the PRPs. The PRPs are not making any ownership claims to such properties. The EPA is only requiring that P/S remove PCBs that create an unacceptable risk to human health and the environment. The EPA does not require that responsible parties purchase private property unless there is no way to make the property protective for the anticipated exposure.

2.83 **Comment:** WAF submitted the following questions about demolition of structures. Those properties that the City has slated to be demolished may not have been sampled underneath the structure itself and children have been playing on these properties. Was P/S sampling done underneath the structures after demolition, or before demolition? If this has not been done, there is a need for fencing around the property to keep the children away from the site until sampling can be confirmed. This was also a cross over issue for the lead site. (ID 18)

Response: There are approximately 433 homes or structures located on residential properties adjacent to where PCBs were removed. If there was an accessible crawl space under the structure, the PRPs sampled the crawl space and if the residential goal for PCBs was exceeded, the PRPs provided a barrier (such as a geotextile and gravel) to prevent exposure to PCBs in the crawl space. The PRPs work with local authorities to sample demolition areas on PCB impacted properties. In addition, surveys of the PCB impacted properties are conducted annually to determine if structures or hard/cement surfaces have been removed by the home owners. The PRPs sample the newly exposed soil and conduct cleanups as necessary to prevent longterm PCB exposure from occurring. The EPA and the PRPs will consider whether a barrier or caution tape is needed to prevent exposure during the time it takes to collect samples, receive results, and schedule cleanup, if needed. This concern shared with management of the Anniston PCB and Lead Sites.

2.84 **Comment:** WAF submitted the following question and comment about contracting. Will there be an opportunity for local community businesses to be a part of the contracting process to transport clean soil? This opportunity to involve local contractors will elevate the community and tell a story that a chemical company and a community can work together to solve community problems. (ID 18)

Response: Local contractors have been hired in the past to perform earthwork at the Site. Because local sources of fill are used, it is expected that local contractors will be used to transport clean backfill to the properties being cleaned up. Specific questions about contracting opportunities should be directed to the PRPs.

2.85 **Comment:** WAF submitted the following questions about the nature and extent of the investigation. It is still believed that there are other areas that have not been investigated because the soil may have been transported to an area outside of the investigated target area and used to build-up a low topographical area. What assurance does the community have that if new locations are found, the EPA will address these new locations? If in the future, another area comes into play after the ROD for OU-4 or OU-1/OU-2, who will be responsible for the investigation, EPA or Solutia?

Response: P/S and the EPA are confident that the nature and extent of contamination has been investigated and defined. In the 13 years since the Consent Decree was signed and the remedial investigation began, all leads about soil excavation and

movement have been followed up on and no evidence has been presented to direct the investigation further away from Snow Creek than described in the OU1/OU2 RI/FS. Choccolocco Creek and its floodplain are being investigated as OU4. The need for further investigation downstream from Choccolocco Creek in the Coosa River System will be considered when the RI for OU4 is complete.

2.86 **Comment:** WAF submitted the following questions about groundwater contamination: Is the groundwater contaminated? Although the community is on potable water, if a community member wishes to install a groundwater well, will this water affect the plants and vegetables?

Response: PCB contaminated groundwater has been identified near the Solutia Facility and on the isolated property Solutia owns near the confluence of the 11th Street Dich and Snow Creek. PCBs are not commonly found in groundwater, and the installation of wells outside of these locations is not expected to produce any concern about PCBs in groundwater. Thus, the installation of a groundwater well pursuant to state and local laws and regulations should not be a problem.

2.87 **Comment:** WAF submitted the following question about residential properties that have not been cleaned up. There were people who used to live in the community but have moved away and were not concerned about the clean-up. What steps are being done to address the abandoned properties that we know have PCBs and children playing on them for ball fields? Currently, there are no signs warning about the contamination.

Response: The EPA and P/S will investigate whether signs can be placed on abandoned properties that require cleanup for PCBs in surface soil.

2.88 **Comment:** WAF submitted the following questions about ICs. The (NRRB) package included information on the un-remediated residential properties, which fall into several categories: property access not granted; unsuitable for removal due to overgrown vegetation, which is currently preventing exposure; properties where remediation has been performed but structures are present underneath. The Board recommends that ICs be monitored and enforced, Office of Solid Waste and Emergency Response Directive No. 9355.0-89, Dec 2012, Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing ICs at Contaminated Sites. If the Five-Year Review reveals that the ICs do not lead to protectiveness, the Board recommends a contingency plan be included in the Proposed Plan to allow for meaningful public participation.

Response: Currently, there are limited ICs available to protect the remedy. Operation and maintenance by P/S and more oversight by the EPA will be required in lieu of local ordinances and regulations. A contingency ROD is used when the next step of protectiveness at a Site is known. Because P/S has successfully implemented the O&M activities in Anniston for years as properties have been cleaned up under the NTC Removal Action, Region 4 did not believe a contingency remedy was warranted

at this time. If in the future the O&M activities fail to keep the community protected, an amended ROD or ESD will be proposed to make changes that increase protectiveness or add additional ICs.

2.89 **Comment:** WAF submitted the following questions about (36) Citizen concern: If Solutia fails in their obligation in a five-year review to maintain residential properties, what action will be taken?

Response: Five-year reviews (FYRs) are required by CERCLA or program policy when hazardous substances remain on site above levels that permit unrestricted use and unlimited exposure. Because PCBs are present in subsurface soil above the levels that are permitted in surface soil, there is concern about recontamination in the community. Three questions are asked during a Five-Year Review: A) Is the remedy functioning as intended by the decision documents? B) Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid? C) Has any other information come to light that could call into question the protectiveness of the remedy? If the answer to these questions raises an issue, then the EPA and P/S will work together to resolve the issue. In some instances, modifications to remedial actions are required. If a significant change to the remedy is needed, it will be documented in an Explanation of Significant Differences or an Amended Record of Decision. The community will be notified and provided an opportunity to comment on any changes proposed to the Record of Decision.

2.90 **Comment:** WAF submitted the following questions about ICs. What role is the community going to play in the OU-1/OU-2 clean-up? If an IC program is to be effective, the program should incorporate some aspect of the community's involvement. The question is, who will address a three o'clock winter call when a pipe has burst?

Response: The community lives and works in OU1/OU2. The community will be kept informed about all Site design and cleanup activities and any long-term monitoring results. Institutional controls are local government ordinances, rules, and regulations that help make remedies protective. Several types of ICs required the consent of the property owner to be implemented. The community is involved by way of its local government officials and offices. There are not enough PCBs remaining in subsurface soil on residential properties to create a concern to any resident that might need to excavate subsurface soil after normal business hours in an emergency, because the concentrations are low (PCB concentrations in residential subsurface on a limited number of properties are less than 10 mg/kg) and the exposure duration is low (this type of event may occur over no more than an 8 hour period) and the exposure frequency is low (this type of event may only occur once during occupancy).

2.91 **Comment:** WAF submitted the following questions about the proposed program to manage PCB residuals. Solutia's IC program includes public meetings and/or meetings to be held as needed. In addition, the Plan would include public mail outs to

keep the citizens informed; however, transient residents may not be knowledgeable of the Program or that the property they occupy now or has occupied in the past, had been remediated. The citizens wanted to know how would new tenants be informed when there is a constant turnover in residential occupancy and it becomes questionable if the owner or landlord has informed them whether or not the property had been remediated? What activities are not to be performed on the property? Should owner leasing agreements include the condition of the property as an IC? The P/S IC program suggests a mail out; however, in some homes, there may be a problem with understanding the information in the package. What considerations or steps have been taken for those residents who cannot read or understand the IC Program?

Response: Owners should inform tenants if there are areas on the property that they should not dig without first contacting the PRPs or the EPA. If the owner needs assistance communicating this information to a tenant, the owner should contact the PRPs or the EPA.

2.92 **Comment:** WAF submitted the following questions about next steps. What is the next step for Solutia after the completion of the FS?

Response: When the FS is complete, the EPA prepares a Proposed Plan and presents it to stakeholders and the community. The Proposed Plan was presented at two public meetings on March 23 and March 24, 2017. The EPA held a 60-day comment period from March 13, 2017 through May 12, 2017. This comment was received by the EPA during that comment period. The EPA then writes a Record of Decision (ROD) to select a final remedy for OU1/OU2, which includes a Responsiveness Summary to all comments received during the comment period. After the ROD is signed, the EPA will negotiate an agreement with all responsible parties to implement the selected remedy in the ROD. The negotiation may take up to a year to finalize and be approved by the court. The EPA estimates that the Remedial Design of the remedy will take at least one year and the implementation of the remedy will take two to three years. Longterm monitoring of certain aspects of the remedy will take many years after that. The remedy will be reviewed every five years when Five-Year Reviews of the Site are conducted.

2.93 **Comment:** WAF submitted the following questions about ICs. Where are the ICs for a Green Remediation Strategy? The Remedial Alternatives did not have a section on Green remediation strategy. The TA explored options that may be employed through the ICs process. Many of these strategic actions can be addressed through policy and guidance development, resource development, and a series of near-term initiatives:

- Maximize use of renewable energy with a goal of 100 percent renewable energy to power site operation and identify methods for increasing energy efficiency.
- Incorporate green remediation factors as part of the remedy optimization evaluations.

- Pursue ways to reduce the use of natural resources and energy during remedial action and when developing cleanup alternatives.
- Integrate clean, renewable and innovative sources and advanced diesel technologies.
- Help communities establish networks and training programs that enable local workers to gain proficiency and expertise needed for green cleanup.

The TA reviewed sections of superfund and would add the following ICs:

- Since a cap will be placed over the CSSMA and the Northside Area, why not construct a solar farm on the properties? A portion of the proceeds from the savings could be used to power the plant and for community projects in the City of Anniston.
- Set-up environmental educational programs in local schools. A multi-disciplinary approach to learning about environmental issues that enhances knowledge, builds critical thinking skills and helps students make informed and responsible decisions.
- With all the vacant land, a park could be designed around neighborhoods with trees and could be used for teaching nature classes. (ID 18)

Response: Green remediation is not the same thing as institutional controls. Green remediation is the practice of considering all environmental effects of remedy implementation and incorporating options to minimize the environmental footprints of cleanup actions. The environmental impact of all the remedial alternatives was evaluated in the FS and considered when making the remedy selection decision. Many of the suggestions, decisions and actions described in this comment are outside of the EPA's authority, but could be pursued locally with the private property owners, investors, and local governments. The EPA will prepare educational materials to assist the community in understanding the OU1/OU2 remedy and the impact of any residual contamination in the community.

2.94 **Comment:** WAF submitted the following questions about Redevelopment. When an area is impacted by a Superfund Site, there is more than one impact on the community, remediation of the people properties. The community also is impacted economically: loss of property, loss of jobs, loss of community. Everyone wants redevelopment; however, redevelopment comes with an attraction for developers. There are two attractions that could fit into this area - one is to create a partnership with P/S and construct a world class softball or little league baseball field that could host the regional championship. An example is the former Spellman Engineering site in Orlando, Florida, which now hosts a local school's sports and recreation complex. Some jobs would be seasonal but large sums of tourist dollars would boost the economy. How will The EPA participate in the Redevelopment of this area? Please identify programs and grants that the community can participate in. (ID 18)

Response: Overall many communities worry that a Superfund site will cause economic development to slow and their home prices to drop. Although different academic studies indicate different timings for economic and price declines, it seems

that the actual discovery of the contamination is what has the biggest negative impact on property values. Then, an announcement that a cleanup will occur or when the actual cleanup occurs, reuse and redevelopment of properties follows and helps trigger a reversal of those earlier declines.

Land use and development is a local issue. While the EPA cannot pay to construct future use components outside of the terms of the approved cleanup (buildings, recreational fields, etc.), the Agency is required to consider reasonably anticipated future land uses when making remedial cleanup decisions. Throughout the Superfund process, the EPA interacts with developers, communities, local governments and other current or future users to make sure they understand the site's cleanup status, any restrictions on use and potential environmental liability concerns. The EPA has engaged in conversations with numerous stakeholders over the years to ensure that impacted properties continue to be useful to the community or are ready for reuse. Here are some examples of how the EPA can facilitate reuse at Superfund sites:

- The EPA is always available to have conversations with potential purchasers and provide comfort/status letters to clarify the current status of the site along with other helpful information.
- The EPA's Superfund Redevelopment Initiative (SRI) shares Superfund redevelopment case studies and information to assist communities with making informed redevelopment decisions and considering appropriate site-specific uses: https://www.epa.gov/superfund-redevelopment-initiative.
- The EPA may be able to help communities with reuse planning, which can play an important role in the cleanup process (see examples here: https://www.epa.gov/superfund-redevelopment-initiative/supporting-current-and-future-use-superfund-sites).
- The EPA Superfund program does not provide grants for redevelopment, but it has partnered with a number of organizations that are interested in using formerly contaminated properties such as: Rails to Trails Conservancy, US Soccer Foundation, Trust for Public Lands, etc. These organizations can often assist communities in redevelopment projects. More information can be found at: (https://www.epa.gov/superfund-redevelopment-initiative/superfund-redevelopment-partnerships).
- The EPA will continue to provide redevelopment support to planners and redevelopers in the affected areas; supporting the safe and beneficial redevelopment of Superfund sites is an important component of the Agency's priorities.

2.95 **Comment:** MRC Holdings stated that neither the Proposed Plan nor the Feasibility Study Report offer a technical rationale for selecting a Subtitle D RCRA Cap (UWDA-3) as the preferred remedy over a Soil Cap with Marker Layer (UWDA-2). A Subtitle D cap as the preferred remedy is not supported by the findings in the Proposed Plan or Feasibility Study and, by the Feasibility Study's own admission, is not cost effective. Given that both capping alternatives satisfy the Threshold Criteria of (1) Protectiveness and (2) Compliance with ARARs and are equal for the

Balancing Criteria of: (1) Long-term effectiveness and permanence; (2) Reduction of toxicity, mobility, or volume through treatment; (3) Short-term effectiveness; and (4) Implementability, the significant cost differential supports the soil cap as the appropriate remedy based on "Cost", the fifth Balancing Criterion. Accordingly, the ROD should identify the Soil Cap with Marker Layer (UWDA-2) as the selected remedy for the UWDAs. (ID 19)

Response: The soil cap in Alternative UWDA-2 provides a barrier to prevent direct contact with contamination. This type of cap has been used in interim measures at this Site over contaminated soil. However, there is a significant amount of waste disposed of at the locations identified that present a concern. Though no groundwater contamination was found at the Wilborn UWDA in EU-10, there is no guarantee that only auto fluff was disposed of in the area or that future degradation of the waste will not lead to releases of contaminants to groundwater. The EPA determined that a more protective, low-permeability cap will eliminate any concerns that future releases from degrading waste will impact groundwater, and it was determined to be the most appropriate capping remedy for this category of problems. A more informative explanation for the selection of UWDA-3 is provided in the ROD.

2.96 **Comment:** MRC Holdings stated that the extent of the capping remedy as depicted in the Proposed Plan is not consistent with the estimated extent of the unapproved waste disposal and is based on limited sampling data. The ROD should acknowledge that the estimated extent of the remedy described or otherwise displayed in the Proposed Plan is based on limited data and that the final remedy footprint (capped area) will be defined pending further detailed investigations. (ID 19)

Response: The EPA typically uses information gathered during the remedial design to determine the detailed requirements for the remedy. The extent of the cap was estimated based on available information. The selected remedy section in the ROD includes language that makes it clear the data gathered during remedial design will allow the extent of the cap to be refined.

2.97 **Comment:** MRC Holdings stated that the ROD should provide flexibility in the remedial approach. Flexibility should be provided in the ROD to allow uncertainties regarding the type and coverage of the preferred remedy and the nature and extent of wastes at the UWDAs to be addressed, including:

- Ability to conduct additional field investigations at the UWDAs to better define the nature and extent of the disposal areas and waste materials contained therein;
- Ability to consolidate materials within a given UWDA to allow for a smaller cover footprint and/or to contour the site for better drainage;
- Ability to dispose of some or all of the wastes off site from a given UWDA to reduce or eliminate capping requirements and long-term remedy maintenance; and

- Ability to implement a hybrid of the remedies included in the Proposed Plan as long as the hybrid approach meets the applicable Remedial Action Objectives. (ID 19)

Response: As stated in the response to comment 2.96, the EPA gathers more detailed information during the remedial design to determine the specific requirements for the remedy. The selected remedy section in the ROD includes language that makes it clear the data gathered during remedial design will allow the extent of the cap needed to be determined. Language was also added that will allow for consolidation of material and limited offsite disposal of certain material. However, extensive or proposed total excavation of waste at either UWDA location would require a modification of the remedy and an opportunity for further community comments. The EPA is not opposed to total excavation if community concerns are considered and support that remedial alternative.

2.98 **Comment:** MRC Holdings stated that the Proposed Plan (page 91) states that the two capping alternatives (UWDA-2 [soil cap] and UWDA-3[Subtitle D cap]) would take about the same amount of time to implement. Further, Table 13 indicates that the soil cap construction would take 2 months and the Subtitle D cap construction would take 3 months. Those implementation timeframes appear to be too short and also do not agree with the estimated timeframes provided in the Feasibility Study of 6-12 months for the soil cap (page 7-32) and 1-2 years for the Subtitle D cap (page 7-34). (ID 19)

Response: The ROD has been changed to reflect the FS information about implementation timeframes for the two capping remedies.

2.99 **Comment:** The Ashley Street and Legrande area description (page 4-23) in the Feasibility Study states "A review of historical aerial photographs showed a machine used to segregate ferrous and nonferrous materials located on the property [emphasis added]." There is no reference provided for the source of the historical photographs. If a machine was located on the Ashley Street and Legrande property itself, it could have been the source of the fill material on the property. (ID 19)

Response: P/S has notified the EPA that: "We were not able to locate the historical aerial photograph. Going forward, project documents prepared by Pharmacia LLC/Solutia Inc. (P/S) will not include a sentence referencing this specific historical aerial photograph (i.e., the following sentence will not be included…. "A review of historical aerial photographs showed a machine used to segregate ferrous and nonferrous materials located on the property"). Notwithstanding the historical aerial photograph in question, multiple lines of evidence identify the Ashley Street and Legrande Avenue site as a location where auto fluff materials were generated and disposed. These lines of evidence include property owner interviews, land ownership records, and materials encountered in test pits that were excavated on the property."

2.100 **Comment:** The Ashley Street and Legrande area description in the Proposed Plan (page 19) states that the unapproved waste is estimated to cover 1.7 acres and the

Wilborn Property area waste is estimated to cover 3.2 acres, for a total of 4.9 acres. However, the estimated combined area of the two sites elsewhere in the Proposed Plan (Table 13) and in the Feasibility Study (Tables 7-13 and 7-14) is 4.5 acres. (ID 19)

Response: The ROD has been changed to reflect the FS information about acreage. The Ashley Street and Legrande area should be 1.3 acres.

2.101 **Comment:** Williams Scrap Metal stated that remedial activities appear to be based on "dated" analytical data. Given the passage of time, remediation of these sites may be moot due to contaminant levels below remedial levels. Will preliminary surface soil samples be collected and analyzed for each remedial area prior to execution of remedial activities to confirm or deny the need for the remedial activity? (ID 20)

Response: Additional sampling will be conducted during remedial design and remedial action, as needed, to ensure that remedial goals and remedial objectives are met.

2.102 **Comment:** Williams Scrap Metal asked if the businesses will be compensated for any lost revenue if its operations are interrupted due to surface soil removal from the candidate removal area (ID 20)

Response: The PRPs and the EPA will work with property owners to perform work in the least intrusive or disruptive way possible. That may involve working on days when little activity is taking place or when work at the facility is shutdown. Reasonable compensation for unavoidable work stoppages may be considered if needed to achieve the project goals.

2.103 **Comment:** Williams Scrap Metal asked if remedial activity is executed in any candidate remedial area, once removal of the constituent of concern is confirmed to the preliminary remediation goal, will the candidate remedial area be restored to its pre-remediation state, to include any gravel, concrete, etc. that may have been disturbed. (ID 20)

Response: Yes, disturbed areas will be restored to the original condition, within reason. This will be discussed with the property owner prior to the start of the work. If for instance a 100-year-old tree is removed, a new tree can be planted, but it will not be the same as the 100-year-old tree.

2.104 **Comment:** Williams Scrap Metal stated that if the remedial cleanup goal is 21 mg/kg, it does not seem rational that soil containing <50 mg/kg PCB would then be deposited onsite for disposal. Shipment offsite for landfill disposal or for existing offsite treatment would seem more logical and thorough. Why would onsite disposal of soil <50 mg/kg be an option? (ID 20)

Response: A soil management area next to the Solutia's South Landfill is the onsite disposal area considered in the Proposed Plan. It will be capped with clean soil to protect against exposure. PCB contaminated soil with concentrations greater than 50 mg/kg are regulated and are required to be shipped to a hazardous waste landfill for disposal. Even though the risk management decision is to meet a PCB cleanup goal of 21 mg/kg, PCB concentrations between 21 mg/kg and 50 mg/kg are not regulated. The selected remedy requires that the soil with PCB concentrations between 21 mg/kg and 50 mg/kg be disposed of offsite at a non-hazardous waste landfill.

2.105 **Comment:** Williams Scrap Metal asked if the removal of contaminants other than PCBs found in industrial areas and identified for remediation in this Proposed Plan require the identification of other local PRPs or will the remedial activities and associated costs for these isolated hot spots be provided by the EPA and/or Monsanto as the primary PRP for the Anniston PCB Site? (ID 20)

Response: Owners of a non-residential property with non-PCB contaminants that require removal will need to be involved in an agreement with the EPA, if for no other reason than access. There may be activities that current property owners or previous property owners are asked to pay for or perform.

2.106 **Comment:** Williams Scrap Metal asked if long-term remedial area management, testing, monitoring, permitting, etc. will be the responsibility of the established PRP (Monsanto) or the property owner. For PCB remediation? For non-PCB remediation? (ID 20)

Response: Long-term management, testing, and monitoring for PCB residuals is expected to be conducted by P/S. Non-PCB contaminants should not require long-term management, testing, or monitoring in soil. The EPA recognizes that the sources for the non-PCB contaminants may still contribute to sediment impairment, and it will refer investigation of potential existing sources to the state.

2.107 **Comment:** P/S stated that the EPA proposed, in a letter dated March 7, 2017, that P/S assume responsibility for 59 Anniston Lead Site properties with PCB residuals. These properties do not meet the definition of the Anniston PCB Site and, therefore, the PCB residuals on these Anniston Lead Site properties are not the responsibility of P/S. These residential properties were separately addressed by the EPA and a group of Responsible Parties (RPs) under a Removal Order (RO) to which P/S are not party. Since P/S are not the source of contamination on these for the Anniston Lead Site properties, the letter should not have been addressed to P/S. (ID 21)

Response: The EPA Removal Order referred to in this comment by P/S included work at both the Anniston PCB Site and the Anniston Lead Site. The 59 properties have always been part of the Anniston PCB Site. The EPA and the Department of Justice (DOJ) signed a de minimis PCB settlement for the Anniston PCB Site with the same parties that agreed to clean up the Anniston Lead Site, and the residential PCB removals conducted by the parties was part of the de minimus settlement. P/S is

considered the primary contributor of PCBs in the investigation area and the EPA considers P/S responsible for all PCBs not addressed by the de minimus settlement.

2.108 **Comment:** P/S stated that the EPA recently issued a Desk Statement Regarding Lead Contamination in Soil (Desk Statement; EPA September 2016). The EPA should consider the implications on the upper threshold concentration for lead in soil (400 mg/kg) that was used to trigger removal actions for the Anniston Lead Site properties under the RO. Specifically, residential properties with lead concentrations less than 400 mg/kg may have unacceptable risks, including the 59 properties discussed in general comment no. 1. (ID 21)

Response: The Anniston Lead Site is a separate Site. The Desk Statement identified by P/S is still being considered by the EPA staff responsible for the Anniston Lead Site.

2.109 **Comment:** P/S stated that while the text and tables of the Proposed Plan are footnoted to explain the number of properties associated with the Anniston Lead Site and the Anniston PCB Site, the remedial alternatives presented in the Proposed Plan do not include costs for soil management and long-term operation and maintenance (O&M) for the Anniston Lead Site properties that the EPA is attempting to transfer to P/S. (ID 21)

Response: The cost for managing PCB impacted soil on the additional 59 properties with PCB residuals should be within the accuracy range of the FS cost estimates for O&M for Alternative RS-2, which are expected to be + 50 percent to – 30 percent accurate. The number of properties with structures increased 14% (from 380 to 433). The number of properties with PCB in subsurface soil increased 9.5% (from 95 to 104). The annual O&M costs are estimated at $113,000 per year, which was increased to include a 20% contingency ($22,600), such that the final cost was $135,600 per year. The total O&M cost of the alternative in the FS is $2,498,000.

2.110 **Comment:** P/S stated that the PCB Preliminary Remedial Goal (RG) for the low activity portions of the special use areas should be consistent with the PCB RG used for the other non-residential potions of OU-1/OU-2 (21 mg/kg). Thus, the selected remedy for the special use properties should be remedial alternative SU-2, not SU-3. The proposed remediation of low activity portions of the special use areas to support school/daycare exposures is inconsistent with current land use, the Stipulation and Agreement (Stipulation) to the PCD, and the human health risk assessment (HHRA) prepared for OU-1/OU-2 by the EPA. (ID 21)

Response: The non-residential remedial goal of 21.0 mg/kg is a goal in the middle of the EPA's acceptable cancer risk range for commercial/industrial exposure. The special use properties are definitely not commercial/industrial properties. Generally, they are located close to residential properties, and the high activity areas (playgrounds) on special use properties have been cleaned up to the same standards as residential properties. The reason the EPA wanted P/S to evaluate a more stringent

cleanup goal than the non-residential goal of 21.0 mg/kg is because of the difficulty in restricting the use on parts of these properties. Special use properties tend to attract children, and exposure could occur if the high activity areas changed on the property. The EPA determined that the cost to clean up the properties was not as important as assuring the children in the community would be protected if they chose to play anywhere on the special use properties. The remedial goal selected is the most stringent non-residential goal of 1 mg/kg. Selection of a different non-residential goal for these types of properties versus other non-residential properties does not violate the Stipulation to the PCD.

2.111 **Comment:** P/S stated that the comparative analysis presented in Table 20 of the Proposed Plan supports the selection of SU-2, not SU-3 as recommended in the Proposed Plan. SU-2 and SU-3 are rated the same in the comparative analysis table with the exception that SU-3 costs significantly more while providing no additional protectiveness. SU-4 is appropriately noted as having more short-term negative impacts while providing no additional protectiveness (and costing more). (ID 21)

Response: The EPA disagrees. Table 20 described that increased long-term effectiveness and permanence is expected with the selection of Alternative SU-3, because SU-3 removes the need to control, limit, or change where children can congregate and spend significant time on the property. The EPA determined that preventing that potential exposure to the youngest members of the community was worth the additional cost for SU-3 over SU-2.

2.112 **Comment:** P/S stated that the recommended remedial alternative presented in the Proposed Plan for the IM areas (IM-4) is more disruptive to the community than the two other active remedial alternatives (IM-2 and IM-3); and based on the comparative analysis table in the IM Fact Sheet (Table 3; page 8), both IM-3 and IM-4 are "effective and permanent." Based on this, IM-3 should be the recommended remedial alternative, not IM-4. (ID 21)

Response: The EPA disagrees. The areas where IM work is proposed are for the most part located in drainage areas and areas outside of P/S's control or ownership. Maintaining caps in drainage areas and areas outside of Solutia's control will be more difficult. The EPA determined that the best course of action is to remove the soil from those areas and dispose of the contaminated soil offsite (IM-4). The EPA made this distinction clearer in the ROD.

2.113 **Comment:** P/S stated that the Proposed Plan Fact Sheet incorrectly lists RGs for non-Site related constituents for surface and subsurface soil located in the IM areas (IM Fact Sheet page 5). The list of non-PCB constituents includes: arsenic, chromium, polycyclic aromatic hydrocarbons (PAHs) as benzo(a)pyrene equivalents (BaPE), and toxic equivalents (TEQ). As stated in the Proposed Plan (p. 40): "There is substantial data to link these contaminants to multiple industrial operations in the area, even some still operating in the floodplain. (ID 21)

Response: The Solutia Facility in Anniston is included among the multiple industrial operations that contributed contamination to the floodplain. Previous operators at the Facility included the Southern Manganese Company, Swann Chemical Company, and Monsanto Chemical Company. The areas designated for cleanup around the IMs should meet the cleanup goals for non-PCB constituents as will be accomplished in the rest of the OU2 area.

2.114 **Comment:** P/S stated that including dioxin-like PCBs (DL-PCBs) with the polychlorinated dibenzo-p-dioxin/ dibenzofuran (PCDD/DF) component of TEQ is not necessary or appropriate. The cleanup of total PCBs in soil for the IM expansion areas is consistent with the conclusions of the OU-1/OU-2 HHRA prepared by the EPA, and there is no need to separately assess the risks from DL-PCBs because there is no relationship between PCDD/DFs and total PCBs on this Site. If PCDD/DFs are of concern, they should be addressed separately by other parties. (ID 21)

Response: The EPA HHRA considered PCDD/DF TEQ and PCB concentrations separately. PCDD/DF/DL-PCBs was evaluated, in accordance with the EPA headquarters' guidance, to determine if PCBs have weathered to be more toxic in the environment. Site-wide, the load from PCDD/DF was not significant; only one location was found to exceed screening levels. When PCDD/DF/DL-PCBs was evaluated three locations were found to exceed screening levels. The EPA determined that two locations were high enough over the PCDD/DF/DL-PCBs RG that they should be remediated as hot spots to protect the community.

2.115 **Comment:** P/S stated that the subsurface soil RG for PCBs of 97 mg/kg is not directly applicable to the IM expansion areas, the dredge spoil piles, the UWDAs, the non-residential portions of OU-1/OU-2, or the T-11 area. This subsurface RG was developed to protect receptors (construction and utility workers) whose exposure was evaluated on an OU-wide basis and not an EU, area or location basis. The OU-1/OU-2 RI and OU-1/OU-2 HHRA documented that the subsurface soil PCB exposure point concentration (EPC) of 99 mg/kg was equivalent to the subsurface RG (97 mg/kg) and thus remediation of subsurface soil is not required. (ID 21)

Response: The subsurface soil RG for PCBs of 97 mg/kg was based on a Site-wide evaluation. If confirmation samples taken in areas where surface excavation is taking place demonstrate locations where PCBs in subsurface are greater than 97 mg/kg, further excavation may be required to protect future construction workers.

2.116 **Comment:** P/S stated that the Proposed Plan inconsistently and incorrectly describes how the presence of a Principal Threat Waste (PTW) in soil is identified. The Proposed Plan (pages 56, 57 and 58) correctly includes the use of groundwater impacts at concentrations exceeding the maximum contaminant level (MCL) in the process to identify PTW. However, there are other portions of the Proposed Plan (pages 33 and 34) that incorrectly refer to a PCB concentration threshold value in soil to define PTW (e.g., 500 mg/kg). The Proposed Plan is also inconsistent and incorrect in identifying the remedial approach to address PTW, if present. In many locations

(e.g., pages 55 through 58), the Proposed Plan incorrectly defaults to a removal approach if PTW is present versus the correct approach of assessing a range of remedial approaches as presented on page 34. (ID 21)

Response: The description of PTW on page 33 states that PTW is source material that can be identified based on high toxicity or mobility in groundwater. On pages 56, 57, and 58 of the Proposed Plan, high concentrations of PCBs were capped and covered as IMs in the mid-1990s. So the evaluation concentrated on what concentrations were left outside of the IMs and whether the caps and covers were effective at controlling the mobility of PCBs. One area of the Eastside IM did not have sufficient monitoring wells to determine that high PCB concentrations capped with a geomembrane to reduce infiltration were not leaching to groundwater. Because no leaching was detected at other locations with high concentrations of PCBs, the project team assumed no leaching was occurring from PCBs in the Eastside IM, though confirmation is required during remedial design. A PCB concentrations threshold was not established for the Anniston PCB Site, but leaching to groundwater was evaluated where concentrations greater than 500 mg/kg were found. The language in the Proposed Plan on pages 33 and 34 references the threshold PTW levels in Superfund PCB guidance. The Proposed Plan and the ROD identify excavation of PTW at the Eastside property if leaching to groundwater is determined to be taking place during remedial design. Non-residential soil alternatives were compared and evaluated and the final selected remedy was excavation and offsite disposal. If the geomembrane cap already installed in the Eastside area is not preventing groundwater contamination and mobility of PCBs in groundwater, then excavation is the most likely remedy. P/S can propose alternatives if sample results show leaching is occurring. If the groundwater is contaminated with PCBs, the remedy will need to be modified with an ESD or Amended ROD to implement.

2.117 **Comment:** P/S stated that the key applicable or relevant and appropriate requirements (ARARs) listed on page 54, 58, 63, 67, 73 and 78 of the Proposed Plan include elements of the Toxic Substances Control Act (TSCA) and incorrectly refer to remediation wastes. The specific statement of concern is "Regulations at 40 Code of Federal Regulations (C.F.R.) Part 262.11 (a)-(d) for the "management and disposal of remediation wastes." It is undisputed that PCB residuals from the Site being addressed within OU-1/OU-2 are associated with waste placed or releases which occurred prior to 1978. Based on this, the PCBs in OU-1/OU-2 are not subject to TSCA and its implementing regulations except when materials with PCB concentrations greater than or equal to 50 mg/kg are removed for remediation. (ID 21)

Response: There is no question that TSCA regulations apply to PCB waste at 50ppm or greater. However, the EPA application of the Mega rule included requirements for PCB contamination that is sometimes less than 50 mg/kg. The date of the spill and presumption that it is not a risk does not apply to Superfund sites. At a Superfund site, the threshold for taking action is unacceptable risk to human health and the environment. For PCB contamination at a CERCLA site, the cleanup levels could be

based upon guidance, risk assessment or default RSLs/RGs, or chemical-specific ARARs (from TSCA or CWA, etc.). If that cleanup level (which is protective of human health and the environment) is exceeded, then there is a presumption that the source of the contamination must be addressed. This same rationale was applied to the Anniston PCB Site OU3 ROD.

As a threshold criterion under CERCLA, any remedial alternative must be both protective of human health and the environment and comply with ARARs. So, depending on the response action and whether PCB contamination (that exceeds the cleanup level) is removed, treated or contained, there are TSCA regulations that are either 'applicable' such as for waste storage and disposal if greater than 50ppm and there are TSCA regulations such as those for the PCB remediation waste/ PCB bulk product waste that are 'relevant and appropriate'.

2.118 **Comment:** P/S stated that only one of the four dredge spoil piles proposed for removal in the Proposed Plan has PCB concentrations above the RG for non-residential soil. Of the three remaining dredge spoil piles, one has yet to be sampled for PCBs, and the other two piles have PCB concentrations below the non-residential RG. The Proposed Plan (and ROD) should not require removal of dredge spoil piles with PCB concentrations below the RG. (ID 21)

Response: The EPA proposed and selected the removal of all four dredge spoil piles because they have decreased substantially in size since they were sampled in the 1990s and the soil in the piles may be an ongoing source to PCB contamination to Snow Creek, where the sediment cleanup goal is 3 mg/kg. The Proposed Plan also included alternatives for just disposing of the one pile that exceeded the RG.

2.119 **Comment:** P/S stated that RGs for constituents other than PCBs (Dredge Spoil Piles Fact Sheet, page 5) should not be applied to the dredge spoil piles. These non-PCB constituents include arsenic, chromium, PAHs (as BaPE) and PCDD/DF TEQ, and are associated with naturally occurring background conditions or non-P/S industrial sources. As stated in the Proposed Plan (page 40): "There is substantial data to link these contaminants to multiple industrial operations in the area, even some still operating in the floodplain. In addition, the locations and footprints of the four dredge spoil piles were established based on field surveys, and additional delineation of the dredge spoil piles for non-Site related constituents is not necessary or applicable." (ID 21)

Response: PCBs and non-PCB contaminants were identified as goals for all non-residential soil including the dredge spoil piles so that the soil beneath the piles is confirmed to be protective. The possibility that other industrial sources may have some responsibility to help address this waste does not negate P/S' responsibility to also address the Dredge Spoil Piles.

2.120 **Comment:** P/S stated that the EPA has chosen off-site disposal instead of on-site disposal for dredge spoil piles, non-residential soil and sediment with little discussion

about the rationale behind that decision. Although in some cases the EPA cites concerns expressed by local residents, it is not clear that the EPA has fully evaluated the balances between the primary balancing criteria and modifying criteria. On-site disposal would be easier to implement, have fewer short-term negative impacts to local residents than off-site disposal, and be a significantly lower cost.

Response: The discussion about the decision to select offsite disposal has been expanded in the ROD. P/S did not propose to construct a lined onsite disposal area for disposing of PCB contaminated soil and sediment. P/S also did not propose to sample the soil and sediment in a way to make sure it would satisfy the current disposal requirements for the South Staging and Soil Management Area (SSSMA), which is the area used for the disposal of residential soil at concentrations less than 10 mg/kg. The long-term protectiveness discussion of the onsite disposal options was modified in the ROD to reflect the EPA's added concern about potentially making the onsite disposal area a more toxic waste disposal area.

Additionally, the community expressed substantial opposition to the onsite disposal of PCB contaminated soil during the residential cleanup. The West Anniston residents were particularly concerned that contaminated soil was being brought from every other neighborhood to their neighborhood. The EPA determined that the cost of offsite disposal did not outweigh the concerns about disposal of a more waste stream in a heavily impacted community.

2.121 **Comment:** P/S stated that the responsibility for implementing remedial cleanup actions at the unapproved waste disposal areas (UWDAs) rests with parties other than P/S. The UWDAs should not be included in the ROD for OU-1/OU-2. The UWDAs are not part of the Site based on the definition of the Site presented in the PCD which establishes specific conditions that must be present for an area to be considered part of the Site. If the UWDAs are included in the ROD, the EPA should pursue parties other than P/S for the implementation of that portion of the remedy.

Response: The EPA has expressed to P/S in correspondence that the UWDAs were sampled during the RI because the materials in those locations were likely impacted by the Site. The fact that additional waste was also found in these two locations that likely contributes to the overall contamination in these areas does not change the fact that waste from P/S is also present. Superfund liability is joint and several. The EPA separated the UWDAs into their own category of alternatives. If other parties responsible for the waste in these areas agree to conduct the work without contribution from P/S, agreements to that effect can still be conducted within the framework of the Anniston PCB Site.

2.122 **Comment:** P/S stated that although not included in the Proposed Plan, a third UWDA was identified in the OU-1/OU-2 RI. This third UWDA is located west of EU1 and land ownership records for this property clearly identify it as dump site for a local industry (MeadWestvaco).

Response: The property identified by P/S was sampled by the EPA during the removal assessment; P/S conducted no sampling on the property. The auto fluff waste found on the two UWDAs identified in the Proposed Plan was not found on the third property, although the topography of the area appeared to be significantly influenced by fill material. Questions about the mobility of PCBs in subsurface soil need to be answered, but no threat to human health and the environment from surface soil was identified on the third property.

2.123 **Comment:** P/S stated that the UWDAs are former disposal areas that were constructed with no regulatory approvals. There is uncertainty regarding the materials (beyond auto fluff) that may be present in these three areas. Based on this, it is speculative to identify the list of constituents (UWDA Fact Sheet page 5) that could be applicable recognizing that remedial responsibility for these areas falls to parties other than P/S.

Response: A similar auto fluff disposal area was found in West Anniston in 2006 and waste in that area was removed and disposed offsite. Other than the TCLP analyses conducted for disposal, only lead and PCBs were sampled for at that time. At least two soil samples from the Wilborn UWDA in EU10 were analyzed for a wider list of constituents, and no unusual results were found. The proposed and selected remedy for the UWDAs in the OU1/OU2 Proposed Plan and ROD is capping. The presence of unknown constituents would not be a concern if the areas are being capped with a low-permeability RCRA-D cap. Liability issues at the UWDAs were discussed in the response to Comment 2.121.

2.124 **Comment:** P/S stated that RGs for constituents other than PCBs should not be applied to the non-residential soil (see page 66 of the Proposed Plan). These non-PCB constituents including arsenic, chromium, PAHs (as BaPE) and PCDD/DF TEQ, which are associated with naturally occurring background conditions or non-P/S industrial sources. As stated in the Proposed Plan (page 40): "There is substantial data to link these contaminants to multiple industrial operations in the area, even some still operating in the floodplain. Appendix G in the OU-1/OU-2 Feasibility Study (OU-1/OU-2 FS) includes an exhaustive review of data compared to background concentrations and geographic distribution. The end result is a determination that the Facility is not likely the only or even primary contributor to the concentrations detected in OU1/OU2."

Response: PCBs and non-PCB contaminants were identified as goals for all non-residential soil. Hot spots of chromium, PAHs, PCDD/DF/DL-PCB TEQ were identified for cleanup. Samples are needed to confirm that no additional hotspots are present that require cleanup in the EUs where action is taking place. The Solutia Facility in Anniston is included among the multiple industrial operations that contributed contamination to the floodplain. Previous operators at the facility included the Southern Manganese Company, Swann Chemical Company, and Monsanto Chemical Company. Moreover, the existence or viability of other sources

of the contamination present and the liability allocation among those parties are separate and distinct issues from what should be included in the ROD.

2.125 **Comment:** P/S stated that there are inconsistencies regarding proposed cleanup of non-residential soil with PCDD/DF and DL-PCBs in the Proposed Plan. The OU-1/OU-2 HHRA previously determined that further assessment and cleanup of DL-PCBs was not necessary and while the RG was lowered slightly by the EPA from 1 µg/kg to 0.73 µg/kg since the OU-1/OU-2 HHRA was approved, this change does not support a change in approach to now include DL-PCBs as part of TEQ. In addition, the one location where TEQ based on PCDD/DF exceeded the RG is a former industrial area where the total PCB concentrations are very low (0.062 mg/kg). An additional consideration is that since the publication of the current toxicity equivalent factors (TEFs) in 2006, there has been considerable research in this area that supports lowering the human-TEF for PCB126 by a factor of 30.

Response: One location was identified where the PCDD/DF concentration created an exceedance of the PCDD/DF/DL-PCB RSL. A second location was identified where the DL-PCB concentration exceeded the PCDD/DF/DL-PCB RSL and was not being cleaned up because of a low PCB concentration. A risk management decision was made to require cleanup of these two hot spot locations even though PCDD/DF/DL-PCBs are not statistically a Site-wide concern. The EPA agrees that research continues to take place concerning dioxin toxicity, but there is currently no indication that the current toxicity equivalent factors (TEFs) will be modified in the near future.

2.126 **Comment:** P/S stated that the Proposed Plan (page 37) identifies the potential for additional remediation of the floodplain following the completion of the baseline ecological risk assessment (BERA) for the OU-4 portion of the Site. The ecological risk assessments prepared for OU-1/OU-2 documented that cleanup of terrestrial habitat in OU-1/OU-2 was not necessary due to habitat limitations. In addition, the OU-4 BERA and its conclusions will have no bearing on terrestrial or aquatic habitat conditions in OU-1/OU-2.

Response: The original ecological risk assessment was intended to cover the whole site. The EPA agreed to focus the ecological risk assessment on OU4 and Snow Creek. OU1/OU2 does not have good terrestrial habitat, but there are 43 wooded residential lots that are not being cleaned up until they are ready for development because there is no current human health exposure. Arguably, the wooded lots may provide good terrestrial habitat. If the OU4 BERA determines that PCB impacted wooded areas require cleanup to protect terrestrial exposure, then the concentrations allowed to remain in OU1/OU2 wooded areas may need to be reconsidered. The Proposed Plan language was intended to relay this intent.

2.127 **Comment:** P/S stated that the comparative analysis table for the groundwater at T-11 (Table 24) inconsistently and incorrectly evaluates the long-term effectiveness and permanence of the active remedial alternatives (GW-2 through GW-4). The cap system used for all three of these alternatives has been proven effective over the long-

term and if there are concerns in this regard (as indicated for GW-2 and GW-3 on the table), these concerns would also apply to GW-4. If the cap systems are considered comparable in effectiveness for each alternative, then the only difference between the alternatives would be cost, and the results of evaluation support GW-2 as the appropriate remedial alternative.

Response: The comparative analysis for groundwater alternatives (Table 25 in the Proposed Plan) has been revised in the ROD to reflect the EPA's reasoning more clearly. P/S made no attempt to determine what concentrations of PCBs could be left in place that would not cause groundwater contamination. Therefore, excavation of PCB impacted soil in the area of T-11 does not create any confidence that a soil cap as described in GW-2 will be effective at preventing groundwater contamination or the discharge of contaminated groundwater to the adjacent surface waters of Snow Creek. And while the excavation of PCB impacted soil in the area of T-11 coupled with the installation of a low-permeability cap in GW-3 should reduce the ongoing impact of on PCBs in groundwater, P/S provided no information about when PCB concentrations in groundwater will be restored to drinking water standards or how surface water impacts will be prevented. Of all the remedies proposed, GW-4 is the most likely to achieve ARARs in a reasonable time period because it includes active groundwater restoration that will create a gradient away from Snow Creek, thereby preventing PCB releases to surface water.

2.128 **Comment:** P/S stated that the RGs for constituents other than PCBs should not be applied to groundwater at T-11 with the possible exception of discharge criteria for the treatment system (groundwater at T-11 Fact Sheet page 5). These non-PCB constituents including arsenic, chromium, PAHs (as BaPE) and PCDD/DF TEQ are associated with naturally occurring background conditions or non-P/S industrial sources. As stated in the Proposed Plan (page 40): "There is substantial data to link these contaminants to multiple industrial operations in the area, even some still operating in the floodplain. Appendix G in the OU-1/OU-2 Feasibility Study (OU-1/OU-2 FS) includes an exhaustive review of data compared to background concentrations and geographic distribution. The end result is a determination that the Facility is not likely the only or even primary contributor to the concentrations detected in OU1/OU2."

Response: RGs for non-PCBs in soil apply to all non-residential soil. Since the T-11 area is a non-residential area, all of the non-residential RGs apply. The RGs were established based on the risk assessment, not on liability issues. The EPA does not understand why this topic is a concern since the area will be excavated and then capped. See also the Response to Comment 2.124.

2.129 **Comment:** P/S stated that the RGs for constituents other than PCBs should not be applied to sediment and creek bank areas. These non-PCB constituents are identified on Table 6 of the Proposed Plan (page 44) and include barium, chromium, cobalt, lead, manganese, mercury, nickel, and vanadium. These constituents are associated with non-P/S industrial sources located in the Snow Creek watershed. As stated in the

Proposed Plan (page 40): "There is substantial data to link these contaminants to multiple industrial operations in the area, even some still operating in the floodplain."

Response: RGs were designated for sediment to protect ecological receptors and remain in the ROD. The Solutia Facility in Anniston is included among the multiple industrial operations that contributed contamination to the floodplain. Previous operators at the Facility included the Southern Manganese Company, Swann Chemical Company, and Monsanto Chemical Company. In reviewing the FS, P/S indicated that removal of PCBs in sediment to the RG of 3 mg/kg will remove concentrations of other contaminants except at one location where manganese exceeds the RG. Although the ROD does not address liability issues, only risk and ARAR exceedances, it is difficult to believe that a company originally named the Southern Manganese Company has no legacy responsibility for at least manganese in Snow Creek.

2.130 **Comment:** P/S stated that the RGs for chromium III, chromium VI and lead in surface water are associated with parties other than P/S. These constituents are associated with non-P/S industrial sources located in the Snow Creek watershed. As stated in the Proposed Plan (page 40): "There is substantial data to link these contaminants to multiple industrial operations in the area, even some still operating in the floodplain."

Response: As has been previously stated, the ROD does not address liability issues. The RGs for chromium III, chromium VI and lead were included because violations for chromium and lead were noted in the FS.

2.131 **Comment:** P/S commented on the Proposed Plan discussion on the air pathway on page 8 of the Proposed Plan. P/S stated that air dispersion is not a main pathway for past or present migration of constituents from OU-3 to OU-1/OU-2 or to OU-4. Concentrations of PCBs in air have been investigated and found to be below concentrations that would pose unacceptable risks in OU-3 and in OU-1/OU-2. The distribution of PCBs in OU-1/OU-2 soil surrounding OU-3 does not support the air pathway as being a significant historical source. The distribution of PCBs in OU-1/OU-2 soil is not consistent with the predominant direction of winds in this portion of the Anniston area. To the extent that the EPA claims that PCBs from the operations of P/S' predecessors have "volatilized" and "spread" through the Anniston area, that claim is insufficient as a matter of law to hold P/S as a potentially responsible party under CERCLA. See Pakootas v. Teck Cominco Metals, No. 15-35228, 2016 WL 4011196 (9th Cir. July 27, 2016). In the Pakootas case, the 9th Circuit Court of Appeals rejected a similar "aerial deposition' theory." 2016 WL 401196 at *5. The Court noted that an earlier interpretation of the term "deposit" as used in CERCLA held there was nothing in the statute suggesting "'that Congress meant to include chemical or geologic processes or passive migration, i.e., the gradual spread of contaminants without human intervention.'" Id. (quoting Carson Harbor Vill., Ltd. v. Unocal Corp., 270 F.3d 863, 879 & n.7 (9th Cir. 2001)).

Response: The EPA's interpretation of historical air pathway contribution to contamination is based on two pieces of evidence: concentrations found on historically wooded properties around the Facility and Monsanto records describing releases to air.

From 1929 to 1971, Monsanto manufactured approximately 680,000,000 pounds of PCBs in Anniston. During these operations company documents from Monsanto and successors P/S indicate that massive amounts of PCBs and lead were released into the environment in the Anniston area through multiple pathways including air deposition. Dust, particulates and volatilized materials containing PCBs were released into the atmosphere in amounts equating to at least tens of thousands of pounds. The sources of the daily releases of PCBs included the process equipment, the company landfills and spills at the Facility. Thus, EPA is not persuaded by P/S' arguments that concentrations of PCBs released to the air or now present in the environment are somehow minimal. Moreover, for Facility owners and operators CERCLA only requires that a PRP be "a" source of the contamination given its strict, joint and several and retroactive liability structure. Arguments that a PRP is not the sole, main or significant source of contamination are irrelevant to liability determinations, although they can have merit in post-liability allocation contexts among PRPs. The impact of Pakootas v. Teck Cominco Metals is currently limited to the 9th Circuit. The EPA believes it was wrongly decided and that the core facts are quite different than those at the Anniston PCB Site.

2.132 **Comment:** P/S stated that the number of properties that fall into the different categories (with or without structures and with PCBs or no PCBs at depth) on page 10, Table 1 and Table 9 are not the same. Recognizing that these numbers change as the properties are addressed, the numbers on the applicable tables should be the same and should reference a date and source document for the information.

Response: The inconsistencies have been checked and corrected as needed for the ROD. Table 9 was not included in the ROD. Table 1 is the EPA's best estimate of the status based on the 2016 FS submitted by P/S and information from the Anniston Lead Site.

2.133 **Comment:** P/S stated that on page 15 the Proposed Plan does not clarify that the special use properties included high and low activity areas and that the Stipulation treated the high activity portions of the special use areas as residential for the purposes of surface and subsurface PCB removals.

Response: A clarification has been included in the ROD.

2.134 **Comment:** P/S stated that the EPA should consider the recently issued Desk Statement Regarding Lead Contamination in Soil. The Desk Statement discusses recent data for lead toxicity that may impact the 400 mg/kg action level that was used to address the Anniston PCB and Lead Site properties. Specifically, there may be unacceptable risks for residential properties with lead concentrations less than 400

mg/kg, including properties that were cleaned up under the Anniston Lead Site Removal Order by other PRPs.

Response: The Anniston Lead Site is a separate Site. The EPA considers P/S an industrial company that contributed to lead contamination at the Anniston Lead Site. Just because P/S has not settled its liability for its contamination at the Anniston Lead Site. The Desk Statement identified by P/S is being considered by the Anniston PCB and Lead Site.

2.135 **Comment:** P/S stated that although not included in the Proposed Plan, a third UWDA was identified in the OU-1/OU-2 RI. This third UWDA is located west of EU1 and land ownership records for this property clearly identify it as dump site for a local industry (MeadWestvaco). The presence of this third UWDA is documented in publicly available records for parcel (PPIN 32695) and indicates that the property was owned by the Anniston Foundry Company (recorded in the Calhoun County at Deed Book 1097, Page 931-938) and used as a dumping operation by Anniston Foundry Company from 1957 forward. See Affidavit of H. Worth Little, dated March 9, 1961. The property was conveyed by Anniston Foundry Company to Woodward Iron Company (as the sole shareholder of Anniston Foundry Company) in 1963, Calhoun County, Alabama, Deed Book 1263, Page 528; and that the Mead Corporation acquired the property by merger from Woodward Iron Company in 1977, Calhoun County, Alabama, Deed Book 1445, Page 764. The UWDAs should not be included in the ROD for OU-1/OU-2 as the areas are not part of the Anniston PCB Site. If they are included in the ROD, the EPA should pursue parties other than P/S for the implementation of that portion of the remedy.

Response: Parcel (PPIN 32695) was not identified as an unapproved waste disposal area in the RI. The area was sampled by the EPA during the removal assessment because it was once a low lying area that had been filled-in. P/S has joint and several liability for PCBs in Anniston, and can be held responsible for the PCBs in this area, if they are creating an unacceptable risk that needs to be addressed.

P/S assumed the high PCB concentrations in soil were located at the surface because they were coded incorrectly in the EPA database. P/S included the area for remedial action as non-residential soil in the FS. After reviewing the removal report, it is clear that the high PCB concentrations were found at depth (likely in an old drainage feature), and there was no identification of solid waste being present at this location, though it is possible the area is filled with spent foundry sand. The fact that foundry sand is likely in place is not a threat by itself, since surface soil concentrations for PCBs, lead, and a wide range of constituents do not exceed remedial goals.

Based on the data collected throughout the Site, the ROD assumes that groundwater is not an issue at this location. This property requires more investigation to confirm that subsurface PCBs are not impacting groundwater. Because the data gap was not identified during the RI/FS, this data needs to be collected during remedial design. At a minimum, the residuals PCBs need to be managed.

2.136 **Comment:** P/S claimed that stating that PCB residuals on properties that were addressed under the Anniston Lead Site are now part of the Anniston PCB Site equates to a transfer in liability. The Anniston Lead Site properties were separately addressed by the EPA and a group of PRPs under a Removal Order to which P/S are not party. The responsibility for PCB residuals at these properties rests with these other parties and not P/S.

Response: PCBs in Anniston have always been part of the Anniston PCB Site. The EPA considers P/S the major contributor of PCBs to the area, and P/S is jointly and severally liable for PCBs around and downstream of the Facility. The EPA negotiated a de minimis settlement with eleven industrial parties that signed the Anniston PCB Site and Anniston Lead Site Agreement on Consent (AOC) to conduct a portion of the PCB cleanup on residential properties as their contribution to PCB contamination in the area. Longterm management of PCB residuals (in subsurface or under structures) was not part of the de minimis settlement, and all requirements selected in the ROD apply to the properties cleaned up through the de minimis settlement.

After the AOC was signed, the EPA and P/S signed a Stipulation to the Consent Decree and agreed to enter into good faith settlement negotiations toward a settlement that resolves the CERCLA claims against P/S for lead contamination in Anniston. After limited negotiations, P/S failed to settle with the EPA. Thus, the CERCLA lead claim against P/S remains unresolved.

2.137 **Comment:** P/S stated that the responsibility for implementing remedial cleanup actions at the UWDAs rests with other parties. The UWDAs should not be included in the ROD for OU-1/OU-2 as the areas are not part of the Anniston PCB Site. If the UWDAs are included in the ROD, the EPA should pursue parties other than P/S for the implementation of that portion of the remedy. The UWDAs are not part of the Anniston PCB Site based on the definition of the Site presented in the PCD which establishes specific conditions that must be present for an area to be considered part of the Site: "the Anniston PCB Site consists of the area where hazardous substances, including PCBs associated with releases or discharges as a result of the operations, including waste disposal, of the Anniston plant by Solutia Inc., Monsanto Company, and their predecessors have come to be located." In a letter to P/S dated February 25, 2016, the EPA, in discussing the UWDAs, indicates that "Based on the thousands of parcels sampled and the volume of data reviewed, the EPA has a solid understanding that the Site contamination is either fill material containing PCBs and/or lead or fill material that contains auto fluff." The past use of the UWDAs by parties other than P/S is recognized by the EPA in the Proposed Plan when describing the UWDAs… "Investigations conducted in these areas have shown that the UWDAs contain or may contain auto fluff that was deposited over time."

Response: As has been previously stated, the ROD is intended to address response activities needed to protect human health and the environment, not to address liability

issues. The statement referenced in this Comment is not representative of the numerous other prior statements on P/S' contribution of PCBs to the Anniston area.

2.138 **Comment:** P/S stated that on page 23 of the Proposed Plan, the non-PCB constituents including arsenic, PAHs, chromium and PCDD/DFs in soil, are not associated with the Anniston PCB Site. The distribution of these non-PCB constituents is consistent with the presence of other industrial sources in the Anniston area, or in the case of arsenic, is consistent with naturally occurring conditions based on a comparison of background data from a study conducted at Fort McClellan.

Response: The EPA identified PAHs, chromium and PCDD/DFs in soil that exceed remedial goals in hot spot locations not associated with high concentrations of PCBs. These exceedances are located within the boundaries investigated by the Anniston PCB Site and cleanup is warranted to protect human health and the environment. No concentrations of arsenic were identified for cleanup.

2.139 **Comment:** P/S stated that on pages 23, 36, 41 and 66, there are inconsistencies regarding the proposed cleanup of non-residential soil with PCDD/DF and DL-PCBs in the Proposed Plan and the Proposed Plan Fact Sheet. For example, page 66 of the Proposed Plan indicates that there is "one location where one sample result exceeds the PCDD/DF RG of 0.6 µg/kg (Exposure Unit [EU]25)." This statement is inconsistent with the information provided on page 41 of the Proposed Plan that indicates "two locations (2,200 ng/kg in EU25 and 2000 ng/kg in EU10) do not fit the data…." In reviewing the non-residential surface soil results for PCDD/DF and DL-PCBs in OU-1/OU-2, there are a total of three sample locations where the RG for TEQ inclusive of PCDD/DF and DL-PCBs (0.73 µg/kg) is exceeded. The corresponding total PCB concentrations for each of these three sample locations are low. Additional information is provided below for the two locations where remedial actions are not needed to reduce risks associated with PCBs in surface soil. Information is also provided below for the single sample location where the possible presence of PCDD/DFs is not the responsibility of P/S.

a. The TEQ RG exceedance for two of the three locations are driven by the DL-PCB component of TEQ. One of the RG exceedances is associated with a surface soil sample collected in EU11, and the second exceedance is associated with a surface soil sample collected in EU15/16. Both of these EUs are characterized by low PCB concentrations, and the Proposed Plan does not identify remediation for either of these EUs based on the presence of total PCBs. The average surface soil PCB concentrations in EU11 and EU15/16 are 1.3 mg/kg and 0.84 mg/kg, respectively. The DL-PCB concentrations for these two sample results are discussed in the CDM September 29, 2010 memorandum addendum to the HHRA. This memorandum concluded that the DL-PCB component of TEQ for these two locations is attributed to PCB 126, and that the reported concentrations of PCB 126 are likely false positives or are falsely biased high. The memorandum also concludes that total PCB concentrations based on the sum of detected

Aroclors is consistent with total PCB homologues and, thus, subsequent risk based decisions based on PCB Aroclors results can be made with confidence.

b. An additional consideration is that since the publication of the current toxicity equivalent factors (TEFs) in 2006, there has been considerable research in this area, and several papers have been published demonstrating the flaws in the published 2006 PCB TEFs. The lead author of the 2006 TEF publication (Martin van den Berg) recently published research that concludes that the "current TEF concept overestimates [aryl hydrocarbon receptor] AHR-mediated risk of DL-PCBs in humans." In particular, "the human-TEF for PCB126 should probably be around 0.003 for AHR-mediated effects" or 30 times lower than the current TEF. If, based on these new data, TEFs were lowered to reflect actual toxicity, DL-PCBs would not make a measurable contribution to the calculated total TEQ.
c. The third TEQ above 0.73 µg/kg is in a former industrial area (US Pipe) located in EU25. The TEQ concentration at this location is driven by the concentration of PCDD/DFs and not DL-PCBs, as the total PCB concentration is 0.062 mg/kg. Since the TEQ concentration is driven by a group of constituents that are not associated with the Anniston PCB Site (i.e., PCDD/DFs), and given that the PCB concentrations at this location do not pose unacceptable risks, there is no need to address the area as part of the Anniston PCB Site. If the risks associated with the PCDD/DF component of TEQ at this single location are unacceptable, then the responsibility to address this portion of EU25 shifts to parties other than P/S.

Response: The Proposed Plan and ROD are intended to provide solutions that protect human health and the environment, they are not related to liability determinations or allocations. The inconsistencies noted have been corrected in the ROD to reflect that concentrations in soil at three locations are above the PCDD/DF/DL-PCB screening level. While the result at one location is only slightly higher than the screening level, the results at the other two locations are approximately three times higher than the screening level. To ensure protection of human health and the environment, a risk management decision was made to address the contamination at the two higher concentrations as hot spots. Scientists debated TEFs for many years before the dioxin reassessment was approved. No doubt there will be many new studies that will be used if the TEFs are reevaluated in the future. The current TEFs are approved for use by the scientific community world-wide. P/S may also elect to retest the two locations of concern using an alternative method or process to eliminate the uncertainties as to whether PCB 126 is present, if that is preferred.

2.140 **Comment:** P/S provided comments on the discussion about PCDD/DF TEQ on page 24 of the Proposed Plan. P/S stated that this section accurately describes a single sample with a concentration of 2.2 µg/kg PCDD/DF TEQ as an outlier relative to the remainder of the OU-1/OU-2 data set. The lack of correlation between TEQ and PCB concentrations indicates that PCDD/DFs and PCBs are not from the same source. It is not appropriate to combine the results for PCDD/DF with DL-PCBs for the purposes of remediation decisions, as the OU-1/OU-2 HHRA determined that risks associated with total PCBs sufficiently addressed risks associated with DL-PCBs. Furthermore, the OU-1/OU-2 HHRA determined that the two sample locations where the total TEQ

was driven by the detection of PCB 126 are attributed to potentially false positive or falsely high results for PCB 126.

Response: The EPA guidance entitled "Use of Dioxin TEFs in Calculating Dioxin TEQs at CERCLA and RCRA Sites" dated May 2013, states the following:

> Dioxins are a group of compounds that share distinct chemical structures and characteristics. The term dioxin commonly refers to the compound in this group considered most toxic, 2,3,7,8-tetrachlorodibenzo-para-dioxin (TCDD). Dioxin-like is a description used for compounds that have chemical structures, physico-chemical properties, and toxic responses similar to TCDD. Dioxin-like compounds (DLCs), including polychlorinated dibenzo-p-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs), and dioxin-like polychlorinated biphenyls (PCBs), typically are found in mixtures with TCDD at CERCLA and RCRA sites and other contaminated properties. The EPA Toxics Release Inventory Program issued a final rule requiring that facilities report the released mass (grams) of individual DLCs in addition to reporting the released mass of TCDD.
>
> The evaluation of TCDD and DLCs at CERCLA and RCRA sites includes consideration of the toxicity (i.e., cancer risks and non-cancer effects) of these contaminants. In the absence of toxicity values for DLCs, TEFs are used as a measure of the toxicity of the DLCs relative to TCDD. Concentrations of DLCs measured in media are modified by TEFs to determine the dose of each DLC in a medium that is equivalent to a dose of TCDD. The modified DLC doses are expressed in terms of TCDD toxicity equivalence (TEQ). The DLC TEQ concentrations are used, rather than the DLC concentrations measured in media, for site evaluations including site characterization, risk assessment, cleanup level development and confirmatory sampling.

The purpose of the analysis is to make sure that the risk from dioxin and dioxin-like compounds is not overlooked. For the most part, the PCB RG insures cleanup of DL-PCBs that contributed to dioxin toxicity. One location was identified where DL-PCBs were not a factor in the dioxin and dioxin-like compounds RG exceedance, and one location was identified where DL-PCBs were a factor in the dioxin-like compounds RG exceedance. Requiring cleanup at these two location is protective and would not have been captured by the PCB RGs. See responses to comments 2.114, 2.139, and 2.140.

2.141 **Comment:** P/S stated that because metals found in the sediment deposits of Snow Creek are associated with a wide range of industries in the watershed and/or are naturally occurring elements, they should not be used to develop RGs for Snow Creek. Remediating sediment deposits in Snow Creek for these metals would be difficult to maintain over the long-term given the past and continued use of these constituents by non-P/S entities. If risks associated with the isolated occurrences of metals in sediment are deemed unacceptable by EPA, then the responsibility to

address these sediment deposits would fall to others, recognizing the challenges to meet the RGs over the long-term.

Response: See response to Comment 129.

2.142 **Comment:** P/S stated that **t**he definition of PTW on page 33 of the Proposed Plan is inconsistent and in some cases incorrect. The EPA's Proposed Plan (page 56, 57, and 58) correctly identifies PTW as locations where high PCB concentration soil have impacted groundwater at concentrations exceeding the maximum contaminant level (MCL) of 0.5 µg/L. While the description of PTW is correct in the locations referred to above, the text included on page 34 incorrectly indicates that "principal threats will generally include material contaminated at concentrations exceeding 100 ppm for sites in residential areas and concentration exceeding 500 ppm for sites in industrial areas." The inconsistent manner in which PTW is defined in the Proposed Plan should be corrected in the ROD to reflect that impacts to groundwater must exist for PTW to be present. The inference is that a default PCB concentration of 500 mg/kg defines PTW is a one-size-fits-all approach without technical justification. The EPA's guidance documents (A Guidance on Remedial Actions at Superfund Sites with PCB Contamination [OSWER Directive No. 9355.4-01FS, August 1990] and A Guide to Principal Threat and Low Level Threat Wastes [OSWER Directive No. 9380.3-06FS, November 1991]) allow for a site-specific determination of what constitutes PTW and should be determined as part of the ongoing RI/FS process. The information presented in the Proposed Plan should be corrected in the ROD to reflect a correct and consistent approach for defining PTW.

Response: P/S is incorrect in its assessment that PTW is only associated with releases to groundwater. In the 1991 guidance referenced by P/S, it is stated that "PTWs are those source materials considered to be highly toxic or highly mobile, that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur." The 1990 guidance referenced by P/S states that "principal threats will generally include material contaminated at concentrations exceeding 100 ppm for sites in residential areas and concentrations exceeding 500 ppm for sites in industrial areas." The EPA agrees that site-specific PTW concentrations can be determined. Since, P/S declined to use site-specific data to determine the PTW concentration, it is unclear why P/S is complaining about the use of guidance values.

2.143 **Comment:** P/S stated that the Proposed Plan is inconsistent in the approach to address PTW, if identified. For example, if predesign investigations conducted for the Eastside Properties IM identify the presence of PTW through impacts to groundwater, then some of the text on page 34 of the Proposed Plan correctly states that "excavation of PTW may be required". The text presented on pages 55 through 58 of the Proposed Plan conflicts with this approach by indicating that…" If PCB impacts to groundwater are greater than the MCL, excavation of the PCB impacted subsurface soil within the IM or at PB-RR-37 will be required as determined in the design." The advance decision to excavate PTW presented on these pages of the Proposed Plan is

in direct conflict with the language presented on page 34 of the Proposed Plan, including, "When PTWs are not practicable to treat or remove, reliable and effective long-term containment options can be considered…"

Response: The ROD was modified to indicate that excavation may be required. Containment was implemented 20 years ago at the Eastside Area, so it is difficult to imagine that anything other than excavation of high concentrations would be acceptable if leaching to groundwater is occurring. Sample number PB-RR-37 is in a drainage area in the floodplain, so containment is unlikely to be as effective over the long-term if leaching to groundwater is occurring. Regardless, the ROD includes a statement that future changes to the Selected Remedy will be documented using a technical memorandum in the Administrative Record, an Explanation of Significant Differences (ESD), or a ROD amendment.

2.144 **Comment:** P/S commented that air is not a future exposure pathway of concern once the remedial action is implemented for OU-1/OU-2. Both the remedial investigation (OU-1/OU-2 RI) and OU-1/OU-2 FS recognize that additional air sampling may be needed to support construction activities if soil is disturbed during construction. At the present time, with no intrusive activity, there are no concerns regarding PCB concentrations in ambient air. Based on the lack of risks associated with ambient air exposure, additional ambient air monitoring following implementation of the remedy for OU-1/OU-2 is not necessary.

Response: Although PCB concentrations in air do not currently create significant risk, concentrations are higher than similar community locations where PCB production did not occur. The community has expressed concern about PCBs in air, and the EPA agrees that monitoring in the future, particularly during construction activities, will be needed to address community concerns. The frequency and extent of monitoring still needs to be determined.

2.145 **Comment:** P/S commented on the last sentence in the1st full paragraph on page 35: "… and impacted areas further downstream." This sentence should be deleted as OU-4 is not the subject of this Proposed Plan. In addition, there has been no decision to assess the potential for Site-related impacts downstream of OU-4 and the sentence as currently written, presumes that impacts are present downstream of OU-4.

Response: In the EPA's 1999 guidance entitled "A Guide to Preparing Superfund Proposed Plans, Record of Decision, and Other Remedy Selection Decision Documents," it states that the purpose of this section is to "discuss how the operable unit or response action addressed by the ROD fits into the overall site strategy." P/S submitted data to the EPA about PCB impacts downstream in Choccolocco Creek and the Coosa River. The sentence was appropriate, and no changes were made.

2.146 **Comment:** P/S stated that on page 36, the PCB concentration value for the MCL is incorrect. It should be 0.5 µg/L and not 5 µg/L.

Response: The MCL for PCBs has been corrected in the ROD.

2.147 **Comment:** P/S commented on the Dioxin v. PCBs discussion on pages 36 and 37 of the Proposed Plan. P/S stated that the heading and associated text are poorly worded, sometimes incorrect and misleading. The term "dioxin" is used interchangeably to refer to both PCDD/DF TEQ and DL-PCB TEQ. Although the guidance documents include provisions for calculating a total PCDD/DF/DL-PCB TEQ using both PCDD/DF and PCB data, the data from the Anniston Site indicate that the PCDD/DF compounds are not related to PCBs. It is, therefore, incorrect to include them in an additive calculation. The text should be clear when discussing dioxins and furans (PCDD/DFs), PCBs or calculated TEQ values. Also, there is no relationship between PCDD/DFs and PCBs for this Site based on the data collected for OU-1/OU-2 and OU-4.

Response: See the response to Comments 2.114 and 2.140.

2.148 **Comment:** P/S commented on as phrase included in the last paragraph on page 36: "used to provide information about total dioxins (PCDD/DF/DL-PCB) in lower concentrations of PCBs, like what might be present in a residential setting." P/S stated that furans and DLPCBs are not dioxins and should not be referred to as dioxins in this context. The conclusion presented on the top of page 37 that "PCB remedial goals are protective … "is essentially correct, although it would be more appropriately worded as: "PCB remedial goals are protective of the risks calculated for DL-PCB TEQs."

Response: The EPA changed the phrase "total dioxins (PCDD/DF/DL-PCB)" to "total dioxin and dioxin-like compounds (PCDD/DF/DL-PCB)" in the ROD.

2.149 **Comment:** P/S stated that the sentence, "The highest PCB value evaluated for non-residential surface soil is 21 mg/kg," in the 2nd paragraph on page 37 appears to be out of context.

Response: The paragraph was re-worded in the ROD to make the context clearer.

2.150 **Comment:** P/S stated that the sentence, "The results of the study provided a relationship between total dioxin (i.e., PCDD/DF and DL-PCB TEQ) and total PCBs," in the 3rd paragraph on page 37 of the Proposed Plan is incorrect. Although there is a relationship between total PCBs and DL-PCB TEQ, as the latter is calculated from the former, there is no relationship between total PCBs and PCDD/DFs on this Site. The statement provided to the National Remedy Review Board by the EPA Region IV is correct: "The distribution of concentrations of PCDD/DFs is random with no evident pattern to the sporadic higher concentrations in the Snow Creek floodplain."

Response: The discussion on page 37 was about the relationship between dioxin and dioxin-like compounds (PCDD/DF and DL-PCB TEQ) and total PCBs. P/S

disregards the purpose of the analysis, which is to ensure that the human health and the environment are protected. The EPA supports looking at this data two different ways to ensure the selected remedy is protective. P/S disagrees with that approach. The discussion has been revised to be more clear. See response to previous comments related to dioxin (Comments 2.114, 2.125, 2.139, 2.140, 2.147, 2.148).

2.151 **Comment:** P/S stated again that there are three locations in OU-1/OU-2 where the total PCDD/DF/DL-PCB TEQ is greater than the RG. The Proposed Plan only identifies two locations in the 4th paragraph on page 37.

Response: See response to Comment 2.139.

2.152 **Comment:** P/S stated that the phrase "total dioxin" should be replaced with "DL-PCB TEQ" in two instances in the 5th paragraph on page 37 of the Proposed Plan.

Response: The EPA replaced "total dioxin" with "dioxin and dioxin-like compounds (PCDD/DF/DF-PCB) TEQ".

2.153 **Comment:** P/S stated that the following statement on page 37 of the Proposed Plan is not relevant: "If after the Baseline Ecological Risk Assessment for OU4 is complete, it is determined that additional terrestrial cleanup should be conducted in certain areas to address ecological risk, an amendment to the decision document will be considered." It is not clear why (or how) the results of the OU-4 BERA would be back-applied to OU-specific decisions that have already been made for OU-1/OU-2. The ecological risks assessments conducted for OU-1/OU-2 included the 2005 Screening Level Ecological Risk Assessment (SLERA) and the Streamlined Ecological Risk Assessment (SERA) that was finalized in the OU-1/OU-2 RI (ENVIRON 2015). The SLERA and SERA for OU-1/OU-2 were both approved by the EPA. The OU-4 BERA is focused on areas located downstream of OU-1/OU-2 and its conclusions will have no bearing on terrestrial conditions in OU-1/OU-2. This statement should be corrected to reflect document approvals already in-place, and information regarding studies that are not applicable to OU-1/OU-2 should be deleted.

Response: See the response to Comment 2.126. If new information becomes available, it is not unusual for the EPA to re-evaluate previous decisions to ensure that the basis for those decisions is sound and valid. P/S should support all such re-evaluations and not just those that end up in their favor (see comment number 2.156).

2.154 **Comment:** P/S stated that the statement regarding the random distribution of PCDD/DFs with no pattern similar to the PCB distribution pattern, in the 5th paragraph on page 41, is correct. Therefore, it is inappropriate to combine PCDD/DFs and DL-PCBs in a single equation to represent toxicity (TEQ). See General Comment No. 2 for non-residential soil in Attachment A for an accurate description of the three sample locations with calculated total TEQ values above 0.73 µg/kg. It is also

inappropriate to develop a RG to address "data outliers" especially, in this case, where the outliers appear to be the result of uncertainties in the data set.

Response: P/S can certainly retest the two location to reduce the uncertainty associated with the data. The EPA is treating the outliers as hotspots. The point of all of these efforts is to provide protection to human health and the environment. See responses to Comments 2.114, 2.125, 2.139, 2.140, 2.147, 2.148, 2.150, and 2.152).

2.155 **Comment:** P/S commented on the last sentence on page 41 regarding arsenic, chromium, PAHs and PCDD/DFs: "Confirmation samples will be needed to demonstrate whether subsurface soil need to be remediated." The data from the RI demonstrate that P/S and the Facility are "not likely the only or even the primary contributor" for these four constituents in soil. Furthermore, the risk assessments evaluated these constituents on an OU-wide basis and found that their presence and concentrations did not constitute an OU-wide risk. Therefore, these constituents should not be evaluated as part of the Site, and any sampling and subsequent data analysis required to further delineate the nature, extent, and risks from these constituents would be the responsibility of others.

Response: See response to Comment 2.119. Confirmation sampling in the areas where actions are taken should provide enough data to calculate an EU value for these contaminants instead of a site-wide value.

2.156 **Comment:** P/S commented that since the OU-1/OU-2 HHRA was approved in 2012, the EPA has updated the cancer slope factor (CSF) that should be used to update the RG for PAHs. The EPA has also published a reference dose (RfD) that can be used to estimate non-cancer risks for benzo(a)pyrene (EPA IRIS database: https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=136 , accessed May 2017). Using the most recent toxicity information, the RG in soil for PAHs (as BaPE) associated with a cancer risk of 1 x 10^{-4} would be 153 mg/kg, and the non-cancer RG for an HQ of 1 would be 186 mg/kg. This comment affects pages 41, 66, and Table 6 on page 44 of the Proposed Plan.

Response: The EPA agrees with this comment and changed the ROD to reflect the revised toxicity information.

2.157 **Comment:** P/S stated that subsurface has a footnote reference on Table 6, but no footnote is included with this table.

Response: The footnote reference was added to reflect that subsurface soil is considered to be all soil depths below the top 12-inches.

2.158 **Comment:** P/S stated that the non-PCB RGs should not be applied to non-residential soil. This includes the IM areas, dredge spoil piles, UWDAs, non-residential floodplain soil, and soil at the T-11 area. These non-PCB constituents include arsenic, chromium, PAHs (as BaPE) and PCDD/DF TEQ, and are associated with naturally

occurring background conditions or non-P/S industrial sources. As stated in the Proposed Plan (page 40): "There is substantial data to link these contaminants to multiple industrial operations in the area, even some still operating in the floodplain. Appendix G in the FS includes an exhaustive review of data compared to background concentrations and geographic distribution. The end result is a determination that the Facility is not likely the only or even primary contributor to the concentrations detected in OU1/OU2." Based on this statement and all the supporting data, non-PCB constituents should not be considered for the Anniston PCB Site. If these constituents are included in the ROD, the EPA should pursue parties other than P/S for the implementation of that portion of the remedy.

Response: See response to Comment 2.119.

2.159 **Comment:** P/S stated that the non-PCB RGs should not be applied to sediment and creek bank areas. These non-PCB constituents include chromium, cobalt, manganese, mercury, nickel, and vanadium. These constituents are associated with non-P/S industrial sources located in the Snow Creek watershed. As stated in the Proposed Plan (page 40): "There is substantial data to link these contaminants to multiple industrial operations in the area, even some still operating in the floodplain. Appendix G in the FS includes an exhaustive review of data compared to background concentrations and geographic distribution. The end result is a determination that the Facility is not likely the only or even primary contributor to the concentrations detected in OU1/OU2." Based on this statement and all the supporting data, non-PCB constituents should not be considered to identify remedial areas along Snow Creek or the creek bank areas. If these constituents are included in the ROD, the EPA should pursue parties other than P/S for the implementation of that portion of the remedy.

Response: See response to Comment 2.129.

2.160 **Comment:** P/S stated that the non-PCB RGs should not be applied to surface water. This includes chromium III, chromium VI and lead that are associated with other industrial discharges located in the watershed, and not P/S. This is underscored for lead where responsibility for remediating lead was assigned to a separate group of PRPs by the EPA as part of the Anniston PCB and Lead Site. If these non-PCB constituents are included in the ROD, the EPA should pursue parties other than P/S for the implementation of that portion of the remedy.

Response: See response to Comment 2.130.

2.161 **Comment:** P/S stated "… risks to contamination…" in the 1st paragraph on page 45 should be rephrased in a manner similar to "risks due to contamination".

Response: The ROD has been changed to make the correction.

2.162 **Comment:** P/S stated that deed notices for residential properties with PCB residuals are not necessary as these properties will be tracked through the soil management

program that will be implemented for OU-1/OU-2. A key component of the soil management program will be regular written outreach with the property owners and tenants to remind them of the procedures to follow if they plan to disturb soil with PCB residuals and/or remove structures or paving from areas where the PCB concentrations may exceed the residential RG of 1 mg/kg. These conditions must be disclosed to prospective buyers by the landowner and/or real estate professional. Even though the State of Alabama has a "caveat emptor" provision for real estate transactions, items that present a health or safety concern must be disclosed to prospective buyers.

Response: The purpose of deed notices is to provide another layer of protection for prospective purchasers. There have been several recent instances of new purchasers making claims to the EPA that they had no knowledge or insufficient information when purchasing PCB impacted properties at the Site.

2.163 **Comment:** P/S commented on the last bullets on pages 48 (RS-2) and 49 (RS-3): "Re-vegetate the property as close to original conditions as possible." Given that overgrown properties with limited physical access has been one of the difficulties with the residential cleanups to date, it is unlikely that restoration will be to original conditions. In some cases, the original conditions include multiple invasive species which may return on their own, but will not be planted as part of restoration activities.

Response: The bullet has been modified to simply require re-vegetation of the property as agreed to with the owner. Any reasonable request from the property owner to replace specific shrubs, trees, or vegetation that are removed to facilitate cleanup should be met, if possible.

2.164 **Comment:** P/S commented that the 1st sentence under the heading special use properties on page 49 should be changed. In the sentence it says "Special use properties … were partially cleaned…" The term "partially" should be deleted and this sentence should be reworded to recognize that all of the special use properties have been addressed in accordance with the Stipulation. The Stipulation includes the definition of high activity and low activity areas and only required residential cleanup activities for the high activity areas. Where high activity areas required cleanup to reach residential cleanup goals, these cleanups have been completed with the exception of areas with structures or paved areas that prevent direct contact with soil.

Response: The EPA believes that the word partially is used correctly in this paragraph. However, the sentence was reworded to say the special use properties were divided into high and low activity areas and only the high activity areas were required to be cleaned up to residential standards in the Stipulation. The Stipulation also stated that the low activity areas "will continue to be addressed as may be required under the RI/FS Agreement and the cleanup standards for these areas shall be set subject to the risk assessment process set forth therein."

2.165 **Comment:** P/S stated that on page 50, under alternative SU-1 the statement "…the health of current visitors and workers at low activity areas on special use properties may be at risk," implies that there may be a different or greater risk than what was evaluated in the OU-1/OU-2 HHRA. The OU-1/OU-HHRA prepared by CDM on behalf of the EPA fully evaluated the risks to visitors and workers (and residential receptors) and developed RGs that are protective of those receptors.

Response: Since it is clear that the non-residential RG of 21 mg/kg would not result in any cleanup of any low-activity areas on special use properties, the EPA removed the statement "…the health of current visitors and workers at low activity areas on special use properties may be at risk" from the paragraph about SU-1.

2.166 **Comment:** P/S stated that the RG for the low activity portions of the special use areas should be consistent with the RG used for the other non-residential portions of OU-1/OU-2 (21 mg/kg) and, thus, the selected remedy for the special use properties should be remedial alternative SU-2, not SU-3. The proposed remediation of low activity portions of the special use areas to support school and daycare under SU-3 is inconsistent with current land use, the Stipulation, the OU-1/OU-2 HHRA prepared by the EPA. In both of these documents, the EPA considered the low activity portions of the special use areas to be non-residential and not used for school or daycare activities. The high activity portions of the special use areas (e.g., schools, daycare, churches, playgrounds) were addressed under the Stipulation based on the different characterization of such properties in the Anniston PCB and Lead Site Removal Order (presumably based on an assumption of children having direct contact with soil on a regular basis in these areas) and P/S' agreement to address these areas as part of the Non-Time Critical Removal Order rather than wait until the OU-1/OU-2 RI/FS process on these properties, which are classified as non-residential properties under the PCD, was completed. As defined in the Stipulation, low activity areas do not present the same exposure as the high activity areas and it is not appropriate for the EPA to apply a RG from a school/daycare exposure scenario to areas that are not used in this way. If land use changes from low to high activity, the high activity removal requirements would apply and remedial activities for the area would be implemented consistent with the requirements of the Stipulation (1 mg/kg for surface soil and 10 mg/kg for subsurface soil). To be consistent with the OU-1/OU-2 HHRA and the Stipulation, the low activity special use areas should be evaluated as part of the broader EUs that they are located in, where a non-residential RG of 21 mg/kg would apply. As presented in the OU-1/OU-2 FS, alternative SU-2 would implement a soil management plan that would communicate land use issues with the property owner(s) and would ensure that appropriate remediation actions would be taken if the land use changed to high activity (i.e., school/daycare) or residential.

Response: Low activity areas are associated with special use properties such as churches, schools, daycares, parks, and recreation fields. The activity can change on these types of properties. Instead of relying on the soil management plan to react to changes in activity, alternatives were evaluated to clean the low activity areas to a

more stringent non-residential goal (RG of 1 mg/kg) than the goal used for commercial/ industrial properties (RG of 21 mg/kg).

2.167 **Comment:** P/S stated that deed notices for special use properties with PCB residuals are not necessary as these properties will be tracked through the soil management program that will be implemented for OU-1/OU-2. A key component of the soil management program will be regular written outreach with the property owners and tenants to remind them of the procedures to follow if they plan to disturb soil with PCB residuals and/or remove structures or paving from areas where the PCB concentrations may exceed the residential RG of 1 mg/kg. These conditions must be disclosed to prospective buyers by the landowner and/or real estate professional. Even though the State of Alabama has a "caveat emptor" provision for real estate transactions, items that present a health or safety concern must be disclosed to prospective buyers.

Response: See response to Comment 2.162.

2.168 **Comment:** P/S commented on the last bullets on pages 51 (SU-2), 53 (SU-3), and 54 (SU-4): "Re-vegetate the property as close to original conditions as possible." Given that this is in reference to low activity areas that may be heavily wooded or overgrown, achieving original conditions may not be feasible. In some cases, the original conditions include multiple invasive species which may return on their own, but will not be planted as part of restoration activities.

Response: See response to Comment 2.163.

2.169 **Comment:** P/S stated that remedial alternatives to address the low activity portions of special use properties are not necessary as these areas should be addressed as part of the non-residential soil alternatives. This would include these areas as part of the EUs where the non-residential RG for PCBs (21 mg/kg) would be applied.

Response: Low activity areas are associated with special use properties such as churches, schools, daycares, parks, and recreation fields. The activity can change on these types of properties. Instead of relying on the soil management plan to react to changes in activity, alternatives were evaluated to clean the low activity areas to a more stringent non-residential goal (RG of 1 mg/kg) than the goal used for commercial/ industrial properties (RG of 21 mg/kg).

2.170 **Comment:** P/S stated that the key ARARs listed on these several pages of the Proposed Plan include elements of TSCA and incorrectly refer to remediation wastes. The specific statement of concern is "Regulations at 40 Code of Federal Regulations (C.F.R.) Part 262.11 (a)-(d) for the "management and disposal of remediation wastes." It is undisputed that PCB residuals from the Site being addressed within OU-1/OU-2 are associated with waste placed or releases which occurred prior to 1978. Section 761.50(b)(3)(i) of the PCB Mega Rule (Applicability) provides that PCBs "placed in a land disposal facility, spilled, or otherwise released into the environment

prior to April 18, 1978, regardless of the concentration of the spill or release" are "presumed not to present an unreasonable risk of injury to health or the environment from PCBs at the site." See 40 C.F.R. § 761.50 (b)(3)(i)(A); see also Rogers Corp. v. Environmental Protection Agency, 275 F.3d 1096, 1102 (D.C. 2002). Thus, there is a presumption that there is no unreasonable risk or injury to health or the environment at the site regarding PCBs at levels below 50 mg/kg. See 40 C.F.R. § 761.50 (b)(3)(i)(A). On March 10, 2009, the EPA issued an email correspondence to P/S expressly indicating that the "Mega Rule" was not a chemical specific ARAR for OU-3, since a risk assessment was performed for the Site (March 10, 2009 Email Correspondence from the EPA's Remedial Manager for the Anniston PCB Site). The same logic applies to OU-1/OU-2. See also June 10, 1997 Letter from Wm. Gerald Hardy ("It is my understanding that correspondence will be issued from Mr. Perry indicating whether or not the proposed activity will be a TSCA issue"); August 12, 1997 Letter from Alfreda F. Freeman ("The soil and sediment from this drainage ditch are pre-Toxic Substance Control Act (TSCA) materials generated from historic operations at the facility prior to 1972, and contain less than 50 parts per million of Polychlorinated Biphenyls (PCB) . . . We have reviewed the information that was submitted, and concur with the proposal to place the soil in the south landfill as part of upgrading the cover on the south landfill since the soil is considered to be pre-TSCA"), July 16, 1998 Letter from Wm. Gerald Hardy ("The soil to be removed is reportedly considered pre-Toxic Substances Control Act (TSCA) material and furthermore is contaminated with PCBs at levels significantly less than 50 mg/kg"). This position is also confirmed by the EPA's PCB Q&A Manual (June 2014), pp. 46-48. Among other things, the PCB Q&A Manual confirms that "[the PCB Rules do not apply to waste disposed of prior to April 18, 1978, that is currently < 50 ppm, regardless of the concentration of the original spill," "[d]isposal of pre-'78 wastes at PCB concentrations < 50 ppm are not regulated under TSCA," "[t]he PCB disposal rules do not apply to waste that is currently < 50 ppm that was disposed of, spilled, or otherwise released into the environment prior to April 18, 1978," and "[u]nder § 761.50(b)(3)(i)(A), the Regional Administrator can require cleanup based on a finding of unreasonable risk only if the PCB concentration [from a pre-78 release] as found at the Site is > 50 ppm." As a result, the PCBs in OU-1/OU-2 are not subject to TSCA and its implementing regulations except when materials containing PCBs greater than or equal to 50 mg/kg are removed for remediation.

Response: See response to Comment 2.117.

2.171 **Comment:** P/S stated that the subsurface soil RG for PCBs of 97 mg/kg is not directly applicable to the IM expansion areas. This subsurface RG was developed to protect receptors (construction and utility workers) whose exposure is evaluated on an OU-wide basis and not an EU, area or location basis. The OU-1/OU-2 RI and OU-1/OU-2 HHRA documented that the subsurface soil PCB exposure point concentration (EPC) of 99 mg/kg was equivalent to the subsurface RG (97 mg/kg) and thus remediation of subsurface soil is not required.

Response: See response to Comment 2.115.

2.172 **Comment:** P/S stated that additional deed restrictions are not needed for properties that are owned by P/S and have IMs. P/S are not planning to divest these properties and access to most of these properties is controlled through fencing. For properties that are owned by P/S with deed notices already in place, these deed notices will remain in effect. Additional institutional controls for IMs on properties that are not owned by P/S will be evaluated during the remedial design process for the selected remedy.

Response: A uniform environmental covenant is an institutional control needed to inform future generations that the property is encumbered because of the contaminated soil under the cap and in contaminated groundwater in the area. If P/S is no longer able to prevent access to these properties in the future, the IC provides another layer of protection to the community.

2.173 **Comment:** B43. Pages 56 and 57 (last paragraph on each page): "Further evaluation of potential PCB discharges to groundwater…" should be reworded, suggest: "Further evaluation of the potential presence (and concentration) of PCBs in groundwater…"

Response: The wording was modified as requested.

2.174 **Comment:** P/S stated that only one of the four dredge spoil piles proposed for removal in the Proposed Plan has PCB concentrations above the RG for non-residential soil. Of the three remaining dredge spoil piles, one has yet to be sampled for PCBs, and the other two piles have PCB concentrations below the non-residential RG. The two dredge spoil piles with PCB concentrations less than the RG do not pose an unacceptable risk, are located well away from the creek, and have been stabilized with a vegetative cover. Based on these collective findings, there is no need to remove these two dredge spoil piles. Since the dredge spoil pile that has not been characterized is located away from the creek and has been stabilized with vegetation, the correct technical approach would be to evaluate the dredge spoil pile for PCBs. If the EPA requires the removal of all four dredge spoil piles, institutional controls (ICs) would not be applicable.

Response: The EPA agrees that ICs are not necessary for alternatives that remove all four dredge spoil piles.

2.175 **Comment:** P/S objected to the phrase on page 58 of the Proposed Plan: "… to prevent future erosion back into the creek or residential use of the soil in the piles as fill." Based on the most recent evaluation of the dredge spoil piles, all of the dredge spoil piles with the exception of SC-8 (that exceeds the non-residential RG) are located away from the creek and stable with well-established cover. Based on this, the other dredge spoil piles that have been sampled have PCB concentrations below the RG and are not susceptible to erosion. All of the dredge spoil piles are located in heavily vegetated areas and well away from areas that could be used for residential-type activities.

Response: When the EPA began investigating the Site in 1999, reports were received that residents periodically excavated soil from the dredge spoil piles and used it as free fill in their yards. Additionally, 2012 evaluation of the piles described evidence of creek bank erosion along the four remaining Snow Creek dredge spoil piles, and SC-7 and SC-8 were smaller than the initial investigation which the EPA understood to mean that the piles had eroded or soil had been removed for use elsewhere. Removal and disposal of all four piles was selected as the best way to ensure the soil did not re-contaminate the creek.

2.176 **Comment:** P/S commented on all references to in-place sampling to determine waste disposal options. Initial waste disposal decisions will be made based on in-place total PCB concentrations. However, if excavated materials are sampled from stockpiles, as is often required by the disposal facility, disposal decisions may be altered based on those results. Disposal decisions would always be made based on the highest concentrations identified from any of the sampling events. For example, if in-place sampling indicates that material is less than 50 mg/kg PCB and stockpile sampling indicates that material is greater than 50 mg/kg PCB, material will be disposed of as greater than 50 mg/kg PCB material at an approved offsite facility.

Response: The purpose of disposal discussion is to reiterate that PCB disposal is based on in-place concentrations. Mixing of low concentration material with high concentration material to avoid hazardous waste disposal is not allowed by TSCA regulations.

2.177 **Comment:** P/S stated that the UWDAs should not be included in the ROD for OU-1/OU-2 as the areas are not part of the Site. If they are included in the ROD, the EPA should pursue parties other than P/S for the implementation of that portion of the remedy. The UWDAs are not part of the Site based on its definition presented in the PCD which establishes specific conditions that must be present for an area to be considered part of the Site. While not included in the Proposed Plan, a third UWDA was identified in the OU-1/OU-2 RI.

Response: The UWDAs were included in the ROD because they are in the area investigated and at least a portion of the PCBs found in the UWDAs are from the former PCB production facility or the PCB disposal areas that P/S is investigating. The fact that there is a large quantity of solid waste in the form of auto fluff that also contributed to the contamination in these areas is why the UWDAs were evaluated separately. The third UWDA is discussed in the response to Comment 2.135.

2.178 **Comment:** P/S commented on a sentence in the first paragraph on page 65: "… a more stringent RCRA Subtitle D cap is appropriate for waste disposal areas." This is a declarative statement rather than a conclusion from the OU-1/OU-2 FS process. The Proposed Plan text and Table 23 indicate that each of the UWDA alternatives, except for UWDA-1, would comply with ARARs. As stated, the Proposed Plan does

recognize that the source(s) for these waste materials are not P/S and, therefore, these UWDAs should not be included as a part of the Anniston PCB Site.

Response: The statement was included as the reason for including the RCRA Subtitle D capping alternative. P/S are the source for some of the PCBs in these areas. The ROD reflects a discussion of this Comment in the response to Comment 2.177.

2.179 **Comment:** P/S stated that there are inconsistencies for the TEQ RG in this section for non-residential soil. Sometimes the TEQ RG is listed as 0.73 µg/kg, and other times it is listed as 0.6 µg/kg. The use of TEQ should be clarified to only include PCDD/DF based on the OU-1/OU-2 HHRA. If DL-PCBs are included in the calculation of TEQ, there are three sample locations where the total TEQ RG of 0.73 µg/kg is exceeded.

Response: The inconsistencies have been corrected in the ROD.

2.180 **Comment:** P/S commented on the potential application of "… deed notices or environmental easements/covenants…" discussed on pages 68, 69, and 70. As presented in the OU-1/OU-2 FS, the soil management plan will include regular outreach provisions to notify non-residential landowners and tenants if PCB residuals are present on their property. The soil management plan will also include notice and handling procedures to prevent inadvertent contact with and/or the migration of PCB-containing soil. These provisions of the soil management plan will more than satisfy the intent of deed restrictions and be much more practical to implement for the number of properties that will be involved.

Response: The substance of this Comment has been addressed elsewhere in these Responses. The deed notices, if they can be properly implemented, were selected to provide another layer of protection to the community.

2.181 **Comment:** P/S stated that the non-residential remedial alternatives should be focused on the remediation of PCBs, not non-PCB constituents unrelated to P/S. If remedial alternatives based on non-PCB constituents are included in the ROD, the EPA should pursue parties other than P/S for the implementation of that portion of the remedy.

Response: The Proposed Plan and ROD are intended to describe alternatives and select a remedy that reduces the risk for all contaminants of concern, regardless of liability or allocation issues or what entities will ultimately construct or finance the selected remedy.

2.182 **Comment:** P/S commented on the last sentence in the second paragraph on page 73 of the Proposed Plan: "… a separate set of alternatives were considered for this area." It is not clear what is intended by this sentence, separate from the other OU-1/OU-2 alternatives or separate from the OU-3 alternatives? Is an additional statement needed to clarify this?

Response: The statement was clarified in the ROD.

2.183 **Comment:** P/S stated that the subsurface soil RG for PCBs of 97 mg/kg is not applicable to the T-11 area. The subsurface soil RG for PCBs was developed to protect receptors (construction and utility workers) whose exposure is evaluated on an OU-wide basis and not an EU, area or location basis. The OU-1/OU-2 RI and OU-1/OU-2 HHRA documented that the subsurface soil PCB EPC of 99 mg/kg was equivalent to the subsurface RG (97 mg/kg) and, thus, remediation of subsurface soil at T-11 (other than in the PTW area) is not required. In addition, the subsurface RG was developed to protect construction workers who may contact subsurface soil. Under the proposed remedy, the entire T-11 area will be capped with an impermeable liner that will limit excavation activities and be owned by P/S. If after completion of the remedy, excavation of subsurface soil in the T-11 area is necessary for O&M purposes, this work will be performed by trained workers wearing the appropriate personnel protective equipment (PPE) to prevent exposure to subsurface soil.

Response: See the response to Comment 2.115.

2.184 **Comment:** P/S stated that the alternatives for groundwater at the T-11 area is protective of direct contact with soil. In addition, the parcel where groundwater well T-11 is located is owned by P/S and there are no plans to divest the property. Also, the local community receives their potable water from a public water supply and, thus, there is no need for an IC to prevent groundwater extraction. Based on the protective nature of the proposed remedy, land ownership by P/S, and the availability of a public water supply, deed restrictions on the T-11 property are not necessary.

Response: See response to Comment 2.172. A uniform environmental covenant is an institutional control needed to inform future generations that the property is encumbered because of the contaminated soil under the cap and contaminated groundwater in the area. If circumstances change and P/S is no longer able to prevent access in the future, the IC provides another layer of protection to the community.

2.185 **Comment:** P/S stated that the description of remedial alternatives for sediment on page 77 should not include "… chromium, cobalt, manganese, mercury, nickel, and vanadium …" as these constituents are not the responsibility of P/S. (ID 21)

Response: The Proposed Plan and ROD are intended to describe alternatives and select a remedy that reduces the risk for all contaminants of concern, regardless of liability or allocation issues, and regardless of what entities will ultimately construct or finance the selected remedy.

2.186 **Comment:** P/S stated that the SED alternatives are the first place to mention energy usage and carbon footprints. This information was also developed for the other remedial alternatives and should be used consistently. (ID 21)

Response: The carbon footprint information in the Feasibility Study was added for all alternatives presented in the ROD.

2.187 **Comment:** P/S stated that the recommended remedial alternative presented in the Proposed Plan for the IM areas (IM-4) is more disruptive to the community than the two other active remedial alternatives (IM-2 and IM-3); and based on the comparative analysis table in the IM Fact Sheet (Table 3; page 8), both IM-3 and IM-4 are "effective and permanent". Based on this, IM-3 should be the recommended remedial alternative and not IM-4. The Proposed Plan (page 89) differentiates IM-4 from IM-2 and IM-3 by asserting that "IM-4 would provide higher long-term effectiveness and permanence through soil removal." Since capping has been and continues to be effective at the Site and other sites, the basis for stating that removal provides a higher degree of effectiveness and permanence is not supported by the information provided by the EPA. (ID 21)

Response: See response to Comment 2.112. The comparative analysis and associated table have been modified to clearly reflect the EPA decision-making process.

2.188 **Comment:** P/S stated that it is unclear why the EPA chose DSP-4 as the preferred alternative. The other active alternatives are similar for each of the evaluation criteria and meet the RGs. DSP-4 and DSP-5 would be more difficult to implement and DSP-4 would cost significantly more than the other alternatives. (ID 21)

Response: The EPA selected removal of all dredge spoil piles because the condition of the dredge spoil piles in the 2012 evaluation described evidence of creek bank erosion along the four remaining Snow Creek dredge spoil piles, and SC-7 and SC-8 were smaller than what was observed during the initial investigation. The EPA understood this to mean that the piles had eroded or soil had been removed for use elsewhere. Removal and disposal of all four piles was selected as the best way to ensure the soil would not re-contaminate the creek. Offsite disposal was selected because sediment would not meet current onsite disposal requirements, no proposal was made to construct an improved (RCRA Subtitle-D) onsite disposal area, and the local community continues to express a strong preference for offsite disposal.

2.189 **Comment:** P/S stated that each of the active GW alternatives is expected to achieve MCLs over time and GW-4 reduces the "expected time" to achieve MCLs. The increase in cost (almost $1M) for GW-4 above GW-3 do not appear warranted given the limited geography of the impacted groundwater, Anniston is served by a public water supply, and the increased implementability challenges due to its location next to Snow Creek and an active railway line. (ID 21)

Response: P/S did not provide estimated time frames for groundwater recovery, so it is difficult to say the increased cost is or is not warranted. With the selection of alternative GW-4, the EPA can assure the state and community that all steps have been taken to restore groundwater to beneficial use.

2.190 **Comment:** P/S noted that on page 97 of the Proposed Plan, the EPA included a statement about metals in sediment: "the contribution of multiple historical and

ongoing sources to Snow Creek." It does not make sense to implement removal actions for these non-PCB constituents based on the historical and ongoing sources and the non-PCB RGs should not be included with the remedial alternative for sediment. If these non-PCB constituents are included in the ROD, the EPA should pursue parties other than P/S for the implementation of that portion of the remedy. (ID 21)

Response: Goals were set for all sediment constituents that were identified in the ecological risk assessment. According to the FS, the non-PCB constituents will be removed from the OU1/OU2 portion of Snow Creek when PCBs are removed except for "two sediment deposits identified as candidate remedial areas based on the exceedance of non-PCB RGs. Sediment deposit S-5-04 is a candidate remedial area as the RG for manganese is exceeded. The sediment deposit associated with sample PECON-020 is also a candidate remedial area for sediment as the RGs for chromium, lead, manganese, and nickel are exceeded. These two sediment deposits are estimated to make up 10% of the sediment remedy by volume. As the EPA has stated in responses to other comments, the ROD is intended to identify actions needed to protect human health and the environment. It is not a document that addresses liability or allocation issues among parties.

2.191 **Comment:** P/S quoted from the 2nd full paragraph on page 98: "Sediment in Snow Creek upstream of the 11 Street Ditch and in the 9th Street Ditch would need to be remediated to 1 mg/kg to protect the remedy downstream, further increasing the cost of the remedy." P/S noted that although it is implied that these would increase the costs above the $4.1 M and $4.5 M cited, the volume of additional sediment and the additional costs are not clear. (ID 21)

Response: The volume and cost was not provided by P/S in the FS. The 1 mg/kg sediment RG was not proposed or selected, so the question is moot.

2.192 **Comment:** P/S stated that although it is correct that the chosen alternatives include offsite disposal, the use of onsite disposal, where appropriate, is not mentioned in the list of preferred alternatives on page 99. (ID 21)

Response: The appropriate language about onside disposal soil from residential and special use properties with PCB concentrations less than 10 mg/kg is included in the ROD.

2.193 **Comment:** B63. Page 100, last bullet: "Community concerns about PCBs in air is not increased by selection of onsite treatment." This bullet should be re-worded to recognize the community's concerns and state that off-site alternatives eliminate the possibility of increased PCBs in air from on-site treatment systems. (ID 21)

Response: The last bullet was deleted in the ROD.

2.194 **Comment:** P/S stated that there is an error on Table 11 Remedial Alternatives Comparison for table Interim Measures. Under treatment, the statement regarding "effectively contained" does not belong under treatment, none of the IM alternatives include treatment. (ID 21)

Response: The first statement on Table 11 that describes treatment required for the IM alternatives is "none," indicating that no treatment is included in the alternatives. The second statement is in reference to the EPA preference for treatment of PTW. The PCB concentrations in some areas of the IMs are certainly high enough that they could be PTW based on toxicity and/or mobility. Based on the groundwater data that was collected near and in the IMs, it appears that the PTW has been reliably and effectively contained. The second statement regarding containment is intended to make that point, which is needed to justify not treating the PTW concentrations. However, alternative comparison tables are not included in the ROD.

2.195 **Comment:** P/S stated that there is an error on Table 11 Remedial Alternatives Comparison Table for Interim Measures: The OU-1/OU-2 FS assumed that 100% of the excavated soil (4,200 cubic yards (cy), 6,200 tons) for IM-4 would be disposed of off-site as greater than or equal to 50 mg/kg (not 20%).

Response: The comment is noted. However, alternative comparison tables are not included in the ROD.

2.196 **Comment:** P/S stated that there is an error on Table 12 Remedial Alternatives Comparison Table for UWDAs. The OU-1/OU-2 FS assumed that the entire excavation under UWDA-4 would be backfilled to natural grade (100,100 cy) and that excavated materials would be disposed of as greater than or equal to 50 mg/kg and < 50 mg/kg in 51%/49% proportions, respectively.

Response: Natural grades in areas would not require 100,100 CY of backfill. Current grades would require 100,000 CY of backfill. Realistically, this change should lower the cost of the alternative. The alternative comparison tables are not included in the ROD.

2.197 **Comment:** P/S stated that the estimated costs for NRS-5 and NRS-6 for the 9 mg/kg goal in Table 15 should be as follows: NRS-5: $46,200,000 and NRS-6: $36,600,000.

Response: The comment is noted. Alternative comparison tables are not included in the ROD.

2.198 **Comment:** P/S stated that the comparative analysis table for the special use properties (Table 20) supports the selection of SU-2 as opposed to SU-3 that was proposed by the EPA. In reviewing the comparative analysis table, alternatives SU-2 and SU-3 are rated the same, with the exception that SU-3 costs significantly more than SU-2. SU-4 is appropriately noted as having more short-term negative impacts while providing no additional protectiveness (and costing more). The evaluation of

the special use alternatives is further complicated by the EPA's selection of a lower non-residential RG for SU-3 (1 mg/kg) in contrast to the non-residential RG (21 mg/kg) that is used for SU-2. This non-residential RG (21 mg/kg) is used for all of the non-residential remedial alternatives (NRS-2 through NRS-6) and is also appropriately applied for SU-2. The EPA selected the lower RG for SU-3 (and SU-4) based on an assumption that a daycare/school exposure scenario could potentially occur in the low activity portions of the special use areas. These low activity areas are not currently used for daycare/school activities and if the land use changed to high activity, these areas would be remediated in accordance with the requirements of the Stipulation. This remediation would include the removal of surface soil with PCBs greater than or equal to 1 mg/kg and the removal of subsurface soil with PCB concentrations greater than or equal to 10 mg/kg. Based on the comparative analysis table for the special use alternatives, the proposed remedial alternative for the special use areas should be SU-2. (ID 21)

Response: The reasoning about why the proposed remedy was considered appropriate and why the selected remedy is considered the best overall choice for the Site is provided in the Proposed Plan and Section 12 of the ROD. Although the special use properties are not residential, the properties are typically located near residential areas and children are likely to play on parts of the properties. It would be difficult to restrict use of just the low activity portions of these properties. It is more protective for young children living near and playing on special use properties to require the cleanup of low activity areas to a more stringent remedial goal than other non-residential properties so that if the area is used for high activity by children without anyone's knowledge, the soil concentrations will be protective. For that reason, SU-3 was selected instead of SU-2 (the alternative recommended by P/S during the comment period). SU-3 is $3.6M costlier than SU-2. SU-3 was selected instead of SU-4 (the alternative suggested by a number of individuals and community groups during the comment period) because the PRPs have demonstrated that they are capable of managing residual PCBs in subsurface soil and under structures. SU-3 is $0.8M less costly than SU-4.

2.199 **Comment:** P/S stated that the comparative analysis table for the interim measures (Table 21) does not provide a basis for selecting IM-4 over IM-3. The table correctly concludes that IM-3 and IM-4 would be similar for each evaluation criterion except for cost. IM-4 would cost significantly more ($1.7M) than IM-3. The comparative analysis table correctly identifies IM-3 and IM-4 as being effective and permanent provided that the caps and covers remain in place and would provide a permanent remedy for the railroad and McDaniel Street area. The version of the table included with the Proposed Plan does not have the language from the OU-1/OU-2 FS regarding the difficulty of working adjacent to the railroad for IM-3. Both IM-3 and IM-4 have similar implementability concerns, recognizing that the short-term effectiveness would be magnified for IM-4 as compared to IM-3 given the larger amount of excavation near railways and waterways and the transportation of the excavated soil to an off-site disposal facility.

Response: PCBs near IMs are located in drainage areas or sloped areas. The original decision to cover the drainage areas within the IMs would probably not have been the first choice under CERCLA, since high PCB concentrations could have been excavated and disposed of instead of being left in place. However, since the IMs are already in place and there is no indication that groundwater is negatively affected, the IMs were not modified. Rather than continue to cover high PCB concentrations in soil at the IMs, the selected remedy requires that the PCBs be excavated and disposed offsite. For that reason, IM-4 was selected instead of IM-2 or IM-3 which was suggested by P/S during the comment period. IM-4 is $1.7 M more costly than IM-2 or IM-3.

2.200 **Comment:** P/S stated that the comparative analysis table for the dredge spoil piles (Table 22) does not support the recommendation of DSP-4. Both DSP-3 and DSP-4 are equally protective and effective over the long-term, yet DSP-4 has more short-term negative impacts, is less implementable, and has a higher cost. Given these factors, there is no technical basis to propose DSP-4 over DSP-3. The primary difference between DSP-3 and DSP-4 is that all dredge soil piles are removed under DSP-4 as opposed to only removing the dredge spoil piles that exceed the non-residential RG (21 mg/kg) under DSP-3. While the EPA appropriately acknowledges the additional implementability concerns associated with removing all of the dredge spoil piles under DSP-5, the table incorrectly omits this implementability concern for DSP-4.

Response: PCBs in dredge spoil piles were originally located in Snow Creek sediment. The sediment was moved to the side of Snow Creek to allow for increased flow in the creek. The primary reason for selecting removal of all dredge spoil piles is that the 2012 evaluation of the piles indicated that they had diminished in size, which means that either the materials was moved and used as fill or it eroded back into Snow Creek. Although there is now vegetation on the piles and erosion controls could be used to prevent more degradation, it is less likely that the piles will be a source for recontamination of the creek if they are removed and disposed. The written comparative analysis on page 90 of the Proposed Plan stated that "DSP-4 and DSP-5 would provide better long-term permanence over DSP-2 and DSP-3 because the dredge spoil piles would no longer be available to re-contaminate Snow Creek if stabilization of the piles deteriorates over time. The written comparative analysis and the associated table in the ROD have been modified to reflect this more clearly, along with the other inconsistencies noted in the comment.

2.201 **Comment:** P/S stated that the comparative analysis table for the UWDAs (Table 23) incorrectly indicates that UWDA-4 is implementable. Other than being used as disposal areas for auto fluff, there is limited knowledge regarding other subsurface materials that may have been disposed of by others in the UWDAs.

Response: Excavation and offsite disposal remedies like the one proposed in UWDA-4 are typical remedies for environmental sites, and, as such, are not especially difficult to implement. The biggest obstacle at UWDA-4 is the amount of

material involved, potential post-remedial drainage issues and the presence of any adjoining structures. In 2006, a similar auto fluff disposal area, located not far from the UWDAs identified in this decision document, was removed by the Anniston Lead Site. The EPA agrees that if UWDA-4 was selected, additional information about the buried waste would need to be collected during remedial design.

2.202 **Comment:** P/S stated that the comparative analysis table for the groundwater at T-11 (Table 24) inconsistently and incorrectly evaluates the long-term effectiveness and permanence of the active remedial alternatives (GW-2 through GW-4). The cap system used for all three of these alternatives has been proven effective over the long-term and if there are concerns in this regard (as indicated for GW-2 and GW-3 on the table), these concerns would also apply to GW-4. If the cap systems are considered comparable in effectiveness for each alternative, then the only difference between the alternatives would be cost, and the results of evaluation would support GW-2 as the proposed remedial alternative.

Response: The groundwater alternatives were compared on pages 94 and 95 the Proposed Plan. Since P/S did not provide any estimates on the time to restore groundwater to drinking water standards for the groundwater alternatives in the FS, all that can be determined is that GW-4 (removing highly contaminated soil, installing a low permeability cap, and pumping and treating groundwater) will restore contaminated groundwater and prevent contaminated groundwater discharging to surface water more quickly than GW-2 (removing highly contaminated soil) or GW-3 (removing highly contaminated soil and installing a low permeability cap). The longterm effectiveness and permanence description in the table in the ROD has been modified to more clearly reflect this concern, and Section 9.7 of the ROD provides a thorough discussion about the restoration time consideration in making the decision for groundwater at T-11. In addition, no effort was made to determine how groundwater is affecting surface water adjacent to the area. GW-4 will restore groundwater more quickly and thereby reduce the chance that PCBs in groundwater are discharging to surface water.

2.203 **Comments:** P/S submitted the following editorial/consistency comments.

- Page 6, 2nd paragraph: "The EPA negotiated a Partial Consent Decree (PCD) with the with P/S…"
- Page 16, 5th bullet: "… 43 are wooded lots were no….", were should be where.
- Pages 15, 16 and 19: inconsistent use of capitalization for "auto fluff".
- Page 23: "… PCDD/DF data were detected…" should be rephrased, suggest: "PCDD/DFs were detected."
- Page. 24: "Metals were also found in sediment data… "should be rephrased, suggest: "Metals were also reported for sediment samples."
- Page 26, creek banks: "… 3 EUs with average PCB OU-1/OU-2 Feasibility Study Report Anniston PCB Site concentrations below 1 mg/kg. "should be rephrased, suggest: "3 EUs with average PCB concentrations below 1 mg/kg."

- Global with page 27 as an example: Inconsistent use of superscripts for 11th and 10th.
- Page 28: Fourth line under "Groundwater", delete the word "pathways".
- Page 28, First paragraph under groundwater, last sentence: should be changed: "… monitoring wells were installed to…"
- Page 28, Second paragraph under "Groundwater", 3rd sentence: "Soil data was…" should be changed to "Soil samples were" or Soil data were".
- Page 31, First paragraph under "Air", 5th line: "Shown" should not be capitalized.
- Page 31, First paragraph under "Air", last sentence: "… that are part of the administrative record."
- Page 31, Fourth paragraph under "Air", 3rd line: "… air ranged from non-detect to…."
- Page 31, Last paragraph under "Air": First sentence should be clarified: In 2003 and 2004, Solutia conducted the most comprehensive of all the ambient air PCB studies for Anniston.
- Page 31, Last paragraph under "Air", 4th line: "ranging" should be changed to "ranged".
- Page. 33, First paragraph, 5th line: "ranging" should be changed to "ranged".
- Page 33, Second paragraph, first sentence: "Request" should be lower case.
- Page37, First sentence: The closing punctuation is missing.
- Page 37, Second paragraph, 3rd sentence: "… PCB remedial goals…" goal should be singular.
- Page 37, 4th paragraph: "appear to be hot spots that are nor representative…" should be "not"
- Page. 39, RGs for soil, 2nd paragraph: typo: PCDD/DFs.
- Page 41, 2nd paragraph: arsenic should be lower case.
- Page 42, 2nd paragraph: For consistency, grebes and muskrats should be plural.
- Page 42, 4th paragraph: "… and all receptors at a NOAEL that spend 50%... "should be rephrased, suggest: "… a NOAEL for receptors that spend 50%...".
- Page 42, 5th paragraph: "…receptors at a NOAEL that spend 50%... "should be rephrased, suggest: "… a NOAEL for receptors that spend 50%..."
- Page. 42, 6th paragraph: "…receptors at a NOAEL that spend 50%... "should be rephrased, suggest: "… a NOAEL for receptors that spend 50%...".
- Page 42, 7th paragraph: "…receptors at a NOAEL that spend 50%... "should be rephrased, suggest: "… a NOAEL for receptors that spend 50%...".
- Page 43, 1st paragraph, 3rd line: "… represents the mean…"
- Page 43, 2nd paragraph: "…receptors at a NOAEL that spend 50%... "should be rephrased, suggest: "… a NOAEL for receptors that spend 50%...".
- Page 43, 3rd paragraph: "…receptors at a NOAEL that spend 50%... "should be rephrased, suggest: "… a NOAEL for receptors that spend 50%...".
- Page 43, 4th paragraph: "This values are…" singular, plural, verb agreement. "…receptors at a NOAEL that spend 50%... "should be rephrased suggest: "… a NOAEL for receptors that spend 50%...".
- Page 44, Table 6: The use of title case for constituents is not consistent.

- Page 46, RS-1: "… cover soil over subsurface soil PCBs remain in place." Should be reworded, suggest: "… cover soil over subsurface soil where PCBs remain in place."
- Page 47, 1st paragraph: "… at an approved TSCA offsite disposal facilities." Singular, plural agreement.
- Page 47, 2nd paragraph: 4th line "… or paved areas that limits exposure) …" plural, verb agreement
- Page 47, 2nd paragraph: 9th line, "protection" should be "protect"
- Page.47, 2nd sub-bullet: "soil are" singular, plural agreement
- Page 48, last full paragraph: "(i.e., buildings, sheds, or paved areas that limits exposure)" plural, verb agreement
- Global and illustrated on pages 48 and 49: Consistent use of significant figures and/or decimal points, e.g., 1.0 mg/kg, 1 mg/kg, 10.0 mg/kg, 10 mg/kg.
- Global: Consistent use of text or symbols for >, <, greater than or equal to, greater than or equal to.
- Page 49, Last full paragraph: "… (a sampled… " should be "a sample"
- Page51, 3rd paragraph, last line: "… controls that can…"
- Global for the Special Use Properties: Consistent use of capitalization and hyphenation of "low activity" and "high activity" areas. The Stipulation uses "high activity" with no capitalization or hyphen.
- Page 52, 3rd paragraph, last line: "… controls that can…"
- Page 53, SU-4, 3rd paragraph, last line: "… controls that can…"
- Page 54, Interim Measures, 1st paragraph: "… removals actions…"
- Page 55, IM-2, 1st paragraph, 6th line: "engineering" should be "engineered".
- Page 56, IM-3, 1st paragraph, 8th line: "engineering" should be "engineered".
- Page 60, 8th bullet: "Evaluated" should be "Evaluate"
- Page 61, 1st bullet: "… PCBs is less that the PCB RG…"
- Page 66, 1st paragraph, 2nd to last sentence: "… if ICs…" should be "… of ICs…. "
- Page 67, NRS-1, 1st line: chromium should be lower case.
- Page 73, Introduction to bullet list: "Groundwater" should be lower case.
- Page. 74, top of page: "Groundwater" should be lower case.
- Page. 74, last paragraph, 11th, 12 line: "… these impacted soil, …" singular/ plural agreement.
- Page 75, GW-3: "… of the a 40-mil…"
- Page. 85, 7th paragraph: " … where surface soil were… " subject verb agreement.
- Page 85, 7th paragraph: "… subsurface soil with PCB concentration between …" should be "PCB concentrations…"
- Page 86, special use property soil, first sentence: "Surface soil … have …" subject verb agreement.
- Page 92, last paragraph, middle of paragraph, "… each involves…" subject verb agreement.
- Page 93, 2nd paragraph: This text should be clarified to reflect that the paragraph is discussing ARARs.

- Page 93, bottom of page: The sentence: stating…"The lower cleanup goal will approximately double the volume of soil and increase the short-term impacts on the community." Appears to be somewhat out of context and could be re-phrased to clarify that it is a statement regarding short-term effectiveness. Similarly, the 2nd to last paragraph and the two one-sentence paragraphs on page 94 regarding long-term effectiveness, implementability, and costs could be re-phrased and/or combined to be clearer and easier to follow.
- Page.95, second paragraph is unclear and out of context.
- Page. 97, 1st full paragraph: " the expected viability in the overall field construction schedule." Should be variability.
- Page 98, last SED paragraph: costs are incorrect, should be: $3.1M (SED-4), $4.5M (SED-4).
- Page98, SU-3: "Excavate of … " should be re-worded, suggest: "Excavation of".
- Page 98: NRS-4 the "a)" appears out of context.
- Page 99, 1st bullet: the "a)" appears out of context.
- Page. 99, last paragraph: "The soil management plan would extent …" should be changed to "extend".
- Page 100, 1st paragraph: "… institutional controls are limited to, the following:" delete comma.
- Page 100: "Five year reviews … to determine if the remedies continues …" subject verb agreement.

Response: Inconsistencies and corrections were made as needed if relevant to the ROD.

APPENDIX A

ROD TABLES

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Table 2-1. Number of Parcels Where Activities Were Performed at the Anniston Sites.

Activity\Responsibility	EPA[a]	Anniston Lead Site[b]	PCB PRPs
Parcels Sampled for PCBs	1978	4893	1850
Parcels with Residential Soil Removal Complete for PCBs	16	71	632
Parcels with Residential Soil Requiring Cleanup for PCBs		2 access issues	43 wooded 19 access issues

[a] Data reported for the EPA was obtained from the Scribe Database for Anniston maintained by the EPA and was retrieved on March 12, 2015 by Pam Scully.

[b] Data reported for the Lead PRPs was obtained from the Scribe database and Final Report dated February 2011.

Table 5-1. Summary of OU-1/OU-2 Non-residential Surface Soil PCB Data by Exposure Unit
Anniston PCB Site, Anniston, Alabama

EU	Area (acres)	Locations	Maximum Discrete Detection (mg/kg)	Mean Surface Detection (mg/kg)	Surface UCL (mg/kg)	Nonresidential Area Of EU (%)	Weighted EU Surface Mean (mg/kg)
1	60.3	21	20	3.6	8.4	12	1.3
2	32.0	55	12	1.8	2.2	29	1.2
3	18.7	37	30	4.9	18	39	2.5
4	19.5	53	2.6	0.76	0.78	47	0.89
5	20.3	92	3,700	100	350	89	89
6	25.2	40	43	2.2	14	39	1.5
7	16.0	23	310	25	160	42	11
8	17.7	25	2.5	0.51	0.66	26	0.87
9	25.9	28	4.9	0.65	0.90	84	0.71
10	15.4	92	130	8.5	19	94	8.1
11	15.3	25	9.1	1.3	2.8	96	1.3
12	8.0	10	11	4.3	9.6	55	2.8
13	19.7	13	17	3.0	9.5	9.7	1.2
14 North	7.0	14	33	12	21	42	5.6
14 South	6.6	11	1.7	0.58	0.56	19	0.92
15/16	46.4	44	4.7	0.84	1.9	100	0.84
17	23.4	25	12	2.4	4.7	92	2.3
18	30.3	23	1.1	0.30	0.33	90	0.37
19 North	5.0	13	770	77	660	100	77
19 South	4.7	13	59	13	68	100	13
20	8.7	7	5.0	1.2	4.0	31	1.1
21	21.9	20	2.7	0.46	0.51	100	0.46
22	26.5	25	15	1.5	7.3	100	1.5
23	19.7	20	1.2	0.37	0.41	100	0.37
24	30.0	36	38	6.8	12	100	6.8
25	22.2	17	1.4	0.27	0.56	86	0.37
26	18.8	23	99	12	34	31	4.4
27	25.9	20	2.0	0.46	0.45	100	0.46
28	54.6	0	--	--	--	100	--
29	37.0	21	0.83	0.20	0.19	100	0.20
30	40.6	10	0.039	0.039	SS	1.8	0.98
ES	57.0	146	260	9.1	19	80	7.5
NS	32.7	31	160	15	72	80	12
All	**813.0**	**1,033**	**3,700**	**15**	**38**	**69**	**12**
Excluding EU5	792.8	941	770	6.2	12	68	5.0
Exlcuding EU5, NS, ES	703.1	764	770	5.3	13	66	4.3

Notes:

ProUCL 4.1 was utilized for statistical summaries and UCL calculation for EUs with sufficient sample population. Microsoft Access 2010 was utilized for base statistical summaries.

Parent and duplicate samples were combined. If both detect or both nondetect, a mean was taken. If one was detected and other was nondetect, then the detected value was utilzed to represent the pair.

Results for maximum, mean, and UCL were rounded to two significant figures.

--: not sampled

APCO: Alabama Power Company
ES: eastside
EU: exposure unit
mg/kg: milligrams per kilogram
NC: not calculated; due to low sample count and/or low number of detected concentrations.
NS: northside
UCL: upper confidence limit

Table 5-2. Summary of OU-1/OU-2 Non-residential Subsurface Soil PCB Data by Exposure Unit
Anniston PCB Site, Anniston, Alabama

EU	Area (acres)	Locations	Maximum Discrete Detection (mg/kg)	Mean Surface Detection (mg/kg)	Subsurface UCL (mg/kg)
1	60.3	2	0.72	0.43	NC
2	32.0	--	--	--	--
3	18.7	1	18	18	NC
4	19.5	5	ND	ND	ND
5	20.3	31	560	69	150
6	25.2	--	--	NS	--
7	16.0	1	7.2	7.2	NC
8	17.7	--	--	NS	--
9	25.9	2	3.4	3.4	NC
10	15.4	42	150	12	53
11	15.3	--	--	--	--
12	8.0	3	12	8.0	NC
13	19.7	3	12	6.4	NC
14 North	7.0	5	18	11	17
14 South	6.6	--	--	--	--
15/16	46.4	--	--	--	--
17	23.4	2	11	6.9	NC
18	30.3	--	--	--	--
19 North	5.0	7	510	91	930
19 South	4.7	1	44	44	NC
20	8.7	1	4.7	4.7	NC
21	21.9	--	--	--	--
22	26.5	2	ND	ND	ND
23	19.7	--	--	--	--
24	30.0	7	26	11	17
25	22.2	--	--	--	--
26	18.8	5	46	24	39
27	25.9	--	--	--	--
28	54.6	--	--	--	--
29	37.0	--	--	--	--
30	40.6	--	--	--	--
ES	57.0	5	0.83	0.58	0.76
NS	32.7	2	0.79	0.67	NC
All	**813.0**	**127**	**560**	**31**	**70**

Table 5-2. Summary of OU-1/OU-2 Non-residential Subsurface Soil PCB Data by Exposure Unit
Anniston PCB Site, Anniston, Alabama

EU	Area (acres)	Locations	Maximum Discrete Detection (mg/kg)	Mean Surface Detection (mg/kg)	Subsurface UCL (mg/kg)
Excluding EU5	792.8	96	**510**	**18**	**51**
Excluding EU5, NS, ES	703.1	89	**510**	**19**	**55**

Notes:

ProUCL 4.1 was utilized for statistical summaries and UCL calculation for EUs with sufficient sample population. Microsoft Access 2010 was utilized for base statistical summaries.

Parent and duplicate samples were combined. If both detect or both nondetect, a mean was taken. If one was detected and other was nondetect, then the detected value was utilized to represent the pair.

Results for maximum, mean, and UCL were rounded to two significant figures.

--: not sampled
APCO: Alabama Power Company
ES: eastside

EU: exposure unit

mg/kg: milligrams per kilogram

NC: Not calculated due to low sample count and/or low number of detected concentrations.

ND: nondetect

NS: northside

UCL: upper confidence limit

Table 5-3. Summary of OU-1/OU-2 Non-residential Soil Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
PCB Aroclor	Aroclor-1016	mg/kg	1,427	0	--	--	--
PCB Aroclor	Aroclor-1221	mg/kg	1,402	0	--	--	--
PCB Aroclor	Aroclor-1232	mg/kg	1,427	6	0.17	170	37
PCB Aroclor	Aroclor-1242	mg/kg	1,427	59	0.13	110	7.3
PCB Aroclor	Aroclor-1248	mg/kg	1,424	248	0.028	160	5.7
PCB Aroclor	Aroclor-1254	mg/kg	1,422	746	0.037	1,300	16
PCB Aroclor	Aroclor-1260	mg/kg	1,428	994	0.022	390	5.3
PCB Aroclor	Aroclor-1262	mg/kg	666	0	--	--	--
PCB Aroclor	Aroclor-1268	mg/kg	1,373	758	0.024	2,900	5.1
PCB Aroclor	Total PCBs	mg/kg	1,913	1,399	0.01	3,650	18
PCB Homolog	Total Monochlorobiphenyl	mg/kg	90	12	0.00012	0.071	0.0071
PCB Homolog	Total Dichlorobiphenyl	mg/kg	90	41	0.00035	5.2	0.42
PCB Homolog	Total Trichlorobiphenyl	mg/kg	91	64	0.00011	31	2.3
PCB Homolog	Total Tetrachlorobiphenyl	mg/kg	90	75	0.0007	500	20
PCB Homolog	Total Pentachlorobiphenyl	mg/kg	93	86	0.00072	710	26
PCB Homolog	Total Hexachlorobiphenyl	mg/kg	92	86	0.0012	330	14
PCB Homolog	Total Heptachlorobiphenyl	mg/kg	91	84	0.00062	120	5.8
PCB Homolog	Total Octachlorobiphenyl	mg/kg	90	71	0.00087	45	2.4
PCB Homolog	Total Nonachlorobiphenyl	mg/kg	90	71	0.00099	18	0.95
PCB Homolog	Decachlorobiphenyl	mg/kg	91	73	0.0005188	4.7	0.33
PCB Homolog Total	Total Homolog PCBs - SIM (Max DL)	mg/kg	90	85	0.00254	1800	70
PCB Congener	BZ#77	mg/kg	61	12	0.0044	1.4	0.36
PCB Congener	BZ#81	mg/kg	62	19	0.0031	0.45	0.074
PCB Congener	BZ#105	mg/kg	66	42	0.0014	7.8	0.34
PCB Congener	BZ#114	mg/kg	55	3	0.0017	0.0041	0.0026
PCB Congener	BZ#118	mg/kg	64	49	0.0014	16	0.50
PCB Congener	BZ#123	mg/kg	48	6	0.0016	0.029	0.0086
PCB Congener	BZ#126	mg/kg	61	6	0.0026	0.1	0.038
PCB Congener	BZ#153	mg/kg	63	49	0.0039	0.95	0.073
PCB Congener	BZ#156	mg/kg	64	27	0.0016	14	0.59
PCB Congener	BZ#157	mg/kg	55	17	0.0017	0.023	0.0067
PCB Congener	BZ#167	mg/kg	52	6	0.0031	0.99	0.24
PCB Congener	BZ#169	mg/kg	65	3	0.13	16	5.5
PCB Congener	BZ#189	mg/kg	55	2	0.0022	0.0025	0.0024
PCB Congener	WHO Congener TEQ (Human-NDs Excluded)	mg/kg	61	48	0.000000042	0.0101	0.00049
PCB Congener	WHO Congener TEQ (Human-NDs used at 1/2 DL)	mg/kg	61	61	0.0000296	0.0116	0.00061
PCB Congener	BZ#26	mg/kg	1	1	8.3	8.3	8.3

Table 5-3. Summary of OU-1/OU-2 Non-residential Soil Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
PCB Congener	BZ#28	mg/kg	7	3	0.037	0.21	0.10
PCB Congener	BZ#31	mg/kg	1	1	11	11	11
PCB Congener	BZ#33	mg/kg	2	2	2.1	5.1	3.6
PCB Congener	BZ#40	mg/kg	1	1	3.7	3.7	3.7
PCB Congener	BZ#47	mg/kg	1	1	0.11	0.11	0.11
PCB Congener	BZ#52	mg/kg	8	5	0.18	1.6	0.57
PCB Congener	BZ#54	mg/kg	3	3	0.12	12	4.1
PCB Congener	BZ#58	mg/kg	2	2	0.15	0.18	0.17
PCB Congener	BZ#60	mg/kg	7	5	0.017	0.21	0.11
PCB Congener	BZ#64	mg/kg	3	3	0.15	9.9	3.5
PCB Congener	BZ#66	mg/kg	7	5	0.01	0.94	0.38
PCB Congener	BZ#69	mg/kg	1	1	9.2	9.2	9.2
PCB Congener	BZ#70	mg/kg	1	1	1.4	1.4	1.4
PCB Congener	BZ#74	mg/kg	7	4	0.0084	0.26	0.089
PCB Congener	BZ#75	mg/kg	2	2	0.16	0.18	0.17
PCB Congener	BZ#79	mg/kg	1	1	5.9	5.9	5.9
PCB Congener	BZ#80	mg/kg	2	2	0.17	0.66	0.42
PCB Congener	BZ#97	mg/kg	1	1	0.23	0.23	0.23
PCB Congener	BZ#99	mg/kg	9	6	0.074	7.3	1.3
PCB Congener	BZ#101	mg/kg	9	7	0.0084	0.61	0.29
PCB Congener	BZ#110	mg/kg	2	2	0.29	1.6	0.95
PCB Congener	BZ#124	mg/kg	2	2	0.088	0.25	0.17
PCB Congener	BZ#128	mg/kg	4	4	0.23	14	3.7
PCB Congener	BZ#133	mg/kg	2	2	0.092	0.43	0.26
PCB Congener	BZ#138	mg/kg	7	5	0.052	1.2	0.58
PCB Congener	BZ#139	mg/kg	1	1	6.9	6.9	6.9
PCB Congener	BZ#141	mg/kg	1	1	1.5	1.5	1.5
PCB Congener	BZ#142	mg/kg	2	2	0.98	1.2	1.1
PCB Congener	BZ#160	mg/kg	2	2	0.29	1.1	0.70
PCB Congener	BZ#163	mg/kg	7	1	0.0065	0.0065	0.0065
PCB Congener	BZ#170	mg/kg	7	4	0.0023	0.48	0.24
PCB Congener	BZ#178	mg/kg	1	1	6.8	6.8	6.8
PCB Congener	BZ#180	mg/kg	8	7	0.006	2.8	0.69
PCB Congener	BZ#183	mg/kg	7	4	0.023	0.27	0.11
PCB Congener	BZ#185	mg/kg	1	1	8.2	8.2	8.2
PCB Congener	BZ#187	mg/kg	7	4	0.041	0.94	0.32
PCB Congener	BZ#190	mg/kg	1	1	1.2	1.2	1.2

Table 5-3. Summary of OU-1/OU-2 Non-residential Soil Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
PCB Congener	BZ#194	mg/kg	8	6	0.0036	2.4	0.58
PCB Congener	BZ#195	mg/kg	7	3	0.014	0.25	0.12
PCB Congener	BZ#196	mg/kg	7	5	0.03	1.7	0.41
PCB Congener	BZ#201	mg/kg	9	6	0.034	6.6	2.1
PCB Congener	BZ#203	mg/kg	7	0	--	--	--
PCB Congener	BZ#206	mg/kg	8	7	0.002	6.1	1.2
PCB Congener	BZ#208	mg/kg	8	7	0.001	13	2.3
PCB Congener	BZ#209	mg/kg	6	5	0.0072	9.4	2.0
PCDD-DF	2,3,7,8-TCDD	pg/g	57	11	0.86	35	12
PCDD-DF	1,2,3,7,8-PeCDD	pg/g	57	19	1.02	108	17
PCDD-DF	1,2,3,4,7,8-HxCDD	pg/g	57	34	0.22	138	14
PCDD-DF	1,2,3,6,7,8-HxCDD	pg/g	57	48	0.21	2,960	86
PCDD-DF	1,2,3,7,8,9-HxCDD	pg/g	57	49	0.47	301	26
PCDD-DF	1,2,3,4,6,7,8-HpCDD	pg/g	57	57	8.8	134,000	2,700
PCDD-DF	Octa CDD	pg/g	57	57	74.3	907,000	20,000
PCDD-DF	2,3,7,8-TCDF	pg/g	57	32	0.76	401	52
PCDD-DF	1,2,3,7,8-PeCDF	pg/g	57	24	1.41	83.7	20
PCDD-DF	2,3,4,7,8-PeCDF	pg/g	57	34	1.35	310	37
PCDD-DF	1,2,3,4,7,8-HxCDF	pg/g	57	50	0.48	337	40
PCDD-DF	1,2,3,6,7,8-HxCDF	pg/g	57	44	0.29	128	24
PCDD-DF	1,2,3,7,8,9-HxCDF	pg/g	57	14	0.73	12.4	5.1
PCDD-DF	2,3,4,6,7,8-HxCDF	pg/g	57	47	0.23	99.8	18
PCDD-DF	1,2,3,4,6,7,8-HpCDF	pg/g	57	28	12.2	22,200	970
PCDD-DF	1,2,3,4,7,8,9-HpCDF	pg/g	57	42	0.49	729	35
PCDD-DF	Octa CDF	pg/g	57	52	5.3	53,400	1,200
PCDD-DF	Total Tetra CDD	pg/g	57	37	0.88	168	24
PCDD-DF	Total Penta CDD	pg/g	57	26	1.04	276	52
PCDD-DF	Total Hexa CDD	pg/g	57	56	1.9	9,920	310
PCDD-DF	Total Hepta CDD	pg/g	57	57	22.9	244,000	5,000
PCDD-DF	Total Tetra CDF	pg/g	57	53	0.74	1,790	320
PCDD-DF	Total Penta CDF	pg/g	57	56	3.09	4,580	440
PCDD-DF	Total Hexa CDF	pg/g	57	56	0.66	14,900	520
PCDD-DF	Total Hepta CDF	pg/g	57	53	2.24	106,000	2,200
PCDD-DF	WHO Dioxin TEQ (Human/Mammal-NDs used at 1/2 DL	pg/g	57	57	0.922	2,230	78
PCDD-DF	WHO Dioxin TEQ (Human/Mammal-NDs Excluded)	pg/g	57	57	0.363	2,230	73
PCDD-DF	Total PCDD/DF	pg/g	57	57	108	1,340,000	29,000
Metals	Aluminum	mg/kg	162	162	838	28,500	8,800

Table 5-3. Summary of OU-1/OU-2 Non-residential Soil Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
Metals	Antimony	mg/kg	192	78	0.48	61	4.0
Metals	Arsenic	mg/kg	351	343	1.2	120	11
Metals	Barium	mg/kg	299	298	5.9	1,700	150
Metals	Beryllium	mg/kg	214	154	0.11	2.8	0.89
Metals	Cadmium	mg/kg	351	278	0.096	72	2.7
Metals	Calcium	mg/kg	161	160	290	254,000	19,000
Metals	Chromium	mg/kg	351	350	3.2	14,000	90
Metals	Cobalt	mg/kg	162	123	1.1	153	11
Metals	Copper	mg/kg	214	212	3.9	1,820	85
Metals	Iron	mg/kg	162	162	1600	575,000	28,000
Metals	Lead	mg/kg	917	915	1.5	30,000	300
Metals	Magnesium	mg/kg	162	158	140	105,000	6,600
Metals	Manganese	mg/kg	162	162	9.7	10,100	950
Metals	Mercury	mg/kg	368	243	0.019	16	0.47
Metals	Molybdenum	mg/kg	2	2	1.6	3.3	2.5
Metals	Nickel	mg/kg	214	195	0.92	409	25
Metals	Potassium	mg/kg	162	162	73	3,600	930
Metals	Selenium	mg/kg	348	66	0.43	26	1.8
Metals	Silver	mg/kg	343	64	0.14	360	7.9
Metals	Sodium	mg/kg	172	31	92.3	838	270
Metals	Strontium	mg/kg	2	2	23	30	27
Metals	Thallium	mg/kg	206	106	0.47	67	8.7
Metals	Tin	mg/kg	2	0	--	--	--
Metals	Titanium	mg/kg	2	2	250	520	390
Metals	Vanadium	mg/kg	162	156	3.9	71.9	24
Metals	Yttrium	mg/kg	2	2	2.8	3.3	3.1
Metals	Zinc	mg/kg	214	214	4.4	6,100	440
Inorganics	Cyanide	mg/kg	182	46	0.15	1.7	0.41
Inorganics	Fluoride	mg/kg	10	2	20	21	21
PAHs	2-Chloronaphthalene	µg/kg	146	0	--	--	--
PAHs	2-Methylnaphthalene	µg/kg	149	43	24	380,000	12,000
PAHs	Acenaphthene	µg/kg	147	39	20	370,000	12,000
PAHs	Acenaphthylene	µg/kg	147	34	20	680	160
PAHs	Anthracene	µg/kg	147	78	18	1,200,000	19,000
PAHs	Benzo(a)anthracene	µg/kg	148	121	20	900,000	12,000
PAHs	Benzo(a)pyrene	µg/kg	148	117	18	400,000	7,000
PAHs	Benzo(b)fluoranthene	µg/kg	148	121	26	340,000	6,600

Table 5-3. Summary of OU-1/OU-2 Non-residential Soil Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
PAHs	Benzo(g,h,i)perylene	µg/kg	147	103	29	54,000	1,700
PAHs	Benzo(k)fluoranthene	µg/kg	148	116	18	380,000	6,700
PAHs	Chrysene	µg/kg	148	123	19	810,000	11,000
PAHs	Dibenzo(a,h)anthracene	µg/kg	147	47	21	12,000	670
PAHs	Fluoranthene	µg/kg	148	126	30	2,300,000	27,000
PAHs	Fluorene	µg/kg	147	44	18	1,300,000	37,000
PAHs	Indeno(1,2,3-cd)pyrene	µg/kg	148	106	20	45,000	1,900
PAHs	Naphthalene	µg/kg	147	46	17	1,100,000	31,000
PAHs	Phenanthrene	µg/kg	148	115	22	4,100,000	46,000
PAHs	Pyrene	µg/kg	148	125	19	1,600,000	20,000
PAHs	Total PAHs (Max DL)	µg/kg	148	126	68	15,180,000	180,000
SVOCs	1,1'-Biphenyl	µg/kg	122	16	19	670	91
SVOCs	2,2'-Oxybis(1-Chloropropane)	µg/kg	59	0	--	--	--
SVOCs	2,3,4,6-Tetrachlorophenol	µg/kg	2	0	--	--	--
SVOCs	2,4,5-Trichlorophenol	µg/kg	146	0	--	--	--
SVOCs	2,4,6-Trichlorophenol	µg/kg	146	0	--	--	--
SVOCs	2,4-Dichlorophenol	µg/kg	146	0	--	--	--
SVOCs	2,4-Dimethylphenol	µg/kg	145	0	--	--	--
SVOCs	2,4-Dinitrophenol	µg/kg	141	0	--	--	--
SVOCs	2,4-Dinitrotoluene	µg/kg	146	0	--	--	--
SVOCs	2,6-Dinitrotoluene	µg/kg	146	0	--	--	--
SVOCs	2-Chlorophenol	µg/kg	146	0	--	--	--
SVOCs	2-Methylphenol	µg/kg	146	1	99	99	99
SVOCs	2-Nitroaniline	µg/kg	146	0	--	--	--
SVOCs	2-Nitrophenol	µg/kg	146	0	--	--	--
SVOCs	3,3'-Dichlorobenzidine	µg/kg	145	0	--	--	--
SVOCs	3-Methylphenol/4-Methyphenol (m&p-Cresols)	µg/kg	87	0	--	--	--
SVOCs	3-Nitroaniline	µg/kg	143	0	--	--	--
SVOCs	4,6-Dinitro-2-methylphenol	µg/kg	141	0	--	--	--
SVOCs	4-Bromophenyl-phenylether	µg/kg	146	0	--	--	--
SVOCs	4-Chloro-3-methylphenol	µg/kg	146	0	--	--	--
SVOCs	4-Chloroaniline	µg/kg	145	0	--	--	--
SVOCs	4-Chlorophenyl-phenylether	µg/kg	146	0	--	--	--
SVOCs	4-Methylphenol	µg/kg	59	1	41	41	41
SVOCs	4-Nitroaniline	µg/kg	146	2	53	62	58
SVOCs	4-Nitrophenol	µg/kg	145	0	--	--	--
SVOCs	Acetophenone	µg/kg	122	10	24	310	84

Table 5-3. Summary of OU-1/OU-2 Non-residential Soil Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
SVOCs	Atrazine	µg/kg	122	0	--	--	--
SVOCs	Benzaldehyde	µg/kg	122	13	27	280	110
SVOCs	Benzo(e)pyrene	µg/kg	10	10	110	110,000	12,000
SVOCs	bis(2-Chloroethoxy)methane	µg/kg	146	0	--	--	--
SVOCs	bis(2-Chloroethyl)ether	µg/kg	146	0	--	--	--
SVOCs	bis(2-Chloroisopropyl) ether	µg/kg	87	0	--	--	--
SVOCs	bis(2-Ethylhexyl)phthalate	µg/kg	146	61	17	57,000	3,000
SVOCs	Butylbenzylphthalate	µg/kg	146	16	36	2,700	750
SVOCs	Caprolactam	µg/kg	120	0	--	--	--
SVOCs	Carbazole	µg/kg	146	57	18	1,400,000	29,000
SVOCs	Dibenzofuran	µg/kg	146	35	20	600,000	22,000
SVOCs	Diethylphthalate	µg/kg	146	1	5,000	5,000	5,000
SVOCs	Dimethylphthalate	µg/kg	146	2	300	490	400
SVOCs	Di-n-butylphthalate	µg/kg	146	8	25	1,800	540
SVOCs	Di-n-octylphthalate	µg/kg	146	2	130	3,500	1,800
SVOCs	Hexachlorobenzene	µg/kg	146	0	--	--	--
SVOCs	Hexachlorobutadiene	µg/kg	152	0	--	--	--
SVOCs	Hexachlorocyclopentadiene	µg/kg	145	0	--	--	--
SVOCs	Hexachloroethane	µg/kg	146	0	--	--	--
SVOCs	Isophorone	µg/kg	146	0	--	--	--
SVOCs	Nitrobenzene	µg/kg	146	0	--	--	--
SVOCs	N-Nitroso-di-n-propylamine	µg/kg	145	0	--	--	--
SVOCs	N-Nitrosodiphenylamine	µg/kg	59	0	--	--	--
SVOCs	Pentachlorophenol	µg/kg	146	2	980	19,000	10,000
SVOCs	Phenol	µg/kg	146	6	24	1,200	280
VOCs	1,1,1,2-Tetrachloroethane	µg/kg	4	0	--	--	--
VOCs	1,1,1-Trichloroethane	µg/kg	65	0	--	--	--
VOCs	1,1,2,2-Tetrachloroethane	µg/kg	65	1	5,200	5,200	5,200
VOCs	1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/kg	65	0	--	--	--
VOCs	1,1,2-Trichloroethane	µg/kg	65	0	--	--	--
VOCs	1,1-Dichloroethane	µg/kg	65	0	--	--	--
VOCs	1,1-Dichloroethene	µg/kg	65	0	--	--	--
VOCs	1,1-Dichloropropene	µg/kg	4	0	--	--	--
VOCs	1,2,3-Trichlorobenzene	µg/kg	4	0	--	--	--
VOCs	1,2,3-Trichloropropane	µg/kg	4	0	--	--	--
VOCs	1,2,4-Trichlorobenzene	µg/kg	95	0	--	--	--
VOCs	1,2,4-Trimethylbenzene	µg/kg	4	1	1,300	1,300	1,300

Table 5-3. Summary of OU-1/OU-2 Non-residential Soil Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
VOCs	1,2-Dibromo-3-chloropropane	µg/kg	65	0	--	--	--
VOCs	1,2-Dibromoethane	µg/kg	65	0	--	--	--
VOCs	1,2-Dichlorobenzene	µg/kg	89	0	--	--	--
VOCs	1,2-Dichloroethane	µg/kg	65	0	--	--	--
VOCs	1,2-Dichloroethene (total)	µg/kg	11	0	--	--	--
VOCs	1,2-Dichloropropane	µg/kg	65	0	--	--	--
VOCs	1,3,5-Trimethylbenzene	µg/kg	4	1	1,000	1,000	1,000
VOCs	1,3-Dichlorobenzene	µg/kg	89	0	--	--	--
VOCs	1,4-Dichlorobenzene	µg/kg	89	0	--	--	--
VOCs	2,2-Dichloropropane	µg/kg	4	0	--	--	--
VOCs	2-Butanone	µg/kg	65	54	4.8	500	37
VOCs	2-Hexanone	µg/kg	65	3	1.1	2,400	820
VOCs	4-Methyl-2-pentanone	µg/kg	65	5	1.7	26	13
VOCs	Acetone	µg/kg	65	61	12	2,200	240
VOCs	Benzene	µg/kg	68	20	0.97	110,000	5,500
VOCs	Bromobenzene	µg/kg	4	0	--	--	--
VOCs	Bromochloromethane	µg/kg	63	0	--	--	--
VOCs	Bromodichloromethane	µg/kg	65	0	--	--	--
VOCs	Bromoform	µg/kg	65	0	--	--	--
VOCs	Carbon Disulfide	µg/kg	65	19	0.79	8.5	3.0
VOCs	Carbon Tetrachloride	µg/kg	65	0	--	--	--
VOCs	Chlorobenzene	µg/kg	65	0	--	--	--
VOCs	Chloroethane	µg/kg	65	0	--	--	--
VOCs	Chloroform	µg/kg	65	0	--	--	--
VOCs	Chloromethane	µg/kg	65	0	--	--	--
VOCs	cis-1,2-Dichloroethene	µg/kg	65	0	--	--	--
VOCs	cis-1,3-Dichloropropene	µg/kg	65	0	--	--	--
VOCs	Cyclohexane	µg/kg	65	5	0.85	8	5.0
VOCs	Dibromochloromethane	µg/kg	65	0	--	--	--
VOCs	Dibromomethane	µg/kg	4	0	--	--	--
VOCs	Dichlorodifluoromethane	µg/kg	65	0	--	--	--
VOCs	Ethylbenzene	µg/kg	67	4	3.2	12,000	3,000
VOCs	Fluorotrichloromethane	µg/kg	65	3	1.3	3.3	2.1
VOCs	Isopropylbenzene	µg/kg	65	3	1.2	4	3.0
VOCs	m,p-Xylenes	µg/kg	59	6	1.3	14	5.2
VOCs	Methyl Acetate	µg/kg	65	36	5.1	950	99
VOCs	Methyl Bromide	µg/kg	65	4	0.93	4.2	2.0

Table 5-3. Summary of OU-1/OU-2 Non-residential Soil Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
VOCs	Methyl tert-butyl ether	µg/kg	67	0	--	--	--
VOCs	Methylcyclohexane	µg/kg	65	5	1	1,200	250
VOCs	Methylene Chloride	µg/kg	65	0	--	--	--
VOCs	n-Butylbenzene	µg/kg	4	0	--	--	--
VOCs	n-Propylbenzene	µg/kg	4	0	--	--	--
VOCs	o-Xylene	µg/kg	62	3	4.9	16	9.2
VOCs	p-Isopropyltoluene	µg/kg	4	0	--	--	--
VOCs	sec-Butylbenzene	µg/kg	4	0	--	--	--
VOCs	Styrene	µg/kg	65	3	2.2	3.4	2.9
VOCs	tert-Butylbenzene	µg/kg	4	0	--	--	--
VOCs	Tetrachloroethene	µg/kg	65	0	--	--	--
VOCs	Toluene	µg/kg	67	9	1.3	11	4.4
VOCs	trans-1,2-Dichloroethene	µg/kg	65	0	--	--	--
VOCs	trans-1,3-Dichloropropene	µg/kg	65	0	--	--	--
VOCs	Trichloroethene	µg/kg	65	0	--	--	--
VOCs	Vinyl Chloride	µg/kg	65	0	--	--	--
VOCs	Xylenes (total)	µg/kg	19	4	11	42,000	11,000
Pesticides	4,4'-DDD	µg/kg	142	9	1.4	16	7.0
Pesticides	4,4'-DDE	µg/kg	144	59	0.74	160	28
Pesticides	4,4'-DDT	µg/kg	144	63	1.4	2,400	91
Pesticides	Aldrin	µg/kg	142	2	2.8	160	81
Pesticides	Alpha-BHC	µg/kg	142	3	0.47	5.9	2.6
Pesticides	alpha-Chlordane	µg/kg	144	21	0.84	470	40
Pesticides	Beta-BHC	µg/kg	142	2	3.5	4.5	4.0
Pesticides	Delta-BHC	µg/kg	142	0	--	--	--
Pesticides	Dicamba	µg/kg	6	0	--	--	--
Pesticides	Dieldrin	µg/kg	142	20	1.8	280	57
Pesticides	Endosulfan I	µg/kg	142	1	0.69	0.69	0.69
Pesticides	Endosulfan II	µg/kg	142	2	3.3	14	8.7
Pesticides	Endosulfan sulfate	µg/kg	142	6	1.3	35	9.4
Pesticides	Endrin	µg/kg	142	17	2.9	240	28
Pesticides	Endrin Aldehyde	µg/kg	127	18	0.78	100	18
Pesticides	Endrin Ketone	µg/kg	128	9	4	150	40
Pesticides	Ethyl Parathion	µg/kg	57	0	--	--	--
Pesticides	Gamma-BHC (Lindane)	µg/kg	142	3	1.1	46	16
Pesticides	Gamma-Chlordane	µg/kg	142	27	0.35	9,100	370
Pesticides	Heptachlor	µg/kg	142	6	0.44	200	36

Table 5-3. Summary of OU-1/OU-2 Non-residential Soil Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
Pesticides	Heptachlor Epoxide	µg/kg	142	20	1.2	52	13
Pesticides	Methoxychlor	µg/kg	142	4	7.5	91	39
Pesticides	Methyl Parathion	µg/kg	57	0	--	--	--
Pesticides	o,o,o-Triethylphosphorothioate	µg/kg	57	0	--	--	--
Pesticides	Sulfotep	µg/kg	57	0	--	--	--
Pesticides	Technical Chlordane	µg/kg	17	0	--	--	--
Pesticides	Toxaphene	µg/kg	131	1	110	110	110
Herbicides/Fungicides	2,4,5-TP	µg/kg	6	0	--	--	--
Herbicides/Fungicides	2,4,5-Trichlorophenoxyacetic acid	µg/kg	6	1	57	57	57
Herbicides/Fungicides	2,4-DB	µg/kg	6	0	--	--	--
Herbicides/Fungicides	2,4-Dichlorophenyl acetic acid	µg/kg	6	0	--	--	--
Herbicides/Fungicides	4-Chloro-2-methylphenoxy acetic acid	µg/kg	6	0	--	--	--
Herbicides/Fungicides	Dalapon	µg/kg	6	0	--	--	--
Herbicides/Fungicides	Dinoseb	µg/kg	6	0	--	--	--
Grain Size	Clay	%	128	128	0.9	39.2	14
Grain Size	Silt	%	128	128	2.6	95.3	22
Grain Size	Fine Sand	%	128	128	2.3	63.6	25
Grain Size	Medium Sand	%	128	128	1.1	29.7	13
Grain Size	Coarse Sand	%	128	124	0.2	45	7.9
Grain Size	Gravel	%	128	119	0.1	79.4	20
Other	Percent Moisture	%	217	217	2	54	18
Other	Solids, Percent	%	914	914	47.9	99.9	87
Other	TOC by Lloyd Kahn	mg/kg	644	644	1,410	248,000	37,000
USEPA Miscellaneous	(1,1-Dimethylpropyl)benzene	µg/kg	1	1	120	120	120
USEPA Miscellaneous	(3beta)-Ergost-5-en-3-ol	µg/kg	2	2	270	640	460
USEPA Miscellaneous	(Z)-9,12-Octadecadienoic Acid	µg/kg	2	2	430	600	520
USEPA Miscellaneous	1,2,3,4-Tetramethylbenzene	µg/kg	1	1	510	510	510
USEPA Miscellaneous	1,2,4,5-Tetramethylbenzene	µg/kg	1	1	1,200	1,200	1,200
USEPA Miscellaneous	1,3-Dichloropropane	µg/kg	3	0	--	--	--
USEPA Miscellaneous	1,3-Dimethylnaphthalene	µg/kg	1	1	240	240	240
USEPA Miscellaneous	1,5-Dimethylnaphthalene	µg/kg	1	1	190	190	190
USEPA Miscellaneous	1,6,7-Trimethylnaphthalene	µg/kg	1	1	200	200	200
USEPA Miscellaneous	11H-Benzo(a)fluorene	µg/kg	3	3	140	730	420
USEPA Miscellaneous	11H-Benzo(b)fluorene	µg/kg	10	10	170	730,000	88,000
USEPA Miscellaneous	1-Methyl-2-(1-methylbenzene	µg/kg	1	1	520	520	520

Table 5-3. Summary of OU-1/OU-2 Non-residential Soil Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
USEPA Miscellaneous	1-Methylanthracene	µg/kg	1	1	1,800	1,800	1,800
USEPA Miscellaneous	1-Methylnaphthalene	µg/kg	3	3	100	1,100	460
USEPA Miscellaneous	1-Methylpyrene	µg/kg	8	8	110	2,100	800
USEPA Miscellaneous	1-Phenanthrenecarboxylic Acid	µg/kg	1	1	110	110	110
USEPA Miscellaneous	2,3,6-Trimethylnaphthalene	µg/kg	2	2	180	190	190
USEPA Miscellaneous	2,3-Dimethylnaphthalene	µg/kg	3	3	290	1500	870
USEPA Miscellaneous	2,5-Dimethylphenanthrene	µg/kg	2	2	150	1,900	1,000
USEPA Miscellaneous	2,7-Dimethylphenanthrene	µg/kg	1	1	720	720	720
USEPA Miscellaneous	2-Methylanthracene	µg/kg	9	9	86	620,000	86,000
USEPA Miscellaneous	2-Methylchlorobenzene	µg/kg	3	0	--	--	--
USEPA Miscellaneous	2-Phenylnaphthalene	µg/kg	7	7	170	480,000	90,000
USEPA Miscellaneous	3-Methylphenanthrene	µg/kg	1	1	380	380	380
USEPA Miscellaneous	4,4'-Methylenebis-phenol	µg/kg	1	1	1,700	1,700	1,700
USEPA Miscellaneous	4H-Cyclopenta(def)phenanthrene	µg/kg	2	2	170	2,000	1,100
USEPA Miscellaneous	4-Hydroxy-4-methyl-2-pentanone	µg/kg	19	19	6,300	57,000	30,000
USEPA Miscellaneous	4-Hydroxy-benzaldehyde	µg/kg	1	1	830	830	830
USEPA Miscellaneous	4-Methyldibenzofuran	µg/kg	1	1	620	620	620
USEPA Miscellaneous	5-Methylchrysene	µg/kg	1	1	580	580	580
USEPA Miscellaneous	9,10-Anthraquinone	µg/kg	4	4	110	230	160
USEPA Miscellaneous	9,10-Dimethylanthracene	µg/kg	2	2	140	580	360
USEPA Miscellaneous	9-Anthracenecarbonitrile	µg/kg	1	1	400	400	400
USEPA Miscellaneous	9-Butyl docosane	µg/kg	1	1	1,700	1,700	1,700
USEPA Miscellaneous	9-Methylanthracene	µg/kg	3	3	440	770	620
USEPA Miscellaneous	9-Octyl heptadecane	µg/kg	1	1	3,500	3,500	3,500
USEPA Miscellaneous	alpha-Chlordene	µg/kg	6	0	--	--	--
USEPA Miscellaneous	Benzanthracenone	µg/kg	5	5	330	1,700	720
USEPA Miscellaneous	Benzanthrone	µg/kg	9	9	110	1,200	600
USEPA Miscellaneous	Benzo(b)naphtho(2,3-d)furan	µg/kg	3	3	310	1,000	690
USEPA Miscellaneous	Benzo(j)fluoranthene	µg/kg	2	2	410	3,100	1,800
USEPA Miscellaneous	Benzofluoranthene	µg/kg	2	2	100	680	390
USEPA Miscellaneous	Benzofluorene	µg/kg	8	8	89	3,100	1,100
USEPA Miscellaneous	Benzonaphthothiophene	µg/kg	1	1	640	640	640
USEPA Miscellaneous	Benzopyrene	µg/kg	2	2	320	560	440
USEPA Miscellaneous	beta-Chlordene	µg/kg	2	0	--	--	--
USEPA Miscellaneous	Camphor	µg/kg	1	1	350	350	350
USEPA Miscellaneous	Chlordene	µg/kg	2	0	--	--	--

Table 5-3. Summary of OU-1/OU-2 Non-residential Soil Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
USEPA Miscellaneous	Cholesterol	µg/kg	1	1	260	260	260
USEPA Miscellaneous	cis-Nonachlor	µg/kg	2	1	12	12	12
USEPA Miscellaneous	Dibenzanthracene	µg/kg	1	1	220	220	220
USEPA Miscellaneous	Dibenzo(a,i)pyrene	µg/kg	1	1	110	110	110
USEPA Miscellaneous	Dibenzothiophene	µg/kg	3	3	260	620,000	250,000
USEPA Miscellaneous	Dimethylphenanthrene	µg/kg	2	2	110	250	180
USEPA Miscellaneous	gamma-Chlordene	µg/kg	2	1	4,300	4,300	43,00
USEPA Miscellaneous	gamma-Sitosterol	µg/kg	4	4	350	1,800	850
USEPA Miscellaneous	Hexadecanoic Acid	µg/kg	16	16	200	6,640	1,400
USEPA Miscellaneous	Limonene	µg/kg	1	1	840	840	840
USEPA Miscellaneous	MCPP	µg/kg	6	0	--	--	--
USEPA Miscellaneous	Methyl anthracene	µg/kg	5	5	170	400	310
USEPA Miscellaneous	Methyl chrysene	µg/kg	1	1	90	90	90
USEPA Miscellaneous	Methylbenzanthracene	µg/kg	1	1	560	560	560
USEPA Miscellaneous	Methylphenanthrene	µg/kg	1	1	450	450	450
USEPA Miscellaneous	n-Henicosane	µg/kg	2	2	1,000	1,700	1,400
USEPA Miscellaneous	N-nitrosodiphenylamine/Diphenylamine	µg/kg	57	0	--	--	--
USEPA Miscellaneous	n-Pentadecane	µg/kg	1	1	850	850	850
USEPA Miscellaneous	Octadec-9-enoic Acid	µg/kg	1	1	4,600	4,600	4,600
USEPA Miscellaneous	Octadecanoic Acid	µg/kg	3	3	150	450	280
USEPA Miscellaneous	Oxacyclotetradecan-2-one	µg/kg	1	1	270	270	270
USEPA Miscellaneous	Oxychlordane	µg/kg	2	1	63	63	63
USEPA Miscellaneous	p-Chlorotoluene	µg/kg	3	0	--	--	--
USEPA Miscellaneous	Pentacene	µg/kg	1	1	380	380	380
USEPA Miscellaneous	Pentadecanal	µg/kg	1	1	320	320	320
USEPA Miscellaneous	Pentadecanoic Acid	µg/kg	2	2	220	490	360
USEPA Miscellaneous	Pentamethylbenzene	µg/kg	1	1	100	100	100
USEPA Miscellaneous	Perylene	µg/kg	11	11	160	20,000	2,900
USEPA Miscellaneous	Phenylnaphthalene	µg/kg	1	1	380	380	380
USEPA Miscellaneous	Salicyl Alcohol	µg/kg	1	1	130	130	130
USEPA Miscellaneous	Stigmasterol	µg/kg	3	3	390	520	440

Table 5-3. Summary of OU-1/OU-2 Non-residential Soil Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
USEPA Miscellaneous	Total Tetramethylbenzene	µg/kg	1	1	610	610	610
USEPA Miscellaneous	trans-Nonachlor	µg/kg	2	1	13	13	13

Notes:

--: not applicable

DL: detection limit

µg/kg: micrograms per kilogram

mg/kg: milligrams per kilogram

OU: operable unit

PAHs: polycyclic aromatic hydrocarbons

PCB: polychlorinated biphenyl

PCDD/DF:polychlorinated dibenzo-p-dioxins/dibenzofurans

pg/g: picogram per gram

SVOC: semivolatile organic compound

TEQ: 2,3,7,8-TCDD toxicity equivalent

USEPA: United States Environmental Protection Agency

VOC: volatile organic compound

WHO: World Health Organization

Table 5-4. Summary of OU-1/OU-2 Snow Creek Sediment Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
PCB Aroclor	Aroclor-1016	mg/kg	96	0	--	--	--
PCB Aroclor	Aroclor-1221	mg/kg	96	1	0.39	0.39	0.39
PCB Aroclor	Aroclor-1232	mg/kg	96	0	--	--	--
PCB Aroclor	Aroclor-1242	mg/kg	96	22	0.087	15	3.7
PCB Aroclor	Aroclor-1248	mg/kg	96	66	0.15	15	3.1
PCB Aroclor	Aroclor-1254	mg/kg	91	85	0.24	46	4.6
PCB Aroclor	Aroclor-1260	mg/kg	96	88	0.076	19	2.3
PCB Aroclor	Aroclor-1262	mg/kg	5	0	--	--	--
PCB Aroclor	Aroclor-1268	mg/kg	19	8	0.097	1.4	0.34
PCB Aroclor	Total PCBs	mg/kg	96	93	0.39	60	9.5
PCB Homolog	Total Monochlorobiphenyl	mg/kg	4	4	0.0025	0.020	0.012
PCB Homolog	Total Dichlorobiphenyl	mg/kg	4	4	0.015	0.14	0.058
PCB Homolog	Total trichlorobiphenyl	mg/kg	4	4	0.12	0.80	0.46
PCB Homolog	Total Tetrachlorobiphenyl	mg/kg	4	4	0.31	10	2.9
PCB Homolog	Total Pentachlorobiphenyl	mg/kg	4	4	0.39	16	4.5
PCB Homolog	Total Hexachlorobiphenyl	mg/kg	4	4	0.28	7.8	2.2
PCB Homolog	Total Heptachlorobiphenyl	mg/kg	4	4	0.14	3.4	0.98
PCB Homolog	Total Octachlorobiphenyl	mg/kg	4	4	0.053	1.3	0.38
PCB Homolog	Total Nonachlorobiphenyl	mg/kg	4	4	0.020	0.48	0.15
PCB Homolog	Decachlorobiphenyl	mg/kg	4	4	0.0059	0.11	0.037
PCB Homolog	Total Homolog PCBs - SIM (Max DL)	mg/kg	4	4	1.3	40	12
PCB Congener	BZ#77	mg/kg	9	5	0.029	0.45	0.21
PCB Congener	BZ#81	mg/kg	9	5	0.0083	0.21	0.090
PCB Congener	BZ#105	mg/kg	9	9	0.013	1.7	0.27
PCB Congener	BZ#114	mg/kg	4	0	--	--	--
PCB Congener	BZ#118	mg/kg	9	9	0.022	2.6	0.41
PCB Congener	BZ#123	mg/kg	4	0	--	--	--
PCB Congener	BZ#126	mg/kg	9	3	0.011	0.044	0.023
PCB Congener	BZ#153	mg/kg	9	9	0.013	1.7	0.29
PCB Congener	BZ#156	mg/kg	9	8	0.0029	0.47	0.085
PCB Congener	BZ#157	mg/kg	4	1	0.010	0.010	0.010
PCB Congener	BZ#167	mg/kg	4	0	--	--	--
PCB Congener	BZ#169	mg/kg	9	0	--	--	--

Table 5-4. Summary of OU-1/OU-2 Snow Creek Sediment Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
PCB Congener	BZ#189	mg/kg	4	0	--	--	--
PCB Congener	WHO Congener TEQ (Human-NDs Excluded)	mg/kg	9	9	0.0000035	0.0045	0.00083
PCB Congener	WHO Congener TEQ (Human-NDs used at 1/2 DL)	mg/kg	9	9	0.00024	0.011	0.0025
PCB Congener	BZ#28	mg/kg	5	4	0.015	0.095	0.062
PCB Congener	BZ#52	mg/kg	5	5	0.024	0.23	0.11
PCB Congener	BZ#60	mg/kg	5	5	0.011	0.18	0.084
PCB Congener	BZ#66	mg/kg	5	5	0.023	0.28	0.15
PCB Congener	BZ#74	mg/kg	5	3	0.041	0.096	0.074
PCB Congener	BZ#99	mg/kg	5	5	0.0060	0.15	0.064
PCB Congener	BZ#101	mg/kg	5	5	0.022	0.32	0.13
PCB Congener	BZ#138	mg/kg	5	5	0.018	0.48	0.19
PCB Congener	BZ#163	mg/kg	5	0	--	--	--
PCB Congener	BZ#170	mg/kg	5	4	0.0034	0.10	0.047
PCB Congener	BZ#180	mg/kg	5	5	0.0079	0.22	0.084
PCB Congener	BZ#183	mg/kg	5	4	0.0019	0.040	0.016
PCB Congener	BZ#187	mg/kg	5	4	0.0040	0.15	0.060
PCB Congener	BZ#194	mg/kg	5	4	0.0011	0.12	0.042
PCB Congener	BZ#195	mg/kg	5	4	0.00027	0.030	0.012
PCB Congener	BZ#196	mg/kg	5	4	0.0023	0.11	0.038
PCB Congener	BZ#201	mg/kg	5	4	0.0024	0.22	0.071
PCB Congener	BZ#203	mg/kg	5	1	0.12	0.12	0.12
PCB Congener	BZ#206	mg/kg	5	5	0.0017	0.33	0.076
PCB Congener	BZ#208	mg/kg	5	4	0.0031	0.14	0.044
PCB Congener	BZ#209	mg/kg	5	3	0.011	0.18	0.067
PCDD-DF	2,3,7,8-TCDD	pg/g	4	0	--	--	--
PCDD-DF	1,2,3,7,8-PeCDD	pg/g	4	0	--	--	--
PCDD-DF	1,2,3,4,7,8-HxCDD	pg/g	4	0	--	--	--
PCDD-DF	1,2,3,6,7,8-HxCDD	pg/g	4	3	1.1	3.1	1.9
PCDD-DF	1,2,3,7,8,9-HxCDD	pg/g	4	1	2.3	2.3	2.3
PCDD-DF	1,2,3,4,6,7,8-HpCDD	pg/g	4	4	18	27	23
PCDD-DF	Octa CDD	pg/g	4	4	180	270	220

Table 5-4. Summary of OU-1/OU-2 Snow Creek Sediment Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
PCDD-DF	2,3,7,8-TCDF	pg/g	4	2	8.3	18	13
PCDD-DF	1,2,3,7,8-PeCDF	pg/g	4	1	13	13	13
PCDD-DF	2,3,4,7,8-PeCDF	pg/g	4	3	8.6	82	33
PCDD-DF	1,2,3,4,7,8-HxCDF	pg/g	4	4	3.4	74	24
PCDD-DF	1,2,3,6,7,8-HxCDF	pg/g	4	4	1.6	20	6.6
PCDD-DF	1,2,3,7,8,9-HxCDF	pg/g	4	1	2.7	2.7	2.7
PCDD-DF	2,3,4,6,7,8-HxCDF	pg/g	4	4	1.2	10	3.9
PCDD-DF	1,2,3,4,6,7,8-HpCDF	pg/g	4	0	--	--	--
PCDD-DF	1,2,3,4,7,8,9-HpCDF	pg/g	4	3	4.3	41	16
PCDD-DF	Octa CDF	pg/g	4	4	11	120	40
PCDD-DF	Total Tetra CDD	pg/g	4	2	3.9	4.2	4.1
PCDD-DF	Total Penta CDD	pg/g	4	0	--	--	--
PCDD-DF	Total Hexa CDD	pg/g	4	4	1.4	13	6.4
PCDD-DF	Total Hepta CDD	pg/g	4	4	35	56	49
PCDD-DF	Total Tetra CDF	pg/g	4	4	70	810	380
PCDD-DF	Total Penta CDF	pg/g	4	4	24	1,100	360
PCDD-DF	Total Hexa CDF	pg/g	4	4	15	270	85
PCDD-DF	Total Hepta CDF	pg/g	4	4	9.9	110	36
PCDD-DF	WHO Dioxin TEQ (Human/Mammal-NDs used at 1/2 DL)	pg/g	4	4	4.8	53	19
PCDD-DF	WHO Dioxin TEQ (Human/Mammal-NDs Excluded)	pg/g	4	4	1.9	36	12
PCDD-DF	Total PCDD/DF	pg/g	4	4	360	2,800	1,200
Metals	Aluminum	mg/kg	11	11	1,900	6,000	3,700
Metals	Antimony	mg/kg	11	6	0.50	2.9	1.3
Metals	Arsenic	mg/kg	17	17	2.3	21	10
Metals	Barium	mg/kg	17	17	52	580	180
Metals	Beryllium	mg/kg	17	15	0.49	4.2	1.7
Metals	Cadmium	mg/kg	17	13	0.23	4.6	0.91
Metals	Calcium	mg/kg	11	11	5,100	73,000	19,000
Metals	Chromium	mg/kg	17	17	28	670	130
Metals	Cobalt	mg/kg	17	16	2.0	110	26
Metals	Copper	mg/kg	11	11	13	230	50

Table 5-4. Summary of OU-1/OU-2 Snow Creek Sediment Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
Metals	Iron	mg/kg	11	11	17,000	100,000	35,000
Metals	Lead	mg/kg	24	24	15	510	72
Metals	Magnesium	mg/kg	11	11	2,100	37,000	10,000
Metals	Manganese	mg/kg	17	17	340	5,200	1,800
Metals	Mercury	mg/kg	17	15	0.029	8.6	1.1
Metals	Molybdenum	mg/kg	2	2	0.88	2.6	1.7
Metals	Nickel	mg/kg	17	17	12	110	35
Metals	Potassium	mg/kg	11	11	170	660	370
Metals	Selenium	mg/kg	9	7	0.34	3.4	1.3
Metals	Silver	mg/kg	11	2	0.60	0.71	0.66
Metals	Sodium	mg/kg	11	0	--	--	--
Metals	Strontium	mg/kg	2	2	10	33	22
Metals	Thallium	mg/kg	11	9	0.75	50	12
Metals	Tin	mg/kg	2	0	--	--	--
Metals	Titanium	mg/kg	2	2	140	160	150
Metals	Vanadium	mg/kg	17	17	5.7	64	31
Metals	Yttrium	mg/kg	2	2	2.1	2.9	2.5
Metals	Zinc	mg/kg	11	11	65	440	160
Inorganics	Chloride	mg/kg	1	1	12	12	12
Inorganics	Cyanide	mg/kg	4	2	0.25	0.30	0.28
PAHs	2-Chloronaphthalene	µg/kg	7	0	--	--	--
PAHs	2-Methylnaphthalene	µg/kg	7	1	27	27	27
PAHs	Acenaphthene	µg/kg	7	1	41	41	41
PAHs	Acenaphthylene	µg/kg	7	2	20	32	26
PAHs	Anthracene	µg/kg	7	4	57	150	110
PAHs	Benzo(a)anthracene	µg/kg	7	5	270	670	450
PAHs	Benzo(a)pyrene	µg/kg	7	5	260	720	410
PAHs	Benzo(b)fluoranthene	µg/kg	7	5	290	1,100	550
PAHs	Benzo(g,h,i)perylene	µg/kg	7	5	120	550	240
PAHs	Benzo(k)fluoranthene	µg/kg	7	5	250	730	400
PAHs	Chrysene	µg/kg	7	5	340	810	520
PAHs	Dibenzo(a,h)anthracene	µg/kg	7	4	30	58	43
PAHs	Fluoranthene	µg/kg	7	5	540	1,600	1,000

Table 5-4. Summary of OU-1/OU-2 Snow Creek Sediment Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
PAHs	Fluorene	µg/kg	7	4	22	100	44
PAHs	Indeno(1,2,3-cd)pyrene	µg/kg	7	5	110	490	220
PAHs	Naphthalene	µg/kg	7	1	38	38	38
PAHs	Phenanthrene	µg/kg	7	5	240	1,000	500
PAHs	Pyrene	µg/kg	7	5	540	1,500	920
PAHs	Total PAHs (Max DL)	µg/kg	7	5	3,200	8,300	5,400
SVOCs	1,1'-Biphenyl	µg/kg	6	1	38	38	38
SVOCs	2,2'-Oxybis(1-Chloropropane)	µg/kg	4	0	--	--	--
SVOCs	2,3,4,6-Tetrachlorophenol	µg/kg	2	0	--	--	--
SVOCs	2,4,5-Trichlorophenol	µg/kg	7	0	--	--	--
SVOCs	2,4,6-Trichlorophenol	µg/kg	7	0	--	--	--
SVOCs	2,4-Dichlorophenol	µg/kg	7	0	--	--	--
SVOCs	2,4-Dimethylphenol	µg/kg	7	0	--	--	--
SVOCs	2,4-Dinitrophenol	µg/kg	7	0	--	--	--
SVOCs	2,4-Dinitrotoluene	µg/kg	7	0	--	--	--
SVOCs	2,6-Dinitrotoluene	µg/kg	7	0	--	--	--
SVOCs	2-Chlorophenol	µg/kg	7	0	--	--	--
SVOCs	2-Methylphenol	µg/kg	7	0	--	--	--
SVOCs	2-Nitroaniline	µg/kg	7	0	--	--	--
SVOCs	2-Nitrophenol	µg/kg	7	0	--	--	--
SVOCs	3,3'-Dichlorobenzidine	µg/kg	7	0	--	--	--
SVOCs	3-Methylphenol/4-Methyphenol (m&p-Cresols)	µg/kg	3	0	--	--	--
SVOCs	3-Nitroaniline	µg/kg	7	0	--	--	--
SVOCs	4,6-Dinitro-2-methylphenol	µg/kg	7	0	--	--	--
SVOCs	4-Bromophenyl-phenylether	µg/kg	7	0	--	--	--
SVOCs	4-Chloro-3-methylphenol	µg/kg	7	0	--	--	--
SVOCs	4-Chloroaniline	µg/kg	7	0	--	--	--
SVOCs	4-Chlorophenyl-phenylether	µg/kg	7	0	--	--	--
SVOCs	4-Methylphenol	µg/kg	4	0	--	--	--
SVOCs	4-Nitroaniline	µg/kg	7	0	--	--	--
SVOCs	4-Nitrophenol	µg/kg	7	0	--	--	--
SVOCs	Acetophenone	µg/kg	6	0	--	--	--
SVOCs	Atrazine	µg/kg	6	0	--	--	--

Table 5-4. Summary of OU-1/OU-2 Snow Creek Sediment Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
SVOCs	Benzaldehyde	µg/kg	6	0	--	--	--
SVOCs	bis(2-Chloroethoxy)methane	µg/kg	7	0	--	--	--
SVOCs	bis(2-Chloroethyl)ether	µg/kg	7	0	--	--	--
SVOCs	bis(2-Chloroisopropyl)ether	µg/kg	3	0	--	--	--
SVOCs	bis(2-Ethylhexyl)phthalate	µg/kg	7	4	53	180	130
SVOCs	Butylbenzylphthalate	µg/kg	7	1	470	470	470
SVOCs	Caprolactam	µg/kg	6	0	--	--	--
SVOCs	Carbazole	µg/kg	7	4	22	170	69
SVOCs	Dibenzofuran	µg/kg	7	1	56	56	56
SVOCs	Diethylphthalate	µg/kg	7	0	--	--	--
SVOCs	Dimethylphthalate	µg/kg	7	0	--	--	--
SVOCs	Di-n-Butylphthalate	µg/kg	7	0	--	--	--
SVOCs	Di-n-Octylphthalate	µg/kg	7	0	--	--	--
SVOCs	Hexachlorobenzene	µg/kg	7	0	--	--	--
SVOCs	Hexachlorobutadiene	µg/kg	7	0	--	--	--
SVOCs	Hexachlorocyclopentadiene	µg/kg	7	0	--	--	--
SVOCs	Hexachloroethane	µg/kg	7	0	--	--	--
SVOCs	Isophorone	µg/kg	7	0	--	--	--
SVOCs	Nitrobenzene	µg/kg	7	0	--	--	--
SVOCs	N-Nitroso-di-n-propylamine	µg/kg	7	0	--	--	--
SVOCs	N-Nitrosodiphenylamine	µg/kg	4	0	--	--	--
SVOCs	Pentachlorophenol	µg/kg	7	0	--	--	--
SVOCs	Phenol	µg/kg	7	0	--	--	--
VOCs	1,1,1,2-Tetrachloroethane	µg/kg	2	0	--	--	--
VOCs	1,1,1-Trichloroethane	µg/kg	7	0	--	--	--
VOCs	1,1,2,2-Tetrachloroethane	µg/kg	7	0	--	--	--
VOCs	1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/kg	6	0	--	--	--
VOCs	1,1,2-Trichloroethane	µg/kg	7	0	--	--	--
VOCs	1,1-Dichloroethane	µg/kg	7	0	--	--	--
VOCs	1,1-Dichloroethene	µg/kg	7	0	--	--	--
VOCs	1,1-Dichloropropene	µg/kg	2	0	--	--	--
VOCs	1,2,3-Trichlorobenzene	µg/kg	2	0	--	--	--
VOCs	1,2,3-Trichloropropane	µg/kg	2	0	--	--	--

Table 5-4. Summary of OU-1/OU-2 Snow Creek Sediment Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
VOCs	1,2,4-Trichlorobenzene	µg/kg	7	0	--	--	--
VOCs	1,2,4-Trimethylbenzene	µg/kg	2	0	--	--	--
VOCs	1,2-Dibromo-3-chloropropane	µg/kg	6	0	--	--	--
VOCs	1,2-Dibromoethane	µg/kg	6	0	--	--	--
VOCs	1,2-Dichlorobenzene	µg/kg	7	0	--	--	--
VOCs	1,2-Dichloroethane	µg/kg	7	0	--	--	--
VOCs	1,2-Dichloropropane	µg/kg	7	0	--	--	--
VOCs	1,3,5-Trimethylbenzene	µg/kg	2	0	--	--	--
VOCs	1,3-Dichlorobenzene	µg/kg	7	0	--	--	--
VOCs	1,4-Dichlorobenzene	µg/kg	7	0	--	--	--
VOCs	2,2-Dichloropropane	µg/kg	2	0	--	--	--
VOCs	2-Butanone	µg/kg	7	4	1.8	7.0	5.5
VOCs	2-Hexanone	µg/kg	7	0	--	--	--
VOCs	4-Methyl-2-pentanone	µg/kg	7	0	--	--	--
VOCs	Acetone	µg/kg	7	4	21	57	42
VOCs	Benzene	µg/kg	7	3	1.6	9,100	3,000
VOCs	Bromobenzene	µg/kg	2	0	--	--	--
VOCs	Bromochloromethane	µg/kg	6	0	--	--	--
VOCs	Bromodichloromethane	µg/kg	7	0	--	--	--
VOCs	Bromoform	µg/kg	7	0	--	--	--
VOCs	Carbon Disulfide	µg/kg	7	4	3.8	8.6	5.8
VOCs	Carbon Tetrachloride	µg/kg	7	0	--	--	--
VOCs	Chlorobenzene	µg/kg	7	0	--	--	--
VOCs	Chloroethane	µg/kg	7	0	--	--	--
VOCs	Chloroform	µg/kg	7	0	--	--	--
VOCs	Chloromethane	µg/kg	7	0	--	--	--
VOCs	cis-1,2-Dichloroethene	µg/kg	7	0	--	--	--
VOCs	cis-1,3-Dichloropropene	µg/kg	7	0	--	--	--
VOCs	Cyclohexane	µg/kg	6	0	--	--	--
VOCs	Dibromochloromethane	µg/kg	7	0	--	--	--
VOCs	Dibromomethane	µg/kg	2	0	--	--	--
VOCs	Dichlorodifluoromethane	µg/kg	6	0	--	--	--
VOCs	Ethylbenzene	µg/kg	7	0	--	--	--

Table 5-4. Summary of OU-1/OU-2 Snow Creek Sediment Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
VOCs	Fluorotrichloromethane	µg/kg	6	0	--	--	--
VOCs	Isopropylbenzene	µg/kg	6	0	--	--	--
VOCs	m,p-Xylenes	µg/kg	4	0	--	--	--
VOCs	Methyl Acetate	µg/kg	6	0	--	--	--
VOCs	Methyl Bromide	µg/kg	7	0	--	--	--
VOCs	Methyl tert-butyl ether	µg/kg	6	0	--	--	--
VOCs	Methylcyclohexane	µg/kg	6	0	--	--	--
VOCs	Methylene Chloride	µg/kg	7	0	--	--	--
VOCs	n-Butylbenzene	µg/kg	2	0	--	--	--
VOCs	n-Propylbenzene	µg/kg	2	0	--	--	--
VOCs	o-Xylene	µg/kg	6	0	--	--	--
VOCs	p-Isopropyltoluene	µg/kg	2	0	--	--	--
VOCs	sec-Butylbenzene	µg/kg	2	0	--	--	--
VOCs	Styrene	µg/kg	7	0	--	--	--
VOCs	tert-Butylbenzene	µg/kg	2	0	--	--	--
VOCs	Tetrachloroethene	µg/kg	7	0	--	--	--
VOCs	Toluene	µg/kg	7	0	--	--	--
VOCs	trans-1,2-Dichloroethene	µg/kg	7	0	--	--	--
VOCs	trans-1,3-Dichloropropene	µg/kg	7	0	--	--	--
VOCs	Trichloroethene	µg/kg	7	0	--	--	--
VOCs	Vinyl Chloride	µg/kg	7	0	--	--	--
VOCs	Xylenes (total)	µg/kg	3	0	--	--	--
Pesticides	4,4'-DDD	µg/kg	7	0	--	--	--
Pesticides	4,4'-DDE	µg/kg	7	0	--	--	--
Pesticides	4,4'-DDT	µg/kg	7	4	5.2	110	56
Pesticides	Aldrin	µg/kg	7	3	7.4	51	30
Pesticides	Alpha-BHC	µg/kg	7	0	--	--	--
Pesticides	alpha-Chlordane	µg/kg	7	2	1.9	2.6	2.3
Pesticides	Beta-BHC	µg/kg	7	1	8.9	8.9	8.9
Pesticides	Delta-BHC	µg/kg	7	1	4.0	4.0	4.0
Pesticides	Dicamba	µg/kg	1	0	--	--	--
Pesticides	Dieldrin	µg/kg	7	3	7.0	68	37
Pesticides	Endosulfan I	µg/kg	7	0	--	--	--

Table 5-4. Summary of OU-1/OU-2 Snow Creek Sediment Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
Pesticides	Endosulfan II	µg/kg	7	1	6.9	6.9	6.9
Pesticides	Endosulfan Sulfate	µg/kg	7	0	--	--	--
Pesticides	Endrin	µg/kg	7	0	--	--	--
Pesticides	Endrin Aldehyde	µg/kg	5	1	7.5	7.5	7.5
Pesticides	Endrin Ketone	µg/kg	7	0	--	--	--
Pesticides	Ethyl Parathion	µg/kg	4	0	--	--	--
Pesticides	Gamma-BHC (Lindane)	µg/kg	7	2	1.8	2.8	2.3
Pesticides	Gamma-Chlordane	µg/kg	7	1	1.9	1.9	1.9
Pesticides	Heptachlor	µg/kg	7	0	--	--	--
Pesticides	Heptachlor Epoxide	µg/kg	7	4	2.5	27	16
Pesticides	Methoxychlor	µg/kg	7	0	--	--	--
Pesticides	Methyl Parathion	µg/kg	4	0	--	--	--
Pesticides	o,o,o-Triethylphosphorothioate	µg/kg	4	0	--	--	--
Pesticides	Sulfotep	µg/kg	4	0	--	--	--
Pesticides	Technical Chlordane	µg/kg	4	0	--	--	--
Pesticides	Toxaphene	µg/kg	7	0	--	--	--
Herbicides/Fungicides	2,4,5-TP	µg/kg	1	0	--	--	--
Herbicides/Fungicides	2,4,5-Trichlorophenoxyacetic acid	µg/kg	1	0	--	--	--
Herbicides/Fungicides	2,4-DB	µg/kg	1	0	--	--	--
Herbicides/Fungicides	2,4-Dichlorophenyl acetic acid	µg/kg	1	0	--	--	--
Herbicides/Fungicides	4-Chloro-2-methylphenoxy acetic acid	µg/kg	1	0	--	--	--
Herbicides/Fungicides	Dalapon	µg/kg	1	0	--	--	--
Herbicides/Fungicides	Dinoseb	µg/kg	1	0	--	--	--
Grain Size	Clay	%	3	2	0.20	0.60	0.40
Grain Size	Silt	%	3	3	0.80	5.4	3.3
Grain Size	Fine Sand	%	3	3	4.7	21	12
Grain Size	Medium Sand	%	3	3	18	40	30
Grain Size	Coarse Sand	%	3	3	8.9	15	12
Grain Size	Gravel	%	3	3	22	61	42
Other	Percent Moisture	%	6	6	14	22	17
Other	Solids, Percent	%	7	7	75	95	83
Other	TOC by Lloyd Kahn	mg/kg	77	59	1,200	91,000	17,000
USEPA Miscellaneous	1,3-Dichloropropane	µg/kg	2	0	--	--	--

Table 5-4. Summary of OU-1/OU-2 Snow Creek Sediment Data for Wider List of Constituents
Anniston PCB Site, Anniston, Alabama

Parameter Group	Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
USEPA Miscellaneous	2-Methylchlorobenzene	µg/kg	2	0	--	--	--
USEPA Miscellaneous	alpha-Chlordene	µg/kg	2	0	--	--	--
USEPA Miscellaneous	beta-Chlordene	µg/kg	2	0	--	--	--
USEPA Miscellaneous	Chlordene	µg/kg	2	0	--	--	--
USEPA Miscellaneous	cis-Nonachlor	µg/kg	2	0	--	--	--
USEPA Miscellaneous	Decamethylcyclopentasiloxane	µg/kg	1	1	20	20	20
USEPA Miscellaneous	Dodecamethylcyclohexasiloxane	µg/kg	1	1	18	18	18
USEPA Miscellaneous	MCPP	µg/kg	1	0	--	--	--
USEPA Miscellaneous	N-Nitrosodiphenylamine/diphenylalamine	µg/kg	3	0	--	--	--
USEPA Miscellaneous	Octamethylcyclotetrasiloxane	µg/kg	1	1	11	11	11
USEPA Miscellaneous	Oxychlordane	µg/kg	2	0	--	--	--
USEPA Miscellaneous	p-Chlorotoluene	µg/kg	2	0	--	--	--
USEPA Miscellaneous	trans-Nonachlor	µg/kg	2	0	--	--	--

Notes:

--: not applicable

%: percent

DL: detection limit

mg/kg: milligrams per kilogram

µg/kg: micrograms per kilogram

PAHs: polycyclic aromatic hydrocarbons

PCB: polychlorinated biphenyl

PCDD/DF: polychlorinated dibenzo-p-dioxins/dibenzofurans

pg/g: picograms per gram

SVOCs: semivolatile organic compounds

TOC: total organic carbon

TEQ: 2,3,7,8-TCDD toxicity equivalent

USEPA: United States Environmental Protection Agency

VOCs: volatile organic compounds

WHO: World Health Organization

Table 5-5. Sediment PCB Concentrations in Snow Creek Upstream of 11th Street Ditch
Anniston PCB Site, Anniston, Alabama

Water Body	Program	Location ID	Northing	Easting	Field Sample ID	QC Type	Sample Date	Depth Top (inches)	Depth Bottom (inches)	Total PCB (mg/kg)
Snow Creek	Anniston Lead Site	PB-008B-09	1,153,744.6	650,251.8	PB-008B-09	Original	3/24/2000	0.00	3.00	0.21 UJ
Snow Creek	Anniston Lead Site	PB-008C-07	1,152,580.7	650,905.5	PB-008C-07	Original	3/24/2000	0.00	3.00	18 J
Snow Creek	Anniston Lead Site	PB-008C-TB02	1,151,811.3	651,249.6	PB-008C-TB02	Original	3/24/2000	0.00	3.00	0.021 UJ
Snow Creek	USEPA Programs	PCWaste-005	1,151,334.5	651,350.0	PCWaste-005	Original	4/25/2000	0.00	3.00	0.14
Snow Creek	RFI Sediment	S-014-SED-1	1,150,440.5	651,431.5	S10001	Original	6/28/1999	0.00	2.00	0.40 J
Snow Creek	RFI Sediment	S-014-SED-1	1,150,440.5	651,431.5	S10002	Original	6/28/1999	2.00	8.00	0.081 U
Snow Creek	RFI Sediment	S-014-SED-2	1,150,438.5	651,434.8	S10003	Original	6/28/1999	0.00	2.00	0.41
Snow Creek	RFI Sediment	S-014-SED-2	1,150,438.5	651,434.8	S10004	Original	6/28/1999	2.00	8.00	0.45 J
Snow Creek	RFI Sediment	S-014-SED-2	1,150,438.5	651,434.8	S10005	Original	6/28/1999	8.00	15.00	0.064 J
Snow Creek	RFI Sediment	S-014-SED-3	1,150,435.8	651,437.3	S10006	Original	6/28/1999	0.00	2.00	0.24
Snow Creek	RFI Sediment	S-014-SED-3	1,150,435.8	651,437.3	S10007	Original	6/28/1999	2.00	9.00	0.11 J
Snow Creek	RFI Sediment	S-014-SED-3	1,150,435.8	651,437.3	S10008	Original	6/28/1999	9.00	14.00	0.082 U
Snow Creek	RFI Sediment	S-014-SED-4	1,150,434.7	651,440.9	S10009	Original	6/28/1999	0.00	2.00	0.97
Snow Creek	RFI Sediment	S-014-SED-4	1,150,434.7	651,440.9	S10010	Original	6/28/1999	2.00	4.00	0.14
Snow Creek	RFI Sediment	S-014-SED-4	1,150,434.7	651,440.9	S10011	Original	6/28/1999	4.00	15.00	0.082 U
Snow Creek	RFI Sediment	S-016-SED-1	1,151,417.6	651,348.4	S10012	Original	6/28/1999	0.00	2.00	0.083 U
Snow Creek	RFI Sediment	S-016-SED-1	1,151,417.6	651,348.4	S10013	Original	6/28/1999	2.00	7.00	0.077 U
Snow Creek	RFI Sediment	S-016-SED-2	1,151,421.9	651,344.7	S10014	Original	6/28/1999	0.00	2.00	0.082 U
Snow Creek	RFI Sediment	S-016-SED-2	1,151,421.9	651,344.7	S10015	Original	6/28/1999	2.00	8.00	0.079 U
Snow Creek	RFI Sediment	S-016-SED-3	1,151,414.3	651,342.2	S10016	Original	6/28/1999	0.00	2.00	0.043 J
Snow Creek	RFI Sediment	S-016-SED-3	1,151,414.3	651,342.2	S10017	Original	6/28/1999	2.00	7.00	0.079 U
Snow Creek	RFI Sediment	S-016-SED-4	1,151,412.1	651,339.6	S10018	Original	6/28/1999	0.00	2.00	0.24 J
Snow Creek	RFI Sediment	S-016-SED-4	1,151,412.1	651,339.6	S10019	Original	6/28/1999	2.00	6.50	0.078 U

Notes:

U: The analyte was analyzed for but not detected. The associated value is the compound quantitation limit.

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

UJ: The analyte was analyzed for but not detected. The associated value is the estimated compound quantitation limit.

ID: identification

mg/kg: milligrams per kilogram

QC: quality control

PCB: polychlorinated biphenyl

RFI: Resouce Conservation and Recovery Act (RCRA) Facility Investigation

USEPA: United States Environmental Protection Agency

Table 5-6. Sediment PCB Concentrations in West 9th Street Creek
Anniston PCB Site, Anniston, Alabama

Water Body	Program	Location ID	Northing	Easting	Field Sample ID	QC Type	Sample Date	Depth Top (inches)	Depth Bottom (inches)	Total PCB (mg/kg)
West 9th Street Creek	West 9th Street Creek	W9_0631_STA1	1,150,445.9	651,360.6	W9SC0631STA1COMP	Original	10/28/2002	0.00	6.00	0.97
West 9th Street Creek	West 9th Street Creek	W9_0631_STA2	1,150,445.8	651,287.2	W9SC0631STA2COMP	Original	10/28/2002	0.00	6.00	0.83
West 9th Street Creek	West 9th Street Creek	W9_0845_STA1	1,150,398.2	650,992.0	W9SC0845STA1COMP	Original	10/28/2002	0.00	6.00	0.61
West 9th Street Creek	West 9th Street Creek	W9_0845_STA2	1,150,332.0	650,918.7	W9SC0845STA2COMP	Original	10/28/2002	0.00	6.00	0.69
West 9th Street Creek	West 9th Street Creek	W9_0845_STA3	1,150,264.7	650,846.9	W9SC0845STA3COMP	Original	10/28/2002	0.00	6.00	0.23
West 9th Street Creek	West 9th Street Creek	W9_0845_STA4	1,150,195.5	650,777.8	W9SC0845FDSTA4COMP	Field Duplicate	10/28/2002	0.00	6.00	0.89
West 9th Street Creek	West 9th Street Creek	W9_0845_STA4	1,150,195.5	650,777.8	W9SC0845STA4COMP	Original	10/28/2002	0.00	6.00	0.089 U
West 9th Street Creek	West 9th Street Creek	W9_0845_STA5	1,150,119.9	650,697.5	W9SC0845FDSTA5COMP	Field Duplicate	10/29/2002	0.00	6.00	0.89
West 9th Street Creek	West 9th Street Creek	W9_0845_STA5	1,150,119.9	650,697.5	W9SC0845STA5COMP	Original	10/29/2002	0.00	6.00	0.24
West 9th Street Creek	West 9th Street Creek	W9_0845_STA6	1,150,054.7	650,635.1	W9SC0845STA6COMP	Original	10/29/2002	0.00	6.00	0.14
West 9th Street Creek	West 9th Street Creek	W9_0845_STA7	1,149,986.9	650,564.7	W9SC0845STA7COMP	Original	10/29/2002	0.00	6.00	0.088 U
West 9th Street Creek	West 9th Street Creek	W9_0845_STA8	1,149,943.3	650,514.4	W9SC0845STA8COMP	Original	10/29/2002	0.00	6.00	0.086 U
West 9th Street Creek	West 9th Street Creek	W9_0845D1_STA1	1,150,098.3	650,726.3	W9SC0845D1STA1COMP	Original	10/29/2002	0.00	6.00	0.18
West 9th Street Creek	West 9th Street Creek	W9_0845D2_LBSTA1	1,150,085.2	650,705.6	W9SC0845D2FDSTA1COMP	Field Duplicate	10/29/2002	0.00	6.00	0.49
West 9th Street Creek	West 9th Street Creek	W9_0845D2_STA1	1,150,080.8	650,700.2	W9SC0845D2STA1COMP	Original	10/29/2002	0.00	6.00	0.11
West 9th Street Creek	West 9th Street Creek	W9_1189_STA1	1,149,801.6	650,270.5	W9SC1189FDSTA1COMP	Field Duplicate	10/30/2002	0.00	6.00	0.97
West 9th Street Creek	West 9th Street Creek	W9_1189_STA1	1,149,801.6	650,270.5	W9SC1189STA1COMP	Original	10/30/2002	0.00	6.00	1.6
West 9th Street Creek	West 9th Street Creek	W9_1191_STA1	1,149,905.1	650,463.4	W9SC1191STA1COMP	Original	10/29/2002	0.00	6.00	0.096 U
West 9th Street Creek	West 9th Street Creek	W9_1191_STA2	1,149,859.5	650,397.9	W9SC1191STA2COMP	Original	10/29/2002	0.00	6.00	0.27
West 9th Street Creek	West 9th Street Creek	W9_1351_STA1	1,149,581.6	650,055.1	W9SC1351STA1COMP	Original	10/30/2002	0.00	6.00	0.11
West 9th Street Creek	West 9th Street Creek	W9_1572_STA1	1,149,138.2	649,320.7	W9SC1572FDSTA1COMP	Field Duplicate	10/30/2002	0.00	6.00	0.54
West 9th Street Creek	West 9th Street Creek	W9_1572_STA1	1,149,138.2	649,320.7	W9SC1572STA1COMP	Original	10/30/2002	0.00	6.00	0.68
West 9th Street Creek	West 9th Street Creek	W9_1573_STA1	1,149,115.7	649,250.6	W9SC1573STA1COMP	Original	10/30/2002	0.00	6.00	0.64
West 9th Street Creek	West 9th Street Creek	W9_1677_STA1	1,148,572.2	648,646.4	W9SC1677FDSTA1COMP	Field Duplicate	10/31/2002	0.00	6.00	0.64
West 9th Street Creek	West 9th Street Creek	W9_1677_STA1	1,148,572.2	648,646.4	W9SC1677STA1COMP	Original	10/31/2002	0.00	6.00	0.86
West 9th Street Creek	West 9th Street Creek	W9_1677_STA2	1,148,537.4	648,548.6	W9SC1677STA2COMP	Original	10/31/2002	0.00	6.00	2.0
West 9th Street Creek	West 9th Street Creek	W9_1677_STA3	1,148,411.7	648,375.3	W9SC1677STA3COMP	Original	10/31/2002	0.00	6.00	1.7
West 9th Street Creek	West 9th Street Creek	W9_2156_STA1	1,148,274.7	648,331.5	W9SC2156STA1COMP	Original	10/31/2002	0.00	6.00	7.0
West 9th Street Creek	West 9th Street Creek	W9_2290_STA1	1,148,073.5	648,187.3	W9SC2290STA-1	Original	10/31/2002	0.00	6.00	0.84
West 9th Street Creek	West 9th Street Creek	W9_2419_STA1	1,147,834.0	648,033.9	W9SC2419FDSTA1COMP	Original	11/19/2002	0.00	6.00	3.6 J
West 9th Street Creek	West 9th Street Creek	W9_2419_STA1	1,147,834.0	648,033.9	W9SC2419STA1COMP	Original	11/19/2002	0.00	6.00	13
West 9th Street Creek	West 9th Street Creek	W9_2419_STA2	1,147,766.5	647,984.5	W9SC2419STA2COMP	Original	11/19/2002	0.00	6.00	3.7
West 9th Street Creek	West 9th Street Creek	W9_RR_STA1	1,149,047.9	649,184.2	W9SCRRSTA1COMP	Original	10/30/2002	0.00	6.00	0.12
West 9th Street Creek	West 9th Street Creek	W9_RR_STA10	1,148,033.9	648,693.6	W9SCRRSTA-10	Original	11/1/2002	0.00	6.00	5.4
West 9th Street Creek	West 9th Street Creek	W9_RR_STA11	1,147,944.5	648,647.3	W9SCRRSTA-11	Original	11/1/2002	0.00	6.00	0.37
West 9th Street Creek	West 9th Street Creek	W9_RR_STA12	1,148,138.0	648,715.2	W9SCRRSTA-12	Original	11/1/2002	0.00	6.00	0.19
West 9th Street Creek	West 9th Street Creek	W9_RR_STA13	1,148,051.1	648,671.5	W9SCRRSTA-13	Original	11/1/2002	0.00	6.00	0.067
West 9th Street Creek	West 9th Street Creek	W9_RR_STA14	1,147,958.7	648,627.2	W9SCRRSTA-14	Original	11/1/2002	0.00	6.00	0.15
West 9th Street Creek	West 9th Street Creek	W9_RR_STA15	1,147,712.9	648,507.8	W9SCRRSTA-15	Original	11/14/2002	0.00	6.00	0.074 U
West 9th Street Creek	West 9th Street Creek	W9_RR_STA16	1,147,593.5	648,450.6	W9SCRRSTA-16	Original	11/14/2002	0.00	6.00	0.24
West 9th Street Creek	West 9th Street Creek	W9_RR_STA17	1,147,379.8	648,344.7	W9SCRRSTA-17	Original	11/14/2002	0.00	6.00	0.33

Table 5-6. Sediment PCB Concentrations in West 9th Street Creek
Anniston PCB Site, Anniston, Alabama

Water Body	Program	Location ID	Northing	Easting	Field Sample ID	QC Type	Sample Date	Depth Top (inches)	Depth Bottom (inches)	Total PCB (mg/kg)
West 9th Street Creek	West 9th Street Creek	W9_RR_STA2	1,148,956.6	649,148.7	W9SCRRSTA2COMP	Original	10/30/2002	0.00	6.00	0.086 U
West 9th Street Creek	West 9th Street Creek	W9_RR_STA3	1,148,861.6	649,108.1	W9SCRRSTA3COMP	Original	10/30/2002	0.00	6.00	0.084 U
West 9th Street Creek	West 9th Street Creek	W9_RR_STA4	1,148,768.8	649,069.4	W9SCRRFDSTA4COMP	Field Duplicate	10/30/2002	0.00	6.00	0.084 U
West 9th Street Creek	West 9th Street Creek	W9_RR_STA4	1,148,768.8	649,069.4	W9SCRRSTA4COMP	Original	10/30/2002	0.00	6.00	0.084 U
West 9th Street Creek	West 9th Street Creek	W9_RR_STA5	1,148,675.2	649,026.4	W9SCRRFDSTA5COMP	Field Duplicate	10/31/2002	0.00	6.00	0.41
West 9th Street Creek	West 9th Street Creek	W9_RR_STA5	1,148,675.2	649,026.4	W9SCRRSTA5COMP	Original	10/31/2002	0.00	6.00	0.61
West 9th Street Creek	West 9th Street Creek	W9_RR_STA6	1,148,605.0	648,991.9	W9SCRRSTA6COMP	Original	10/31/2002	0.00	6.00	0.37
West 9th Street Creek	West 9th Street Creek	W9_RR_STA7	1,148,301.6	648,823.7	W9SCRR-STA-7	Original	11/1/2002	0.00	6.00	0.33
West 9th Street Creek	West 9th Street Creek	W9_RR_STA8	1,148,215.9	648,781.9	W9SCRRSTA-8	Original	11/1/2002	0.00	6.00	0.24
West 9th Street Creek	West 9th Street Creek	W9_RR_STA9	1,148,126.4	648,739.7	W9SCRRFDSTA-9	Field Duplicate	11/1/2002	0.00	6.00	2.3
West 9th Street Creek	West 9th Street Creek	W9_RR_STA9	1,148,126.4	648,739.7	W9SCRRSTA-9	Original	11/1/2002	0.00	6.00	1.7
West 9th Street Creek	USEPA Programs	PA-101-A	1,147,709.3	647,914.3	PA-101-A	Original	2/16/2000	0.00	3.00	2.4
West 9th Street Creek	USEPA Programs	PA-101-B	1,147,705.0	647,897.6	PA-101-B	Original	2/16/2000	0.00	3.00	R
West 9th Street Creek	USEPA Programs	PCCON-001-E	1,147,739.0	647,963.4	PCCON-001-E	Original	4/25/2000	0.00	3.00	12
West 9th Street Creek	USEPA Programs	PCCON-001-F	1,147,705.7	647,926.8	PCCON-001-F	Original	4/25/2000	0.00	3.00	4.6
West 9th Street Creek	USEPA Programs	PCWaste-001-A	1,147,705.3	647,908.8	PCWaste-001-A	Original	4/25/2000	0.00	3.00	15
West 9th Street Creek	USEPA Programs	PCWaste-001-B	1,147,750.4	647,961.4	PCWaste-001-B	Original	4/25/2000	0.00	3.00	5.0
West 9th Street Creek	USEPA Programs	PCWaste-001-C	1,147,861.8	648,041.3	PCWaste-001-C	Original	4/25/2000	0.00	3.00	4.3
West 9th Street Creek	USEPA Programs	PCWaste-001-D	1,147,966.0	648,087.8	PCWaste-001-D	Original	4/25/2000	0.00	3.00	9.3
West 9th Street Creek	USEPA Programs	PCWaste-003-B	1,149,776.8	650,305.8	PCWaste-003-B	Original	4/25/2000	0.00	3.00	5.6

Notes:

U: The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

R: Data rejected during validation.

ID: identification

mg/kg: milligrams per kilogram

QC: quality control

PCB: polychlorinated biphenyl

USEPA: United States Environmental Protection Agency

Table 5-7. Sediment Metals Concentrations in Snow Creek Upstream of 11th Street Ditch
Anniston PCB Site, Anniston, Alabama

Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
Aluminum	mg/kg	1	1	2,100	2,100	2,100
Antimony	mg/kg	1	1	0.30	0.30	0.30
Arsenic	mg/kg	24	24	1.2	21	10
Barium	mg/kg	24	24	16	350	94
Beryllium	mg/kg	21	5	0.35	1.9	0.87
Cadmium	mg/kg	24	15	0.098	3.3	1.0
Calcium	mg/kg	1	1	2,600	2,600	2,600
Chromium	mg/kg	24	24	6.9	1,000	210
Cobalt	mg/kg	21	21	2.0	50	10
Copper	mg/kg	1	1	12	12	12
Iron	mg/kg	1	1	6,100	6,100	6,100
Lead	mg/kg	24	24	5.4	140	42
Magnesium	mg/kg	1	1	1,100	1,100	1,100
Manganese	mg/kg	21	21	110	7,500	1,100
Mercury	mg/kg	24	19	0.0081	0.13	0.036
Molybdenum	mg/kg	1	1	0.56	0.56	0.56
Nickel	mg/kg	21	21	4.5	29	12
Potassium	mg/kg	1	1	280	280	280
Selenium	mg/kg	4	0	--	--	--
Silver	mg/kg	4	0	--	--	--
Sodium	mg/kg	1	0	--	--	--
Strontium	mg/kg	1	1	4.5	4.5	4.5
Thallium	mg/kg	1	1	0.50	0.50	0.50
Tin	mg/kg	1	0	--	--	--
Titanium	mg/kg	1	1	56	56	56
Vanadium	mg/kg	21	21	4.3	59	31
Yttrium	mg/kg	1	1	1.5	1.5	1.5
Zinc	mg/kg	1	1	85	85	85

Notes:
Statistics were run using detected results only.
--: not applicable
mg/kg: milligrams per kilogram

Table 5-8. Sediment Metals Concentration Summary in West 9th Street Creek
Anniston PCB Site, Anniston, Alabama

Parameter	Unit	Samples (n)	Detected (n)	Minimum	Maximum	Mean
Aluminum	mg/kg	6	6	130	8,500	4,800
Antimony	mg/kg	58	21	0.50	22	8.4
Arsenic	mg/kg	58	58	1.5	71	14
Barium	mg/kg	6	6	6.3	320	120
Beryllium	mg/kg	58	40	0.35	1.7	0.81
Cadmium	mg/kg	58	38	0.34	8.2	2.3
Calcium	mg/kg	6	6	260	34,000	12,000
Chromium	mg/kg	58	58	2.7	1,000	81
Cobalt	mg/kg	6	3	4.4	32	22
Copper	mg/kg	58	58	6.3	1,300	140
Iron	mg/kg	6	6	430	37,000	16,000
Lead	mg/kg	58	58	8.4	1,200	230
Magnesium	mg/kg	6	6	94	20,000	6,400
Manganese	mg/kg	6	6	15	1,200	510
Mercury	mg/kg	58	57	0.022	0.96	0.23
Molybdenum	mg/kg	5	3	4.2	6.6	5.2
Nickel	mg/kg	58	56	1.8	270	40
Potassium	mg/kg	6	5	23	440	290
Selenium	mg/kg	58	1	1.2	1.2	1.2
Silver	mg/kg	58	3	1.1	4.8	2.5
Sodium	mg/kg	6	0	--	--	--
Strontium	mg/kg	5	4	1.4	25	12
Thallium	mg/kg	58	5	1.3	4.3	2.9
Tin	mg/kg	5	1	51	51	51
Titanium	mg/kg	5	5	8.2	440	160
Vanadium	mg/kg	6	4	14	35	22
Yttrium	mg/kg	5	0	--	--	--
Zinc	mg/kg	58	58	26	19,000	1,100

Notes:

Statistics were run using detected results only.

--: not applicable

mg/kg: milligrams per kilogram

Table 5-9. Summary of Groundwater Analytical Results
OU-1/OU-2 Groundwater Investigations
Anniston PCB Site, Anniston, Alabama

Parameter	Unit	T-08 4/14/2008	T-08 F-0.1 4/14/2008	T-08 F-2 4/14/2008	T-09 4/13/2008	T-09F-0.1 4/13/2008	T-09F-2 4/13/2008	T-10 4/13/2008	T-10F-0.1 4/13/2008	T-10F-2 4/13/2008	T-11 4/14/2008	T-11F-0.1 4/14/2008	T-11F-2 4/14/2008	T-11 10/24/2008	T-11F-0.1 10/24/2008
Ground Surface Elevation	Feet MSL	724.65	724.65	724.65	742.47	742.47	742.47	737.20	737.20	737.20	695.32	695.32	695.32	695.32	695.32
Total Well Depth	Feet BGS	25.0	25.0	25.0	37.0	37.0	37.0	35.0	35.0	35.0	13.5	13.5	13.5	13.5	13.5
Oxygen, Dissolved	mg/L	0.28	0.28	0.28	2.19	2.19	2.19	2.46	2.46	2.46	0.34	0.34	0.34	0.47	0.47
pH	S.U.	6.85	6.85	6.85	5.89	5.89	5.89	5.68	5.68	5.68	6.34	6.34	6.34	6.17	6.17
Specific Conductance	mS/cm	0.356	0.356	0.356	0.236	0.236	0.236	0.221	0.221	0.221	0.424	0.424	0.424	0.419	0.419
Turbidity	NTU	8.4	8.4	8.4	2.37	2.37	2.37	43.7	43.7	43.7	> 1000	> 1000	> 1000	3.45	3.45
Water Temperature in deg Celsius	Deg C	16.69	16.69	16.69	18.41	18.41	18.41	15.67	15.67	15.67	14.59	14.59	14.59	17.25	17.25
ORP	mV	-136.4	-136.4	-136.4	208.7	208.7	208.7	301	301	301	-71	-71	-71	-8	-8
PCB-1016	µg/L	<0.47	<0.50	<0.47	<0.47	<0.47	<0.47	<0.49	<0.49	<0.49	<0.47	<0.49	<0.47	<0.47	<0.47
PCB-1221	µg/L	<0.47	<0.50	<0.47	<0.47	<0.47	<0.47	<0.49	<0.49	<0.49	3.3 J	<0.49	<0.47	<0.47	<0.47
PCB-1232	µg/L	<0.47	<0.50	<0.47	<0.47	<0.47	<0.47	<0.49	<0.49	<0.49	<0.47	<0.49	<0.47	<0.47	<0.47
PCB-1242	µg/L	<0.47	<0.50	<0.47	<0.47	<0.47	<0.47	<0.49	<0.49	<0.49	<0.47	<0.49	<0.47	<0.47	<0.47
PCB-1248	µg/L	<0.47	<0.50	<0.47	<0.47	<0.47	<0.47	<0.49	<0.49	<0.49	<0.47	<0.49	<0.47	<0.47	<0.47
PCB-1254	µg/L	<0.47	<0.50	<0.47	<0.47	<0.47	<0.47	<0.49	<0.49	<0.49	<0.47	<0.49	<0.47	<0.47	<0.47
PCB-1260	µg/L	<0.47	<0.50	<0.47	<0.47	<0.47	<0.47	<0.49	<0.49	<0.49	<0.47	<0.49	<0.47	<0.47	<0.47
PCB-1268	µg/L	<0.47	<0.50	<0.47	<0.47	<0.47	<0.47	<0.49	<0.49	<0.49	<0.47	<0.49	<0.47	<0.47	<0.47
Total PCBs by Aroclor	**µg/L**	**<0.47**	**<0.50**	**<0.47**	**<0.47**	**<0.47**	**<0.47**	**<0.49**	**<0.49**	**<0.49**	**3.3 J**	**<0.49**	**<0.47**	**<0.47**	**<0.47**
Monochlorobiphenyl	µg/L	0.012 J	<0.10	<0.094	<0.097	<0.094	<0.094	<0.097	<0.097	<0.097	14	0.064 J	2.8	0.032 J	<0.097
Dichlorobiphenyl	µg/L	0.03 J	<0.045	<0.042	<0.044	<0.042	<0.042	<0.044	<0.044	<0.044	3.3	0.0077 J	0.57	9.4	<0.044
Trichlorobiphenyl	µg/L	0.0083 J	<0.045	<0.042	0.11	<0.042	0.041	<0.044	<0.044	<0.044	<0.42	<0.042	<0.044	0.45	<0.044
Tetrachlorobiphenyl	µg/L	<0.042	<0.045	<0.042	0.9	<0.042	0.22	<0.044	<0.044	<0.044	<0.42	<0.042	<0.044	0.45	<0.044
Pentachlorobiphenyl	µg/L	<0.042	<0.045	<0.042	0.026 J	<0.042	<0.042	<0.044	<0.044	<0.044	<0.42	<0.042	<0.044	0.11	<0.044
Hexachlorobiphenyl	µg/L	<0.042	<0.045	<0.042	<0.044	0.016 J	<0.042	<0.044	<0.044	<0.044	<0.42	<0.042	<0.044	<0.042	<0.044
Heptachlorobiphenyl	µg/L	<0.042	<0.045	<0.042	<0.044	0.035 J	<0.042	<0.044	<0.044	<0.044	<0.42	<0.042	<0.044	<0.042	<0.044
Octacholobiphenyl	µg/L	<0.094	<0.10	<0.094	<0.097	0.071 J	<0.094	<0.097	<0.097	<0.097	<0.94	<0.094	<0.097	<0.094	<0.097
Nonachlorobiphenyl	µg/L	<0.094	<0.10	<0.094	<0.097	<0.094	<0.094	<0.097	<0.097	<0.097	<0.94	<0.094	<0.097	<0.094	<0.097
DCB Decachlorobiphenyl	µg/L	<0.094	<0.10	<0.094	<0.097	0.34	<0.094	<0.097	<0.097	<0.097	<0.94	<0.094	<0.097	<0.094	<0.097
Total PCBs by Homolog	**µg/L**	**0.05 J**	**<0.10**	**<0.094**	**1.04 J**	**0.46 J**	**0.26**	**<0.097**	**<0.097**	**<0.097**	**17.3**	**0.072 J**	**3.4**	**10.4 J**	**<0.097**

Table 5-9. Summary of Groundwater Analytical Results
OU-1/OU-2 Groundwater Investigations
Anniston PCB Site, Anniston, Alabama

Parameter	Unit	T-11F-2 10/24/2008	T-11 11/29/2012	T-11-F0.1 11/29/2012	T-11-2 11/29/2012	T-11 11/29/2012	T-11F-0.1 11/29/2012	T-11F-2 11/29/2012	T-12 4/14/2008	T-12F-0.1 4/14/2008	T-12F-2 4/14/2008	T-13 8/26/2010	T-13F-0.1 8/26/2010	T-13F-2 8/26/2010	T-14 8/26/2010
Ground Surface Elevation	Feet MSL	695.32	695.32	695.32	695.32	695.32	695.32	695.32	724.88	724.88	724.88	711.22	711.22	711.22	678.97
Total Well Depth	Feet BGS	13.5	13.5	13.5	13.5	13.5	13.5	13.5	28.0	28.0	28.0	34.0	34.0	34.0	17.0
Oxygen, Dissolved	mg/L	0.47	0.87	0.87	0.87	0.87	0.87	0.87	1.23	1.23	1.23	0.64	0.64	0.64	0.57
pH	S.U.	6.17	6.22	6.22	6.22	6.22	6.22	6.22	5.68	5.68	5.68	7.06	7.06	7.06	7.93
Specific Conductance	mS/cm	0.419	0.411	0.411	0.411	0.411	0.411	0.411	0.374	0.374	0.374	0.728	0.728	0.728	0.416
Turbidity	NTU	3.45	2.84	2.84	2.84	2.84	2.84	2.84	6.2	6.2	6.2	2.55	2.55	2.55	1.95
Water Temperature in deg Celsius	Deg C	17.25	14.20	14.20	14.20	14.20	14.20	14.20	17.63	17.63	17.63	21.92	21.92	21.92	20.17
ORP	mV	-8	100	100	100	100	100	100	91.4	91.4	91.4	-23.6	-23.6	-23.6	-116.5
PCB-1016	µg/L	<0.47	<0.48 J	<0.48	<0.48 J	<0.48 J	<0.48	<0.48 J	<0.49	<0.50	<0.47 J	<0.48	<0.49	<0.48	<0.48
PCB-1221	µg/L	<0.47	12 J	<0.48	<0.48 J	12 J	<0.48	<0.48 J	<0.49	<0.50	<0.47 J	<0.48	<0.49	<0.48	<0.48
PCB-1232	µg/L	<0.47	<0.48 J	<0.48	<0.48 J	<0.48 J	<0.48	<0.48 J	<0.49	<0.50	<0.47 J	<0.48	<0.49	<0.48	<0.48
PCB-1242	µg/L	<0.47	<0.48 J	<0.48	<0.48 J	<0.48 J	<0.48	<0.48 J	<0.49	<0.50	<0.47 J	<0.48	<0.49	<0.48	<0.48
PCB-1248	µg/L	<0.47	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.49	<0.50	<0.47 J	<0.48	<0.49	<0.48	<0.48
PCB-1254	µg/L	<0.47	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.49	<0.50	<0.47 J	<0.48	<0.49	<0.48	<0.48
PCB-1260	µg/L	<0.47	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.49	<0.50	<0.47 J	<0.48	<0.49	<0.48	<0.48
PCB-1268	µg/L	<0.47	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.49	<0.50	<0.47 J	<0.48	<0.49	<0.48	<0.48
Total PCBs by Aroclor	**µg/L**	**<0.47**	**12 J**	**<0.48**	**<0.48 J**	**12 J**	**<0.48**	**<0.48 J**	**<0.49**	**<0.50**	**<0.47 J**	**<0.48**	**<0.49**	**<0.48**	**<0.48**
Monochlorobiphenyl	µg/L	0.79	18 J	<0.095	0.66	18 J	<0.095	0.66	<0.094 J	<0.10	<0.094 J	<0.095	<0.095	<0.095	0.022
Dichlorobiphenyl	µg/L	0.2	11	<0.043	0.14	11	<0.043	0.14	<0.042 J	<0.045	<0.042 J	<0.043	<0.043	<0.043	0.055
Trichlorobiphenyl	µg/L	<0.045	1 J	<0.043	<0.043	1 J	<0.043	<0.043	<0.042	<0.045	<0.042 J	<0.043	<0.043	<0.043	<0.043
Tetrachlorobiphenyl	µg/L	<0.045	<0.22	<0.043	<0.043	<0.22	<0.043	<0.043	<0.042	<0.045	<0.042 J	<0.043	<0.043	<0.043	<0.043
Pentachlorobiphenyl	µg/L	<0.045	<0.22	<0.043	<0.043	<0.22	<0.043	<0.043	<0.042	<0.045	<0.042 J	<0.043	<0.043	<0.043	<0.043
Hexachlorobiphenyl	µg/L	<0.045	<0.22	<0.043	<0.043	<0.22	<0.043	<0.043	<0.042 J	<0.045	<0.042 J	<0.043	<0.043	<0.043	<0.043
Heptachlorobiphenyl	µg/L	<0.045	<0.22	<0.043	<0.043	<0.22	<0.043	<0.043	<0.042 J	<0.045	<0.042 J	<0.043	<0.043	<0.043	<0.043
Octacholobiphenyl	µg/L	<0.1	<0.49	<0.095	<0.095	<0.49	<0.095	<0.095	<0.094 J	<0.10	<0.094 J	<0.095	<0.095	<0.095	<0.095
Nonachlorobiphenyl	µg/L	<0.1	<0.49	<0.095	<0.095	<0.49	<0.095	<0.095	<0.094 J	<0.10	<0.094 J	<0.095	<0.095	<0.095	<0.095
DCB Decachlorobiphenyl	µg/L	<0.1	<0.49	<0.095	<0.095	<0.49	<0.095	<0.095	<0.094 J	<0.10	<0.094 J	<0.095	<0.095	<0.095	<0.095
Total PCBs by Homolog	**µg/L**	**0.99**	**30**	**<0.095**	**0.8**	**30 J**	**<0.095**	**0.8**	**<0.094 J**	**<0.10**	**<0.094 J**	**<0.095**	**< 0.095**	**<0.095**	**0.077**

Table 5-9. Summary of Groundwater Analytical Results
OU-1/OU-2 Groundwater Investigations
Anniston PCB Site, Anniston, Alabama

Parameter	Unit	T-14F-0.1 8/26/2010	T-14F-2 8/26/2010	T-15 8/26/2010	T-15F-0.1 8/26/2010	T-15F-2 8/26/2010	T-16 2/21/2012	T-16F0.1 2/21/2012	T-16F2 2/21/2012	T-17 2/21/2012	T-17F0.1 2/21/2012	T-17F2 2/21/2012	CMW-1 8/23/2004	CMW-1-F 8/23/2004	CMW-2 8/24/2004
Ground Surface Elevation	Feet MSL	678.97	678.97	667.36	667.36	667.36	626.62	626.62	626.62	605.81	605.81	605.81	717.14	717.14	713.85
Total Well Depth	Feet BGS	17.0	17.0	18.0	18.0	18.0	14.0	14.0	14.0	13.5	13.5	13.5	28.5	28.5	22.5
Oxygen, Dissolved	mg/L	0.57	0.57	0.69	0.69	0.69	5.05	5.05	5.05	5.47	5.47	5.47	2.6	2.6	3.38
pH	S.U.	7.93	7.93	7.64	7.64	7.64	7.32	7.32	7.32	8.31	8.31	8.31	5.2	5.2	5.8
Specific Conductance	mS/cm	0.416	0.416	0.446	0.446	0.446	0.188	0.188	0.188	0.476	0.476	0.476	0.132	0.132	0.186
Turbidity	NTU	1.95	1.95	5.99	5.99	5.99	0.63	0.63	0.63	8.32	8.32	8.32	9	9	10
Water Temperature in deg Celsius	Deg C	20.17	20.17	21.23	21.23	21.23	15.65	15.65	15.65	16.05	16.05	16.05	20.2	20.2	21.9
ORP	mV	-116.5	-116.5	28.2	28.2	28.2	111.6	111.6	111.6	-61.2	-61.2	-61.2	241	241	229
PCB-1016	µg/L	<0.47	<0.51	<0.49	<0.48	<0.49	<0.50	<0.52	<0.50	<0.50	<0.51	<0.53	<0.5	<0.5	<0.5
PCB-1221	µg/L	<0.47	<0.51	<0.49	<0.48	<0.49	<0.50	<0.52	<0.50	<0.50	<0.51	<0.53	<0.5	<0.5	<0.5
PCB-1232	µg/L	<0.47	<0.51	<0.49	<0.48	<0.49	<0.50	<0.52	<0.50	<0.50	<0.51	<0.53	<0.5	<0.5	<0.5
PCB-1242	µg/L	<0.47	<0.51	<0.49	<0.48	<0.49	<0.50	<0.52	<0.50	<0.50	<0.51	<0.53	<0.5	<0.5	<0.5
PCB-1248	µg/L	<0.47	<0.51	<0.49	<0.48	<0.49	<0.50	<0.52 J	<0.50	<0.50 J	<0.51 J	<0.53 J	<0.5	<0.5	<0.5
PCB-1254	µg/L	<0.47	<0.51	<0.49	<0.48	<0.49	<0.50	<0.52 J	<0.50	<0.50 J	<0.51 J	<0.53 J	<0.5	<0.5	<0.5
PCB-1260	µg/L	<0.47	<0.51	<0.49	<0.48	<0.49	<0.50	<0.52 J	<0.50	<0.50 J	<0.51 J	<0.53 J	<0.5	<0.5	<0.5
PCB-1268	µg/L	<0.47	<0.51	<0.49	<0.48	<0.49	<0.50	<0.52 J	<0.50	<0.50 J	<0.51 J	<0.53 J	<0.5	<0.5	<0.5
Total PCBs by Aroclor	**µg/L**	**<0.47**	**<0.51**	**<0.49**	**<0.48**	**<0.49**	**< 0.50**	**< 0.52 J**	**< 0.50**	**< 0.50 J**	**< 0.51 J**	**< 0.53 J**	**< 0.5**	**< 0.5**	**< 0.5**
Monochlorobiphenyl	µg/L	<0.095	<0.097	<0.097	<0.097	<0.1	<0.10	<0.099	<0.10	<0.10	<0.10	<0.098	NA	NA	NA
Dichlorobiphenyl	µg/L	<0.043	<0.044	<0.044	<0.044	<0.046	<0.045	<0.045	<0.047	<0.046	<0.047	<0.044	NA	NA	NA
Trichlorobiphenyl	µg/L	<0.043	0.0069 J	<0.044	<0.044	<0.046	<0.045	<0.045	<0.047	<0.046	<0.047	<0.044	NA	NA	NA
Tetrachlorobiphenyl	µg/L	<0.043	<0.044	<0.044	<0.044	<0.046	<0.045	<0.045	<0.047	<0.046	<0.047	<0.044	NA	NA	NA
Pentachlorobiphenyl	µg/L	<0.043	0.018 J	<0.044	<0.044	<0.046	<0.045	<0.045	<0.047	<0.046	<0.047	<0.044	NA	NA	NA
Hexachlorobiphenyl	µg/L	<0.043	<0.044	<0.044	<0.044	<0.046	<0.045	<0.045	<0.047	<0.046	<0.047	<0.044	NA	NA	NA
Heptachlorobiphenyl	µg/L	<0.043	<0.044	<0.044	<0.044	<0.046	<0.045	<0.045	<0.047	<0.046	<0.047	<0.044	NA	NA	NA
Octacholobiphenyl	µg/L	<0.095	<0.097	<0.097	<0.097	<0.1	<0.10	<0.099	<0.10	<0.10	<0.10	<0.098	NA	NA	NA
Nonachlorobiphenyl	µg/L	<0.095	<0.097	<0.097	<0.097	<0.1	<0.10 J	<0.099	<0.10	<0.10	<0.10	<0.098	NA	NA	NA
DCB Decachlorobiphenyl	µg/L	<0.095	<0.097	<0.097	<0.097	<0.1	<0.10	<0.099	<0.10	<0.10	<0.10	<0.098	NA	NA	NA
Total PCBs by Homolog	**µg/L**	**<0.095**	**0.025 J**	**<0.097**	**<0.097**	**<0.1**	**< 0.1 J**	**< 0.099**	**< 0.10**	**< 0.10**	**< 0.10**	**< 0.098**	**NA**	**NA**	**NA**

Table 5-9. Summary of Groundwater Analytical Results
OU-1/OU-2 Groundwater Investigations
Anniston PCB Site, Anniston, Alabama

Parameter	Unit	CMW-2-F 8/24/2004	CMW-3 8/23/2004	CMW-3-F 8/23/2004	OW-09 6/2005	OW-09F 6/2005	OWR-09S 8/1998	OWR-09SF 8/1998	T-03 7/2005	T-03F 7/2005
Ground Surface Elevation	Feet MSL	713.85	707.09	707.09	736.3	736.3	750.70	750.70	746.09	746.09
Total Well Depth	Feet BGS	22.5	27.0	27.0	38.0	38.0	50.0	50.0	25.0	25.0
Oxygen, Dissolved	mg/L	3.38	1.53	1.53	2.08	2.08	4.46	4.46	NA	NA
pH	S.U.	5.8	5.8	5.8	4.86	4.86	7.87	7.87	NA	NA
Specific Conductance	mS/cm	0.186	0.335	0.335	0.243	0.243	0.294	0.294	NA	NA
Turbidity	NTU	10	9	9	0.64	0.64	317	317	NA	NA
Water Temperature in deg Celsius	Deg C	21.9	21.2	21.2	22.2	22.2	23.6	23.6	NA	NA
ORP	mV	229	158	158	-58	-58	117	117	NA	NA
PCB-1016	µg/L	<0.5 J	<0.5	<0.5	ND	ND	ND	ND	ND	ND
PCB-1221	µg/L	<0.5 J	<0.5	<0.5	ND	ND	ND	ND	ND	ND
PCB-1232	µg/L	<0.5 J	<0.5	<0.5	ND	ND	ND	ND	ND	ND
PCB-1242	µg/L	<0.5 J	<0.5	<0.5	ND	ND	ND	ND	ND	ND
PCB-1248	µg/L	<0.5	<0.5	<0.5	ND	ND	ND	ND	ND	ND
PCB-1254	µg/L	<0.5	<0.5	<0.5	ND	ND	ND	ND	ND	ND
PCB-1260	µg/L	<0.5	<0.5	<0.5	ND	ND	ND	ND	ND	ND
PCB-1268	µg/L	<0.5	<0.5	<0.5	ND	ND	ND	ND	ND	ND
Total PCBs by Aroclor	**µg/L**	**< 0.5 J**	**< 0.5**	**< 0.5**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Monochlorobiphenyl	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorobiphenyl	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorobiphenyl	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachlorobiphenyl	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorobiphenyl	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobiphenyl	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlorobiphenyl	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Octacholobiphenyl	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nonachlorobiphenyl	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
DCB Decachlorobiphenyl	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCBs by Homolog	**µg/L**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Notes:

BGS: below ground surface

Deg C: Degrees Celsius

F-0.1: Sample filtered with 0.1-micron filter

F-2: Sample filtered with 2.0-micron filter

J: Estimated Value. Result is less than the reporting limit but greater than or equal to the method detection limit.

mg/L: milligrams per liter

µg/L: micrograms per liter

mS/cm: milli-Siemens per centimeter

MSL:mean sea level

mV: Millivolts

NA: not analyzed

ND: not detected

NTU: Nephelometric Turbidity Units

PCB: polychlorinated biphenyl

S.U.: Standard Units

USEPA: United States Environmental Protection Agency

Aroclor by USEPA Method 8082A

Homolog by USEPA Medhod 680

Table 5-10. Summary of RCRA Program Calculated Surface Water Data for Snow Creek Anniston PCB Site, Anniston, Alabama

Sampling Location	Flow Event Type	Date	Flow (cfs)	TSS (mg/L)	Particulate Total PCB (mg/kg)	Calculated Whole Water PCB (µg/L)
14th Street (Upstream)	Base	June 21,1999	0.02	66	11.7	0.772
16th Street (Upstream)		June 21,1999	1.2	52	0.9	0.045
Snow Street	Base	March 22-23, 1999	16	17	9.9	0.168
		May 3-4,1999	5.0	20	2.7	0.054
		May 26-27,1999	3.4	2.5*	1.0	0.002
		June 14,1999	2.6	2.5*	0.9	0.002
		September 27-28,1999	1.6	2.5*	0.2	0.000
		January 18,2000	2.9	2.5*	16.4	0.041
	High	April 27,1999	205	230	3.7	0.851
		April 27,1999	135	280	3.3	0.930
Oxford Park	High	January 19, 2002	480	270/290	5.2	1.196
		January 25, 2002	257	78/250	6.0	0.984
		February 6, 2002	221	41/35	5.9	0.224
		March 12, 2002	154	620	7.5	4.650
		March 30, 2002	224	400/390	2.8	1.086
		May 3, 2002	146	290/390	0.5	0.173
		June 4, 2002	133	480/350	1.7	0.685
		June 14, 2002	118	180/270	0.3	0.060
		July 10, 2002	206	220/230	5.4	1.215
		August 17, 2002	152	110/120	1.1	0.121
		August 28, 2002	154	270/280	4.1	1.130
		September 22, 2002	214	230/210	1.6	0.359
		September 25, 2002	214	100	6.3	0.630
		October 29, 2002	164	450/400	2.5	1.075
		October 29, 2002	162	150/140	3.6	0.515
		November 11, 2002	299	340/310	5.7	1.853
		November 15, 2002	172	170/160	5.0	0.825

Notes:

Flows at Oxford Park were calculated from stage data.

The total PCB concentration was calculated as the sum of detected Aroclors. For nondetected results, one-half the sample reporting limit was used.

* : TSS was not detected above the 5 mg/L detection limit. The value 2.5 represents one-half the detection limit.

exceeds chronic criterion of 0.014 µg/L

cfs: cubic feet per second
mg/L: milligrams per liter
mg/kg: milligrams per kilogram
µg/L: micrograms per liter
OU: operable unit
PCB: polychlorinated biphenyl
RCRA: Resource Conservation and Recovery Act
TSS: total suspended solids - Results for the Oxford Park location may include duplicate measurements from a single composite sample collected from the automated sampling unit.

Table 5-11. Summary of OU-1/OU-2 Investigation Surface Water Data for Snow Creek
Anniston PCB Site, Anniston, Alabama

Location ID	Units	Screening Level	Oxford Park	Oxford Park	Oxford Park	Oxford Park	Oxford Park	Oxford Park
Sample ID			S50048	S50049	S50050	S50051	S50052	S50053
Sample Date			3/16/2007	3/16/2007	6/8/2007	6/8/2007	6/20/2007	6/20/2007
Total Suspended Solids			**310**	--	**64**	--	**496**	--
Aroclor-1016	mg/L	0.000014	0.00051 U	0.0005 U	0.0005 UJ	--	0.00054 U	--
Aroclor-1221	mg/L	0.000014	0.00051 U	0.0005 U	0.0005 UJ	--	0.00054 U	--
Aroclor-1232	mg/L	0.000014	0.00051 U	0.0005 U	0.0005 UJ	--	0.00054 U	--
Aroclor-1242	mg/L	0.000014	0.00051 U	0.0005 U	0.0005 UJ	--	0.00054 U	--
Aroclor-1248	mg/L	0.000014	0.00051 U	0.0005 U	0.0005 UJ	--	0.00054 U	--
Aroclor-1254	mg/L	0.000014	0.00051 U	0.0005 U	0.0005 UJ	--	0.00054 U	--
Aroclor-1260	mg/L	0.000014	0.00051 U	0.0005 U	0.0005 UJ	--	0.00054 U	--
Aroclor-1262	mg/L	--	0.00051 U	0.0005 U	0.0005 UJ	--	0.00054 U	--
Aroclor-1268	mg/L	--	0.00051 U	0.0005 U	0.0005 UJ	--	0.00054 U	--
Total PCBs	mg/L	--	0.00051 U	0.0005 U	0.0005 UJ	--	0.00054 U	--
1,1,1-Trichloroethane	µg/L	528	5 U	5 U	5 U	--	5 U	--
1,1,2,2-Tetrachloroethane	µg/L	240	5 U	5 U	5 U	--	5 U	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	--	5 U	5 U	5 U	--	5 U	--
1,1,2-Trichloroethane	µg/L	940	5 U	5 U	5 U	--	5 U	--
1,1-Dichloroethane	µg/L	--	5 U	5 U	5 U	--	5 U	--
1,1-Dichloroethene	µg/L	303	5 U	5 U	5 U	--	5 U	--
1,2,4-Trichlorobenzene	µg/L	44.9	5 U	5 U	5 U	--	5 U	--
1,2-Dibromo-3-chloropropane	µg/L	--	5 U	5 U	5 U	--	5 U	--
1,2-Dibromoethane	µg/L	--	5 U	5 U	5 U	--	5 U	--
1,2-Dichlorobenzene	µg/L	15.8	5 U	5 U	5 U	--	5 U	--
1,2-Dichloroethane	µg/L	2000	5 U	5 U	5 U	--	5 U	--
1,2-Dichloroethene (total)	µg/L	--	5 U	5 U	5 U	--	5 U	--
1,2-Dichloropropane	µg/L	525	5 U	5 U	5 U	--	5 U	--
1,3-Dichlorobenzene	µg/L	50.2	5 U	5 U	5 U	--	5 U	--
1,4-Dichlorobenzene	µg/L	11.2	5 U	5 U	5 U	--	5 U	--
2-Butanone	µg/L	--	5 U	5 U	1.3 J	--	5 UJ	--
2-Hexanone	µg/L	--	5 U	5 U	5 U	--	5 U	--
4-Methyl-2-pentanone	µg/L	--	5 U	5 U	5 U	--	5 U	--
Acetone	µg/L	--	4.5 J	4.6 J	5.6	--	5 U	--
Benzene	µg/L	53	5 U	5 U	5 U	--	5 U	--
Bromochloromethane	µg/L	--	5 U	5 U	5 U	--	5 U	--
Bromodichloromethane	µg/L	--	5 U	5 U	5 U	--	5 U	--
Bromoform	µg/L	293	5 U	5 U	5 U	--	5 U	--
Bromomethane	µg/L	110	5 U	5 U	5 UJ	--	5 U	--
Carbon Disulfide	µg/L	--	5 U	5 U	5 U	--	5 U	--
Carbon Tetrachloride	µg/L	352	5 U	5 U	5 U	--	5 U	--
Chlorobenzene	µg/L	195	5 U	5 U	5 U	--	5 U	--
Chloroethane	µg/L	--	5 UJ	5 UJ	5 UJ	--	5 UJ	--
Chloroform	µg/L	289	5 U	5 U	5 U	--	5 U	--
Chloromethane	µg/L	5500	5 U	5 U	5 U	--	5 U	--
cis-1,2-Dichloroethene	µg/L	--	5 U	5 U	5 U	--	5 U	--

Table 5-11. Summary of OU-1/OU-2 Investigation Surface Water Data for Snow Creek
Anniston PCB Site, Anniston, Alabama

Location ID	Units	Screening Level	Oxford Park	Oxford Park	Oxford Park	Oxford Park	Oxford Park	Oxford Park
Sample ID			S50048	S50049	S50050	S50051	S50052	S50053
Sample Date			3/16/2007	3/16/2007	6/8/2007	6/8/2007	6/20/2007	6/20/2007
Total Suspended Solids			**310**	--	**64**	--	**496**	--
cis-1,3-Dichloropropene	µg/L	24	5 U	5 U	5 U	--	5 U	--
Cyclohexane	µg/L	--	5 U	5 U	5 U	--	5 U	--
Dibromochloromethane	µg/L	--	5 U	5 U	5 U	--	5 U	--
Dichlorodifluoromethane	µg/L	--	5 U	5 U	5 U	--	5 U	--
Ethylbenzene	µg/L	453	5 U	5 U	5 U	--	5 U	--
Isopropylbenzene	µg/L	--	5 U	5 U	5 U	--	5 U	--
m,p-Xylenes	µg/L	--	--	--	5 U	--	5 U	--
Methyl Acetate	µg/L	--	5 U	5 U	5 U	--	5 UJ	--
Methyl tert-butyl ether	µg/L	--	5 U	5 U	5 U	--	5 U	--
Methylcyclohexane	µg/L	--	5 U	5 U	5 U	--	5 U	--
Methylene Chloride	µg/L	1930	5 U	5 U	5 U	--	5 U	--
o-Xylene	µg/L	--	5 U	5 U	5 U	--	5 U	--
Styrene	µg/L	--	5 U	5 U	5 U	--	5 U	--
Tetrachloroethene	µg/L	84	5 U	5 U	5 U	--	5 U	--
Toluene	µg/L	175	5 U	5 U	5 U	--	5 U	--
trans-1,2-Dichloroethene	µg/L	1350	5 U	5 U	5 U	--	5 U	--
trans-1,3-Dichloropropene	µg/L	24	5 U	5 U	5 U	--	5 U	--
Trichloroethene	µg/L	--	5 U	5 U	5 U	--	5 U	--
Trichlorofluoromethane	µg/L	--	5 U	5 U	5 U	--	5 U	--
Vinyl Chloride	µg/L	--	5 U	5 U	5 U	--	5 U	--
Xylenes (total)	µg/L	--	5 U	5 U	5 U	--	5 U	--
1,1'-Biphenyl	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
1,2,4-Trichlorobenzene	µg/L	44.9	9.4 U	9.4 U	--	--	--	--
1,2-Dichlorobenzene	µg/L	15.8	9.4 U	9.4 U	--	--	--	--
1,3-Dichlorobenzene	µg/L	50.2	9.4 U	9.4 U	--	--	--	--
1,4-Dichlorobenzene	µg/L	11.2	9.4 U	9.4 U	--	--	--	--
2,2'-Oxybis(1-Chloropropane)	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
2,4,5-Trichlorophenol	µg/L	--	24 U	24 U	27 U	--	27 U	--
2,4,6-Trichlorophenol	µg/L	3.2	9.4 U	9.4 U	11 U	--	11 U	--
2,4-Dichlorophenol	µg/L	36.5	9.4 U	9.4 U	11 U	--	11 U	--
2,4-Dimethylphenol	µg/L	3500	9.4 U	9.4 U	11 U	--	11 U	--
2,4-Dinitrophenol	µg/L	6.2	24 UJ	24 UJ	27 UJ	--	27 U	--
2,4-Dinitrotoluene	µg/L	310	9.4 U	9.4 U	11 U	--	11 U	--
2,6-Dinitrotoluene	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
2-Chloronaphthalene	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
2-Chlorophenol	µg/L	43.8	9.4 U	9.4 U	11 U	--	11 U	--
2-Methylnaphthalene	µg/L	--	9.4 U	9.4 U	11 UJ	--	11 UJ	--
2-Methylphenol	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
2-Nitroaniline	µg/L	--	24 U	24 U	27 U	--	27 U	--
2-Nitrophenol	µg/L	6.2	9.4 U	9.4 U	11 U	--	11 U	--
3,3'-Dichlorobenzidine	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--

Table 5-11. Summary of OU-1/OU-2 Investigation Surface Water Data for Snow Creek
Anniston PCB Site, Anniston, Alabama

Location ID	Units	Screening Level	Oxford Park	Oxford Park	Oxford Park	Oxford Park	Oxford Park	Oxford Park
Sample ID			S50048	S50049	S50050	S50051	S50052	S50053
Sample Date			3/16/2007	3/16/2007	6/8/2007	6/8/2007	6/20/2007	6/20/2007
Total Suspended Solids			310	--	64	--	496	--
3-Nitroaniline	µg/L	--	24 U	24 U	27 U	--	27 U	--
4,4'-DDD	µg/L	0.0064	0.1 U	--	0.11 U	--	0.11 U	0.11 U
4,4'-DDE	µg/L	10.5	0.1 U	--	0.11 U	--	0.11 U	0.11 U
4,4'-DDT	µg/L	0.001	0.1 U	--	0.11 U	--	0.11 U	0.11 U
4,6-Dinitro-2-methylphenol	µg/L	2.3	24 U	24 U	27 U	--	27 U	--
4-Bromophenyl-phenylether	µg/L	12.2	9.4 U	9.4 U	11 U	--	11 U	--
4-Chloro-3-Methylphenol	µg/L	0.3	9.4 U	9.4 U	11 U	--	11 U	--
4-Chloroaniline	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
4-Chlorophenyl-phenylether	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
4-Methylphenol	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
4-Nitroaniline	µg/L	--	24 U	24 U	27 U	--	27 U	--
4-Nitrophenol	µg/L	82.8	24 U	24 U	27 U	--	27 U	--
Acenaphthene	µg/L	17	9.4 U	9.4 U	11 U	--	11 U	--
Acenaphthylene	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
Acetophenone	µg/L	--	0.55 J	0.53 J	11 U	--	11 U	--
Aldrin	µg/L	0.3	0.05 U	--	0.053 U	--	0.054 U	0.054 U
Alpha-BHC	µg/L	500	0.05 U	--	0.053 U	--	0.054 U	0.054 U
Alpha-Chlordane	µg/L	0.0043	0.05 U	--	0.053 U	--	0.054 U	0.054 U
Aniline	µg/L	--	24 U	24 U	--	--	--	--
Anthracene	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
Atrazine	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
Azobenzene	µg/L	--	9.4 U	9.4 U	--	--	--	--
Benzaldehyde	µg/L	--	24 U	24 U	11 UJ	--	11 U	--
Benzidine	µg/L	--	24 UJ	24 UJ	--	--	--	--
Benzo(a)anthracene	µg/L	--	0.71 J	0.67 J	11 U	--	1.7 J	--
Benzo(a)pyrene	µg/L	--	1 J	0.9 J	11 U	--	2.5 J	--
Benzo(b)fluoranthene	µg/L	--	1.2 J	1.3 J	11 U	--	3.6 J	--
Benzo(g,h,i)perylene	µg/L	--	1.2 J	1.2 J	11 UJ	--	1.9 J	--
Benzo(k)fluoranthene	µg/L	--	1.7 J	1.2 J	11 U	--	2.5 J	--
Benzoic Acid	µg/L	--	1.9 J	0.44 J	--	--	--	--
Benzyl Alcohol	µg/L	--	9.4 U	9.4 U	--	--	--	--
Beta-BHC	µg/L	5000	0.05 U	--	0.053 U	--	0.054 U	0.054 U
bis(2-Chloroethoxy)methane	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
bis(2-Chloroethyl)ether	µg/L	2380	9.4 U	9.4 U	11 U	--	11 U	--
bis(2-Ethylhexyl)phthalate	µg/L	0.3	5.2 J	3.3 J	8.3 J	--	5.4 J	--
Butylbenzylphthalate	µg/L	22	0.5 J	9.4 U	11 U	--	11 U	--
Caprolactam	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
Carbazole	µg/L	--	9.4 U	9.4 U	11 U	--	0.61 J	--

Table 5-11. Summary of OU-1/OU-2 Investigation Surface Water Data for Snow Creek
Anniston PCB Site, Anniston, Alabama

Location ID	Units	Screening Level	Oxford Park	Oxford Park	Oxford Park	Oxford Park	Oxford Park	Oxford Park
Sample ID			S50048	S50049	S50050	S50051	S50052	S50053
Sample Date			3/16/2007	3/16/2007	6/8/2007	6/8/2007	6/20/2007	6/20/2007
Total Suspended Solids			**310**	--	**64**	--	**496**	--
Chrysene	µg/L	--	1.6 J	1.5 J	11 U	--	4.7 J	--
Delta-BHC	µg/L	--	0.05 U	--	0.053 U	--	0.054 U	0.054 U
Dibenzo(a,h)anthracene	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
Dibenzofuran	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
Dieldrin	µg/L	0.0019	0.1 U	--	0.11 U	--	0.11 U	0.11 U
Diethylphthalate	µg/L	521	9.4 U	9.4 U	11 U	--	11 U	--
Dimethylphthalate	µg/L	330	9.4 U	9.4 U	11 U	--	11 U	--
Di-n-Butylphthalate	µg/L	9.4	9.4 U	9.4 U	11 U	--	11 U	--
Di-n-Octylphthalate	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
Endosulfan II	µg/L	0.056	0.1 U	--	0.11 U	--	0.11 U	0.11 U
Endosulfan I	µg/L	0.056	0.05 U	--	0.053 U	--	0.054 U	0.054 U
Endosulfan Sulfate	µg/L	--	0.1 U	--	0.11 U	--	0.11 U	0.11 U
Endrin Aldehyde	µg/L	--	0.1 U	--	0.11 U	--	0.11 U	0.11 U
Endrin Ketone	µg/L	--	0.1 U	--	0.11 U	--	0.11 U	0.11 U
Endrin	µg/L	0.0023	0.1 U	--	0.11 U	--	0.11 U	0.11 U
Fluoranthene	µg/L	39.8	2.8 J	2.7 J	11 U	--	8.2 J	--
Fluorene	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
Gamma-BHC (Lindane)	µg/L	0.08	0.05 U	--	0.053 U	--	0.054 U	0.054 U
Gamma-Chlordane	µg/L	0.0043	0.05 U	--	0.053 U	--	0.054 U	0.054 U
Heptachlor Epoxide	µg/L	0.0038	0.05 U	--	0.053 U	--	0.054 U	0.054 U
Heptachlor	µg/L	0.0038	0.05 U	--	0.053 U	--	0.054 U	0.054 U
Hexachlorobenzene	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
Hexachlorobutadiene	µg/L	0.93	9.4 U	9.4 U	11 U	--	11 U	--
Hexachlorocyclopentadiene	µg/L	0.07	9.4 U	9.4 U	11 UJ	--	11 UJ	--
Hexachloroethane	µg/L	9.8	9.4 U	9.4 U	11 U	--	11 U	--
Indeno(1,2,3-cd)pyrene	µg/L	--	0.88 J	0.79 J	11 U	--	1.7 J	--
Isophorone	µg/L	1170	9.4 U	9.4 U	11 U	--	11 U	--
Methoxychlor	µg/L	0.03	0.5 U		0.53 U	--	0.54 U	0.54 U
Naphthalene	µg/L	62	9.4 U	9.4 U	11 U	--	11 U	--
Nitrobenzene	µg/L	270	9.4 U	9.4 U	11 U	--	11 U	--
N-Nitrosodimethylamine	µg/L	--	9.4 U	9.4 U		--	--	--
N-Nitroso-di-n-propylamine	µg/L	--	9.4 U	9.4 U	11 U	--	11 U	--
N-Nitrosodiphenylamine	µg/L	58.5	9.4 U	9.4 U	11 U	--	11 U	--
Pentachlorophenol	µg/L	13	24 U	24 U	27 U	--	27 U	--
Phenanthrene	µg/L	--	1.2 J	1.2 J	11 U	--	2 J	--
Phenol	µg/L	256	9.4 U	9.4 U	11 U	--	11 U	--
Pyrene	µg/L	--	2 J	2 J	11 U	--	6.1 J	--
Pyridine	µg/L	--	9.4 U	9.4 U	--	--	--	--
Technical Chlordane	µg/L	--	0.5 U	--	0.53 U	--	0.54 U	0.54 U
Total PAHs	µg/L	--	14.3 J	13.5 J	ND	--	34.9 J	--
Toxaphene	µg/L	0.0002	5 U	--	5.3 U	--	5.4 U	5.4 U

Table 5-11. Summary of OU-1/OU-2 Investigation Surface Water Data for Snow Creek
Anniston PCB Site, Anniston, Alabama

Location ID	Units	Screening Level	Oxford Park	Oxford Park	Oxford Park	Oxford Park	Oxford Park	Oxford Park
Sample ID			S50048	S50049	S50050	S50051	S50052	S50053
Sample Date			3/16/2007	3/16/2007	6/8/2007	6/8/2007	6/20/2007	6/20/2007
Total Suspended Solids			**310**	--	**64**	--	**496**	--
Ethyl Parathion	µg/L	--	1.1 U	--	1 U	--	R	R
Methyl Parathion	µg/L	--	1.1 U	--	1 U	--	R	R
o,o,o-Triethylphosphorothioate	µg/L	--	1.1 U	--	1 U	--	R	R
Sulfotep	µg/L	--	1.1 U	--	1 U	--	R	R
Aluminum	µg/L	87	7480 J	--	1580	1380	16000	
Antimony	µg/L	160	7.2 U	--	7.2 U	8.3 B	12.2 U	--
Arsenic	µg/L	190	5.4 BJ	--	6 B	2.2 U	9.2 B	--
Barium	µg/L	--	92.9 B	--	25.6 B	24.1 B	201	--
Beryllium	µg/L	0.53	5 U	--	0.22 B	0.16 U	1.2 B	--
Cadmium	µg/L	0.66	5 U	--	0.39 U	0.39 U	1.4 B	--
Calcium	µg/L	--	16800	--	8240	8140	32400	--
Chromium	µg/L	--	10.8	--	2 B	2.2 B	32.9	--
Cobalt	µg/L	--	5 B	--	1.9 U	1.9 U	12.2 B	--
Copper	µg/L	6.54	35.5	--	8.4 B	9.1 B	101	--
Cyanide	µg/L	5.2	3 U	--	3 U	--	3 U	3 U
Iron	µg/L	1000	11400	--	2480 J	1680 J	24200	--
Lead	µg/L	1.32	28.6	--	4.8 B	4.2 B	96.4	--
Magnesium	µg/L	--	6650	--	3730 B	3670 B	13800	--
Manganese	µg/L	--	640	--	72.8	68.5	2400	--
Mercury	µg/L	0.012	0.15 B	--	0.018 U	0.018 U	0.43	--
Nickel	µg/L	87.71	8.2 B	--	2.4 U	2.4 U	23.2 B	--
Potassium	µg/L	--	3500 B	--	2970 B	3000 B	5150	--
Selenium	µg/L	5	1.9 U	--	3.2 B	4.5 B	1.9 U	--
Silver	µg/L	0.012	2 U	--	2 U	2 U	2 U	--
Sodium	µg/L	--	3920 B	--	1800 B	1400 B	2860 B	--
Thallium	µg/L	4	5 U	--	5 U	5 U	5.5 B	--
Vanadium	µg/L	--	16.4 B	--	4.8 B	4.1 B	33.9 B	--
Zinc	µg/L	58.91	150 J	--	29.6 U	28.9 U	461	--
Total Monochlorobiphenyl	µg/L	--	0.0052 J	0.0074 J	0.01387 J	--	0.005321 J	--
Total Dichlorobiphenyl	µg/L	--	0.023 J	0.028 J	0.02056 J	--	0.01113 J	--
Total Trichlorobiphenyl	µg/L	--	0.048 J	0.068 J	0.02622 J	--	0.02414 J	--
Total Tetrachlorobiphenyl	µg/L	--	0.094 J	0.15 J	0.04708 J	--	0.03946 J	--
Total Pentachlorobiphenyl	µg/L	--	0.1 J	0.14 J	0.03986 J	--	0.03479 J	--
Total Hexachlorobiphenyl	µg/L	--	0.081 J	0.11 J	0.03405 J	--	0.02733 J	--
Total Heptachlorobiphenyl	µg/L	--	0.049 J	0.047 J	0.01958 J	--	0.01624 J	--
Total Octachlorobiphenyl	µg/L	--	0.05 UJ	0.035 J	0.02663 J	--	0.005959 J	--
Total Nonachlorobiphenyl	µg/L	--	0.05 UJ	0.011 J	0.07275 J	--	0.005025 J	--
Decachlorobiphenyl	µg/L	--	0.02 UJ	0.2 UJ	0.09747	--	0.005342 J	--
Total Homolog PCB	µg/L	--	0.4 J	0.59 J	0.3981 J	--	0.1747 J	--
BZ#77	µg/L	--	0.041 U	0.04 U	0.02 U	--	0.022 U	--
BZ#81	µg/L	--	0.061 U	0.06 U	0.04 UJ	--	0.043 U	--

Table 5-11. Summary of OU-1/OU-2 Investigation Surface Water Data for Snow Creek
Anniston PCB Site, Anniston, Alabama

Location ID	Units	Screening Level	Oxford Park	Oxford Park	Oxford Park	Oxford Park	Oxford Park	Oxford Park
Sample ID			S50048	S50049	S50050	S50051	S50052	S50053
Sample Date			3/16/2007	3/16/2007	6/8/2007	6/8/2007	6/20/2007	6/20/2007
Total Suspended Solids			**310**	--	**64**	--	**496**	--
BZ#105	µg/L	--	0.02 U	0.02 U	0.02 U	--	0.022 U	--
BZ#114	µg/L	--	0.041 U	0.04 U	0.02 U	--	0.022 U	--
BZ#118	µg/L	--	0.022	0.034	0.02 U	--	0.022 U	--
BZ#123	µg/L	--	0.041 U	0.04 U	0.02 UJ	--	0.022 U	--
BZ#126	µg/L	--	0.02 U	0.02 U	0.02 U	--	0.022 U	--
BZ#153	µg/L	--	0.041 U	0.04 U	0.04 U	--	0.043 U	--
BZ#156	µg/L	--	0.02 U	0.02 U	0.02 U	--	0.022 U	--
BZ#157	µg/L	--	0.041 U	0.04 U	0.02 U	--	0.022 U	--
BZ#167	µg/L	--	0.041 U	0.04 U	0.04 U	--	0.043 U	--
BZ#169	µg/L	--	0.02 U	0.02 U	0.02 U	--	0.022 U	--
BZ#189	µg/L	--	0.02 U	0.02 U	0.02 U	--	0.022 U	--
1,2,3,4,6,7,8-HpCDD	pg/L	--	54.8	89.1	15.7	--	173	--
1,2,3,4,6,7,8-HpCDF	pg/L	--	23	32.8	4.6 UXA	--	67 UXA	--
1,2,3,4,7,8,9-HpCDF	pg/L	--	1.77	2.87	0.98 U	--	6.2	--
1,2,3,4,7,8-HxCDD	pg/L	--	1.13	2.59	0.69 U	--	4	--
1,2,3,4,7,8-HxCDF	pg/L	--	6.68 XC	7.75 XC	0.99 UXA	--	18.1 XC	--
1,2,3,6,7,8-HxCDD	pg/L	--	2.37	6.07	0.76	--	8.15	--
1,2,3,6,7,8-HxCDF	pg/L	--	2.22	2.98	1.63	--	8.42	--
1,2,3,7,8,9-HxCDD	pg/L	--	2.64	6.78	0.95	--	11.2 XC	--
1,2,3,7,8,9-HxCDF	pg/L	--	0.63 U	0.62 U	0.73 U	--	0.71 U	--
1,2,3,7,8-PeCDD	pg/L	--	0.55 U	2.21	0.58 U	--	2.58	--
1,2,3,7,8-PeCDF	pg/L	--	1.6	1.58	1.2 U	--	4.8	--
2,3,4,6,7,8-HxCDF	pg/L	--	1.69	2.29	0.64 U	--	5.48	--
2,3,4,7,8-PeCDF	pg/L	--	3.7	4.17	2	--	15.6	--
2,3,7,8-TCDD	pg/L	10	0.57 U	0.57 U	0.59 U	--	0.84 U	--
2,3,7,8-TCDF	pg/L	--	9.9	11 UY	12.3	--	37.6	--
Octa CDD	pg/L	--	791	961	148	--	1890	--
Octa CDF	pg/L	--	38.2	51.1	8.8	--	149	--
Total Hepta CDD	pg/L	--	123	186	31.9	--	416	--
Total Hepta CDF	pg/L	--	44.7	65.2	5.4 UXA	--	72.7	--
Total Hexa CDD	pg/L	--	27.4	50.7	4.69	--	62.9	--
Total Hexa CDF	pg/L	--	36.4	49.5	9.04	--	118	--
Total Penta CDD	pg/L	--	4.5 UXA	2.21	5.6 UXA	--	2.58	--
Total Penta CDF	pg/L	--	51.4	59.8	28.9	--	215	--
Total Tetra CDD	pg/L	--	9.18	11.8	1.1 UXA	--	35.1	--

Table 5-11. Summary of OU-1/OU-2 Investigation Surface Water Data for Snow Creek
Anniston PCB Site, Anniston, Alabama

Location ID	Units	Screening Level	Oxford Park	Oxford Park	Oxford Park	Oxford Park	Oxford Park	Oxford Park
Sample ID			S50048	S50049	S50050	S50051	S50052	S50053
Sample Date			3/16/2007	3/16/2007	6/8/2007	6/8/2007	6/20/2007	6/20/2007
Total Suspended Solids			**310**	--	**64**	--	**496**	--
Total Tetra CDF	pg/L	--	98.5	112	53.2	--	418	--
WHO Dioxin TEQ	pg/L	--	5.47	8.57	2.74	--	21.9	--

Notes:
--: not available or not applicable
B (metals): Indicates an estimated value between the instrument detection limit (IDL) and the reporting limit (RL).
J: The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
R: Sample results are rejected.
U: The analyte was analyzed for but not detected. The associated value is the compound quantitation limit.
UJ: The analyte was analyzed for but not detected. The associated value is the estimated compound quantitation limit.
XA (PCDD/DF): EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.
XC (PCDD/DF): EMPC / Merged Peak
Y (PCDD/DF): RT > 3 seconds - PCDD/DF analysis - Peak detected exceeds expected retention time (from internal standard) by greater than 3 seconds.
EMPC: estimated maximum possible concentration
ID: identification
mg/L: milligrams per liter
NDR: negative differential resistance
PCDD/DF: polychlorinated dibenzo-p-dioxins/dibenzofurans
pg/L: picograms per liter
RT: retention time
TEQ: 2,3,7,8-TCDD toxicity equivalent
WHO: World Health Organization
µg/L: micrograms per liter
Screening Values:
USEPA. 2001b. Supplemental Guidance to RAGS: Region 4 Bulletins, Ecological Risk Assessment. Originally published November 1995. Website version last updated November 30, 2001: http://www.USEPA.gov/region4/waste/ots/ecolbul.htm Table 1. Region 4 Waste Management Division Freshwater Surface Water Screening Values for Hazardous Waste Sites. Chronic values are lower than acute values and were used as selected screening value.

Table 5-12. EPA 2000 Air Monitoring Data
Anniston PCB Site, Anniston, Alabama

Parcel ID	Address	Sample ID	Units	Date	Aroclor 1242	Sum of Congener	BZ# 28	BZ# 52	BZ# 60	BZ# 66	BZ# 74	BZ# 81	BZ# 101	BZ# 156
2290	908 Lehman Ave	PDA-001-A FILTER	ng/m^3	6/13/00	ND	--	--	--	--	--	--	--	--	--
2290	908 Lehman Ave	PDA-001-A TUBE	ng/m^3	6/13/00	ND	--	--	--	--	--	--	--	--	--
2290	908 Lehman Ave	PDA-001-B FILTER	ng/m^3	6/13/00	ND	--	--	--	--	--	--	--	--	--
2290	908 Lehman Ave	PDA-001-B TUBE	ng/m^3	6/13/00	ND	--	--	--	--	--	--	--	--	--
2290	908 Lehman Ave	PDA-001-C FILTER	ng/m^3	6/13/00	ND	--	--	--	--	--	--	--	--	--
2290	908 Lehman Ave	PDA-001-C TUBE	ng/m^3	6/13/00	ND	--	--	--	--	--	--	--	--	--
2137	921 Bancroft Ave	PDA-002-A FILTER	ng/m^3	6/13/00	ND	--	--	--	--	--	--	--	--	--
2137	921 Bancroft Ave	PDA-002-A TUBE	ng/m^3	6/13/00	ND	--	--	--	--	--	--	--	--	--
2137	921 Bancroft Ave	PDA-002-B FILTER	ng/m^3	6/13/00	ND	--	--	--	--	--	--	--	--	--
2137	921 Bancroft Ave	PDA-002-B TUBE	ng/m^3	6/13/00	ND	--	--	--	--	--	--	--	--	--
2137	921 Bancroft Ave	PDA-002-C FILTER	ng/m^3	6/13/00	ND	--	--	--	--	--	--	--	--	--
2137	921 Bancroft Ave	PDA-002-C TUBE	ng/m^3	6/13/00	ND	--	--	--	--	--	--	--	--	--
1588	1705 W 11th St	PDA-003-A FILTER	ng/m^3	6/14/00	ND	--	--	--	--	--	--	--	--	--
1588	1705 W 11th St	PDA-003-A TUBE	ng/m^3	6/14/00	ND	--	--	--	--	--	--	--	--	--
1588	1705 W 11th St	PDA-003-B FILTER	ng/m^3	6/14/00	ND	--	--	--	--	--	--	--	--	--
1588	1705 W 11th St	PDA-003-B TUBE	ng/m^3	6/14/00	ND	--	--	--	--	--	--	--	--	--
1588	1705 W 11th St	PDA-003-C FILTER	ng/m^3	6/14/00	ND	--	--	--	--	--	--	--	--	--
1588	1705 W 11th St	PDA-003-C TUBE	ng/m^3	6/14/00	ND	--	--	--	--	--	--	--	--	--
4236	2824 Old Birmingham Hwy	PDA-004-A FILTER	ng/m^3	6/15/00	ND	--	--	--	--	--	--	--	--	--
4236	2824 Old Birmingham Hwy	PDA-004-A TUBE	ng/m^3	6/15/00	ND	--	--	--	--	--	--	--	--	--
4236	2824 Old Birmingham Hwy	PDA-004-B FILTER	ng/m^3	6/15/00	ND	--	--	--	--	--	--	--	--	--
4236	2824 Old Birmingham Hwy	PDA-004-B TUBE	ng/m^3	6/15/00	ND	--	--	--	--	--	--	--	--	--
4236	2824 Old Birmingham Hwy	PDA-004-C FILTER	ng/m^3	6/15/00	ND	--	--	--	--	--	--	--	--	--
4236	2824 Old Birmingham Hwy	PDA-004-C TUBE	ng/m^3	6/15/00	ND	--	--	--	--	--	--	--	--	--
3391	Hwy 202 (11-22-01-12-03-1-59)	PDA-005-A FILTER	ng/m^3	6/16/00	ND	--	--	--	--	--	--	--	--	--
3391	Hwy 202 (11-22-01-12-03-1-59)	PDA-005-A TUBE	ng/m^3	6/16/00	ND	--	--	--	--	--	--	--	--	--
3391	Hwy 202 (11-22-01-12-03-1-59)	PDA-005-B FILTER	ng/m^3	6/16/00	ND	--	--	--	--	--	--	--	--	--
3391	Hwy 202 (11-22-01-12-03-1-59)	PDA-005-B TUBE	ng/m^3	6/16/00	ND	--	--	--	--	--	--	--	--	--
3391	Hwy 202 (11-22-01-12-03-1-59)	PDA-005-C FILTER	ng/m^3	6/16/00	ND	--	--	--	--	--	--	--	--	--
3391	Hwy 202 (11-22-01-12-03-1-59)	PDA-005-C TUBE	ng/m^3	6/16/00	ND	--	--	--	--	--	--	--	--	--
4262	209 Smith St	PDA-006-A FILTER	ng/m^3	6/17/00	ND	--	--	--	--	--	--	--	--	--
4262	209 Smith St	PDA-006-A TUBE	ng/m^3	6/17/00	ND	--	--	--	--	--	--	--	--	--
4262	209 Smith St	PDA-006-B FILTER	ng/m^3	6/17/00	ND	--	--	--	--	--	--	--	--	--
4262	209 Smith St	PDA-006-B TUBE	ng/m^3	6/17/00	ND	--	--	--	--	--	--	--	--	--
4262	209 Smith St	PDA-006-C FILTER	ng/m^3	6/17/00	ND	--	--	--	--	--	--	--	--	--
4262	209 Smith St	PDA-006-C TUBE	ng/m^3	6/17/00	ND	--	--	--	--	--	--	--	--	--
1288	1211 Brown Ave	PDA-007-A FILTER	ng/m^3	6/27/00	ND	--	--	--	--	--	--	--	--	--
1288	1211 Brown Ave	PDA-007-A TUBE	ng/m^3	6/27/00	ND	--	--	--	--	--	--	--	--	--
1288	1211 Brown Ave	PDA-007-B FILTER	ng/m^3	6/27/00	ND	--	--	--	--	--	--	--	--	--
1288	1211 Brown Ave	PDA-007-B TUBE	ng/m^3	6/27/00	ND	--	--	--	--	--	--	--	--	--
1288	1211 Brown Ave	PDA-007-C FILTER	ng/m^3	6/27/00	ND	--	--	--	--	--	--	--	--	--
1288	1211 Brown Ave	PDA-007-C TUBE	ng/m^3	6/27/00	ND	--	--	--	--	--	--	--	--	--
1760	1100 Crawford Ave	PDA-008-A FILTER	ng/m^3	6/27/00	ND	--	--	--	--	--	--	--	--	--
1760	1100 Crawford Ave	PDA-008-A TUBE	ng/m^3	6/27/00	ND	--	--	--	--	--	--	--	--	--
1760	1100 Crawford Ave	PDA-008-B FILTER	ng/m^3	6/27/00	ND	--	--	--	--	--	--	--	--	--

Table 5-12. EPA 2000 Air Monitoring Data
Anniston PCB Site, Anniston, Alabama

Parcel ID	Address	Sample ID	Units	Date	Aroclor 1242	Sum of Congener	BZ# 28	BZ# 52	BZ# 60	BZ# 66	BZ# 74	BZ# 81	BZ# 101	BZ# 156
1760	1100 Crawford Ave	PDA-008-B TUBE	ng/m^3	6/27/00	ND	--	--	--	--	--	--	--	--	--
1760	1100 Crawford Ave	PDA-008-C FILTER	ng/m^3	6/27/00	ND	--	--	--	--	--	--	--	--	--
1760	1100 Crawford Ave	PDA-008-C TUBE	ng/m^3	6/27/00	ND	--	--	--	--	--	--	--	--	--
6558	109 Williamson Ave	PDA-009-A FILTER	ng/m^3	6/27/00	ND	--	--	--	--	--	--	--	--	--
6558	109 Williamson Ave	PDA-009-A TUBE	ng/m^3	6/27/00	ND	--	--	--	--	--	--	--	--	--
6558	109 Williamson Ave	PDA-009-B FILTER	ng/m^3	6/27/00	ND	--	--	--	--	--	--	--	--	--
6558	109 Williamson Ave	PDA-009-B TUBE	ng/m^3	6/27/00	ND	--	--	--	--	--	--	--	--	--
6558	109 Williamson Ave	PDA-009-C FILTER	ng/m^3	6/27/00	ND	--	--	--	--	--	--	--	--	--
6558	109 Williamson Ave	PDA-009-C TUBE	ng/m^3	6/27/00	ND	--	--	--	--	--	--	--	--	--
2580	135 Pinson Rd	PD-HVA-1	ng/m^3	6/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2580	135 Pinson Rd	PD-HVA-2	ng/m^3	6/27/00	ND	0.3	ND	ND	ND	ND	0.3	ND	ND	ND
4610	Newborn St	PD-HVB-1	ng/m^3	6/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4610	Newborn St	PD-HVB-2	ng/m^3	6/27/00	ND	0.84	0.17	ND	0.18	ND	0.17	ND	ND	0.32
3391	Hwy 202 (11-22-01-12-03-1-59)	PD-HVC-1	ng/m^3	6/27/00	4.6	0.61	0.31	ND	ND	ND	0.3	ND	ND	ND
3391	Hwy 202 (11-22-01-12-03-1-59)	PD-HVC-2	ng/m^3	6/27/00	8.8	4.42	0.72	ND	ND	ND	3.7	ND	ND	ND
43173	West 9th St & Ware St	PD-HVD-1	ng/m^3	6/27/00	45	8.33	4.4	2	0.87	0.13	0.52	0.19	0.22	ND
43173	West 9th St & Ware St	PD-HVD-2	ng/m^3	6/27/00	25	2.89	2.5	ND	ND	ND	0.39	ND	ND	ND
1529	1127 Clydesdale Ave	PD-HVE-1	ng/m^3	6/27/00	7.3	1.47	0.71	ND	0.37	ND	0.39	ND	ND	ND
1529	1127 Clydesdale Ave	PD-HVE-2	ng/m^3	6/27/00	25	2.97	2.2	ND	0.42	ND	0.35	ND	ND	ND
1435	W 12th St (11-21-03-06-30-07-68)	PD-HVF-1	ng/m^3	6/27/00	3.3	1.17	0.23	ND	0.23	ND	0.71	ND	ND	ND
1435	W 12th St (11-21-03-06-30-07-68)	PD-HVF-2	ng/m^3	6/27/00	ND	1.16	0.84	ND	0.32	ND	ND	ND	ND	ND
2205	Zinn Pkwy Dr (11-21-03-07-02-1-58)	PD-HVG-1	ng/m^3	6/27/00	ND	0.16	0.16	ND	ND	ND	ND	ND	ND	ND
2205	Zinn Pkwy Dr (11-21-03-07-02-1-58)	PD-HVG-1-Dup	ng/m^3	6/27/00	ND	0.12	0.12	ND	ND	ND	ND	ND	ND	ND
2205	Zinn Pkwy Dr (11-21-03-07-02-1-58)	PD-HVG-2	ng/m^3	6/27/00	5.7	0.7	0.4	ND	0.2	0.1	ND	ND	ND	ND
2205	Zinn Pkwy Dr (11-21-03-07-02-1-58)	PD-HVG-2-Dup	ng/m^3	6/27/00	8.6	0.94	0.57	ND	0.37	ND	ND	ND	ND	ND
43171	1313 Noble St	PD-HVH-1	ng/m^3	6/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
43171	1313 Noble St	PD-HVH-2	ng/m^3	6/27/00	ND	0.32	0.32	ND	ND	ND	ND	ND	ND	ND

Notes:
--: sample not analyzed
ID: identification
ND: nondetect
PCB: polychlorinated biphenyl
ng/m^3: nanograms per cubic meter

Table 5-13. Solutia 2003-2004 Air Monitoring Data
Anniston PCB Site, Anniston, Alabama

Sampling Date	Session Number	Units	OU1/OU2 Locations							
			1		4	5	7			8
			East		North	Northeast	Northwest			Far West
			Primary	Collocated			Night	Day	24-hour	
4/15/03	106	ng/m^3	ND	ND	12.9	8.5	3.4	7.2	5.5	10.9
4/16/03	107	ng/m^3	ND	NS	9.4	3.1	0.2	6.1	3.1	0.4
5/20/03	108	ng/m^3	ND	ND	13.8	2.9	3.2	1.6	2.4	0.1
5/21/03	109	ng/m^3	1.8	NS	5	3.9	9.3	2.4	5.9	27.5
6/17/03	110	ng/m^3	1.5	1.6	17.4	17.1	9.4	11.8	10.8	16.1
6/18/03	111	ng/m^3	12.6	NS	36.9	30.7	68.2	14.7	41.4	12.8
7/14/03	112	ng/m^3	1.5	1.2	13.8	9.8	10.4	14.2	12.5	13.4
7/15/03	113	ng/m^3	6.6	NS	21.1	12.1	34.2	51.1	44.3	21.5
8/13/03	114	ng/m^3	0.5	0.3	33	10.9	8.9	9.1	9.0	6.1
8/14/03	115	ng/m^3	3.4	NS	49.6	20	101.9	7.4	69.3	23.3
9/9/03	116	ng/m^3	0.4	0.4	19.1	6.8	18.9	9.8	14.3	13.6
9/10/03	117	ng/m^3	ND	NS	12.9	6.5	2.8	15.5	8.2	26.6
10/21/03	118	ng/m^3	22.5	22.8	79.2	22.5	NS	NS	145.4	12.1
10/22/03	119	ng/m^3	9.9	NS	40.7	9.9	NS	NS	54.5	9.9
11/18/03	120	ng/m^3	ND	ND	9.9	3.8	NS	NS	9.8	1.3
11/19/03	121	ng/m^3	1.8	NS	21.5	16.9	NS	NS	32.1	1.1
12/9/03	122	ng/m^3	ND	ND	3.9	4.4	NS	NS	3.0	0.2
12/10/03	123	ng/m^3	1.1	NS	3.3	0.5	NS	NS	13.1	ND
1/13/04	124	ng/m^3	9.1	9	25.4	12.7	NS	NS	48.5	15.8
1/14/04	125	ng/m^3	3.9	NS	35.8	8.4	NS	NS	54.4	2.8
2/24/04	126	ng/m^3	ND	ND	3.9	3.5	NS	NS	2.6	35.2
2/25/04	127	ng/m^3	ND	NS	1.7	NS*	NS	NS	0.4	0.2
3/23/04	128	ng/m^3	ND	ND	2.5	1.8	NS	NS	1.8	1.7
3/24/04	129	ng/m^3	ND	NS	6.4	3.9	NS	NS	2.7	0.9
Average		ng/m^3	3.2	2.9	20.0	9.6	22.6	12.6	24.4	10.6

Notes:
Sampling date is the start date for samples collected over more than one calendar day.
Sampling session numbering scheme continued from regimen used for previous monitoring at the Site.
Time-weighted average of day/night results used to calculate "24-hour" value for samples collected April through September 2003 at the Northwest site.
Collocated sample collected once per month per RFI/CS Air Monitoring Plan.
ND: nondetect
ng/m^3: nanograms per cubic meter
NS: not sampled
*: Power interruption led to sample invalidation; sample not analyzed.

Table 5-14. Remedial Investigation Air Monitoring Data
Anniston PCB Site, Anniston, Alabama

Site		North			North Colo			South			North			South		
Sample ID		S1-08152006-North			S1-08152006-North-Colo			S1-08152006-South			S1-08162006-North			S1-08162006-South		
Sampling Date		8/15/06			8/15/06			8/15/06			8/16/06			8/16/06		
Volume (SCM)		299.5			299.4			300.2			298.7			299.8		
Homolog Group		**ng/ sam**		**ng/m³**	**ng/ sam**		**ng/m³**	**ng/ sam**		**ng/m³**	**ng/ sam**		**ng/m³**	**ng/ sam**		**ng/m³**
Mono		544		1.82	411		1.37	267		0.89	167		0.56	120		0.40
Di		1240		4.14	1330		4.44	295		0.98	111		0.37	102		0.34
Tri		1460		4.87	1560		5.21	303		1.01	92.7		0.31	81.5		0.27
Tetra		745		2.49	789		2.64	237		0.79	93.7		0.31	67.2		0.22
Penta		155		0.52	169		0.56	90.4		0.30	44.9		0.15	32.2		0.11
Hexa		50.7		0.17	55.2		0.18	32.1		0.11	18		0.060	14		0.047
Hepta		17.1		0.057	18.5		0.062	10.6		0.035	6.76		0.023	6.07		0.020
Octa		5.92		0.020	6.38		0.021	2.04		0.007	2.46		0.008	1.93		0.006
Nona		1.73		0.006	1.83		0.006	0.445		0.001	1.02		0.003	0.347		0.001
Deca		0.553		0.002	0.532		0.002	0.165		0.001	0.391		0.001	ND		ND
Total PCBs				14.1			14.5			4.1			1.8			1.4
PCB Congeners	**2005 TEF[(1)]**	**ng/m³**	**Qual**	**ng/m³**	**ng/m³**	**Qual**	**ng/m³**	**ng/m³**	**Qual**	**ng/m³**	**ng/m³**	**Qual**	**ng/m³**	**ng/m³**	**Qual**	**ng/m³**
PCB-77	0.0001	0.0047		4.74E-07	0.0051		5.11007E-07	0.0016		1.585E-07	0.0013		1.339E-07	0.0007		7.406E-08
PCB-81	0.0003	0.0006		1.85E-07	0.0006		1.7735E-07	0.0003		1.019E-07	0.0002	J	5.082E-08	0.0001	J	3.553E-08
PCB-105	0.00003	0.0118		3.53E-07	0.0132		3.96782E-07	0.0060		1.809E-07	0.0043		1.276E-07	0.0030		9.087E-08
PCB-106/118	0.00003	0.0330		9.9E-07	0.0364		1.09215E-06	0.0181		5.416E-07	0.0113		3.405E-07	0.0087		2.602E-07
PCB-114	0.00003	0.0010		2.98E-08	0.0011		3.17626E-08	0.0005		1.399E-08	0.0003	J	8.869E-09	0.0002	J	6.835E-09
PCB-123	0.00003	0.0010		2.87E-08	0.0010		3.1462E-08	0.0005		1.509E-08	0.0004		1.105E-08	0.0002	J	7.255E-09
PCB-126	0.1	0.0003	J	2.98E-05	0.0003	J	2.70867E-05	ND			0.0001	J	1.49E-05	ND		
PCB-153		0.0306		0	0.0334		0	0.0189		0	0.0118		0	0.0091		0
PCB-156	0.00003	0.0014		4.21E-08	0.0016		4.69926E-08	0.0008		2.258E-08	0.0005		1.577E-08	0.0005		1.581E-08
PCB-157	0.00003	0.0005		1.39E-08	0.0005		1.41278E-08	0.0002	J	5.995E-09	ND			0.0002	J	4.623E-09
PCB-167	0.00003	0.0008		2.36E-08	0.0008		2.49492E-08	0.0004		1.299E-08	0.0003	J	8.487E-09	0.0002	J	7.486E-09
PCB-169	0.03	U	U		U	U		U	U		U	U		U	U	
PCB-189	0.00003	0.0001	J	4.45E-09	0.0001	J	4.27843E-09	0.0001	J	1.759E-09	0.0001	J	1.707E-09	0.00004	J	1.291E-09
Congener TEQ				3.2E-05			2.94176E-05			1.055E-06			1.56E-05			5.04E-07
Dioxins and Furans	**2005 TEF[(1)]**	**pg/m³**	**Qual**	**pg/m³**	**pg/m³**	**Qual**	**pg/m³**	**pg/m³**	**Qual**	**pg/m³**	**pg/m³**	**Qual**	**pg/m³**	**pg/m³**	**Qual**	**pg/m³**
2,3,7,8-TCDD	1	ND			ND			ND			ND			ND		
1,2,3,7,8-PeCDD	1	ND			ND			ND			ND			ND		
1,2,3,4,7,8-HxCDD	0.1	ND			ND			ND			ND			ND		
1,2,3,6,7,8-HxCDD	0.1	ND			ND			ND			ND			ND		
1,2,3,7,8,9-HxCDD	0.1	ND			ND			ND			ND			ND		
1,2,3,4,6,7,8-HpCDD	0.01	0.098	J	0.001	0.088	J	0.001	0.128	J	0.001	0.061	J	0.001	0.033	J	0.0003
OCDD	0.0003	0.214	E		0.251	E		0.284	J	0.00009	0.232	J	0.00007	0.114	E	
2,3,7,8-TCDF	0.1	0.033	E		0.038	J	0.004	ND			ND			ND		
1,2,3,7,8-PeCDF	0.03	0.030	J	0.001	0.028	J	0.001	ND			ND			ND		
2,3,4,7,8-PeCDF	0.3	0.052	J	0.016	0.050	J	0.015	0.014	J	0.004	ND			ND		
1,2,3,4,7,8-HxCDF	0.1	0.030	J	0.003	0.032	J	0.003	ND			ND			ND		
1,2,3,6,7,8-HxCDF	0.1	0.019	E		0.025	E		ND			ND			ND		
2,3,4,6,7,8-HxCDF	0.1	0.036	J	0.004	0.035	J	0.004	0.011	J	0.001	ND			ND		

Table 5-14. Remedial Investigation Air Monitoring Data
Anniston PCB Site, Anniston, Alabama

Site		North			North Colo			South			North			South		
Sample ID		S1-08152006-North			S1-08152006-North-Colo			S1-08152006-South			S1-08162006-North			S1-08162006-South		
Sampling Date		8/15/06			8/15/06			8/15/06			8/16/06			8/16/06		
Volume (SCM)		299.5			299.4			300.2			298.7			299.8		
Dioxins and Furans	**2005 TEF[(1)]**	**pg/m³**	**Qual**	**pg/m³**	**pg/m³**	**Qual**	**pg/m³**	**pg/m³**	**Qual**	**pg/m³**	**pg/m³**	**Qual**	**pg/m³**	**pg/m³**	**Qual**	**pg/m³**
1,2,3,7,8,9-HxCDF	0.1	ND			ND			ND			ND			ND		
1,2,3,4,6,7,8-HpCDF	0.01	0.075	J	0.001	0.086	J	0.001	0.034	J	0.00034	0.030	J	0.00030	0.024	J	0.00024
1,2,3,4,7,8,9-HpCDF	0.01	ND			ND			ND			ND			ND		
OCDF	0.0003	0.046	J	0.000014	0.047	J	0.000014	0.024	E		ND			ND		
Total TCDD		0.019			0.031	E		ND			ND			ND		
Total PeCDD		0.027	E		0.038			0.018	E		0.032	E		ND		
Total HxCDD		0.068			0.115	E		0.069	E		0.050	E		0.011	E	
Total HpCDD		0.180			0.176			0.237			0.122			0.067		
Total TCDF		0.638	E		0.598	E		0.040			0.070	E		ND		
Total PeCDF		0.441	E		0.441	E		0.046			0.080	E		0.061	E	
Total HxCDF		0.259	E		0.318	E		0.074	E		0.090			0.027		
Total HpCDF		0.075			0.109	E		0.034			0.030			0.024		
Total PCDD/DFs																
(tetra - octa)		1.97			2.12			0.83			0.71			0.30		
Total TEQ				0.025			0.028			0.007			0.001			0.001

Notes:
"Total PCBs" entry for each sample represents summation of detected PCB concentrations only; ND values included as zero.
Lab qualifiers not included if superseded by DV actions.
DV: data validation
E: Sample concentration is an EMPC.
EMPC: Estimated maximum possible concentration, where reported, EMPCs were used to calculate sample concentrations.
J: value is an estimated concentration below the laboratory calibration range (used when not superseded by DV action).
ND: not detected at approximate detection limits of 3 to 10 pg/sample for congeners and PCDD/DF and at detection limits of approximately 0.1 to 0.2 ng/sample for homologs.
ng/sam: nanograms per sample
ng/m³: nanograms per cubic meter
PCB: polychlorinated biphenyls
PCDD/DF: polychlorinated dibenzo-p-dioxins/dibenzofurans
pg/m³: picograms per cubic meter
Qual: qualifier
SCM: standard cubic meters
TEF: toxicity equivalency factor
TEQ: 2,3,7,8-TCDD toxicity equivalent; TEQs are based on measured values only (not EMPCs), NDs treated as 0
U: Result is considered not detected; result is within 5 times the level detected in an associated blank; result was not used to calculate TEQ.
(1) van den Berg, Martin, Linda S. Birnbaum, Michael Denison, Mike De Vito, William Farland, Mark Feeley, Heidelore Fiedler, Helen Hakansson, Annika Hanberg, Laurie Haws, Martin Rose, Stephen Safe, Dieter Schrenk, Chiharu Tohyama, Angelika Tritscher, Jouko Tuomisto, Mats Tysklind, Nigel Walker, and Richard E. Peterson. 2006. The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds. ToxSci Advance Access, Oxford University Press on behalf of the Society of Toxicology. July 7, 2006.

Table 5-15. EPA 2012 Air Monitoring Data
Anniston PCB Site, Anniston, Alabama

Station ID		Field Blank	Field Blank	F	F	I	I	J	J	J	J
Sample ID		FB102312	FB102412	FAA102312	FAA102412	IAA102312	IAA102412	JAA102312	JAA102412	JDAA102312	JDAA102412
Matrix		Field Blank	Field Blank	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air
Sample Date		10/23/2012	10/24/2012	10/23/2012	10/24/2012	10/23/2012	10/24/2012	10/23/2012	I0/24/20I2	10/23/2012	10/24/2012
Analyte	**Units**										
Monochlorobiphenyl (Total)	ng/m^3	0.00081	0.00022	0.16	0.15	1.3	0.37	0.72	0.63	0.72	0.59
Dichlorobiphenyl (Total)	ng/m^3	0.058	0.04	0.4	0.4	9	2.8	2.6	2.8	2.6	2.6
Trichlorobiphenyl (Total)	ng/m^3	0.027	0.019	0.38	0.37	10	3.6	2.9	2.6	2.9	2.4
Tetrachlorobiphenyl (Total)	ng/m^3	0.021	0.017	0.54	0.49	4	1.6	1.6	1.5	1.6	1.2
Pentachlorobiphenyl (Total)	ng/m^3	0.014	0.01	0.19	0.18	0.62	0.27	0.3	0.34	0.3	0.32
Hexachlorobiphenyl (Total)	ng/m^3	0.012	0.014	0.074	0.063	0.19	0.094	0.09	0.11	0.09	0.11
Heptachlorobiphenyl (Total)	ng/m^3	0.012	0.0042	0.022	0.015	0.036	0.017	0.021	0.028	0.021	0.026
Octachlorobiphenyl (Total)	ng/m^3	0.00022	0.00022	0.0051	0.0038	0.0058	0.0011	0.0034	0.0077	0.0034	0.0068
Nonachlorobiphenyl (Total)	ng/m^3	0.00022	0.00022	0.0025	0.0021	0.0044	0.0017	0.0042	0.0048	0.0042	0.0042
Total PCBs	ng/m^3	0.13	0.11	1.8	1.7	26	8.8	8.1	8	8.1	7.3

Notes:
Air samples collected starting October 23, 2012, are highlighted in yellow.
ng/m^3 : nanograms per cubic meter
PCB: polychlorinated biphenyl

Table 5-16. EPA 2013 Air Monitoring Data
Anniston PCB Site, Anniston , Alabama

Sample ID		FB062513	FAA062513	FAA062613	IAA062513	IAA062613	JAA062513	JAA062613	JDAA062513	JDAA062613
Matrix		Field Blank	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air
Sample Date		6/25/2013	6/25/2013	6/26/2013	6/25/2013	6/26/2013	6/25/2013	6/26/2013	6/25/2013	6/26/2013
Analyte	**Units**									
Monochlorobiphenyl (Total)	ng/m3	< 0.00025 U	0.16	0.19	0.23	0.022	1.3	1.8	1.4	1.9
Dichlorobiphenyl (Total)	ng/m3	0.026	0.73	1.3	2.5	0.34	3.6	5.4	3.7	5.5
Trichlorobiphenyl (Total)	ng/m3	0.017	0.97	1.7	3.6	0.47	4.6	6.9	4.6	7.1
Tetrachlorobiphenyl (Total)	ng/m3	0.017	0.71	0.97	1.3	0.38	2.7	3.6	2.4	3.0
Pentachlorobiphenyl (Total)	ng/m3	0.010	0.30	0.35	0.20	0.066	0.64	0.86	0.64	0.80
Hexachlorobiphenyl (Total)	ng/m3	0.012	0.12	0.14	0.066	0.035	0.22	0.32	0.22	0.30
Heptachlorobiphenyl (Total)	ng/m3	0.0012	0.031	0.033	0.013	0.0085	0.059	0.079	0.058	0.077
Octachlorobiphenyl (Total)	ng/m3	< 0.00025 U	0.0062	0.0069	0.0035	0.0038	0.0077	0.015	0.0077	0.014
Nonachlorobiphenyl (Total)	ng/m3	< 0.00025 U	0.0014	0.0018	< 0.0012 U	0.0013	0.0032	0.003	0.0033	0.0031
Total PCBs	**ng/m3**	**0.084**	**3.0**	**4.7**	**8.0**	**1.3**	**13**	**19**	**13**	**19**

Air samples collected starting June 25, 2013 are highlighted in Yellow
U = The analyte was not detected at or above the listed reporting limit.

Table 7-1. Cancer Risk Summary - RME Non-residential Surface Soil

Anniston PCB Site, OU-1/OU-2, Anniston, Alabama

PCB-Based Risk Calculations

Exposure Unit	Industrial	Commercial Visitor		Schools & Day Care		Recreational		Trespasser
	Adult	Adult	Young Child	Adult	Young Child	Young Child	Adolescent	Adolescent
EU1	4.E-06	9.E-07	5.E-07	NA	NA	NA	NA	1.E-06
EU2	3.E-05	6.E-06	4.E-06	NA	NA	2.E-05	2.E-05	7.E-06
EU3	NA	1.E-06	8.E-07	NA	NA	4.E-06	3.E-06	1.E-06
EU5	1.E-04	3.E-05	2.E-05	NA	NA	NA	NA	3.E-05
EU6	NA	8.E-07	5.E-07	NA	NA	3.E-06	2.E-06	9.E-07
EU7	NA	NA	NA	5.E-05	1.E-04	6.E-05	5.E-05	2.E-05
EU8	NA	1.E-07	9.E-08	NA	NA	4.E-07	4.E-07	2.E-07
EU9	5.E-07	1.E-07	7.E-08	NA	NA	NA	NA	1.E-07
EU10	2.E-05	5.E-06	3.E-06	NA	NA	2.E-05	1.E-05	5.E-06
EU11	9.E-07	2.E-07	1.E-07	NA	NA	NA	NA	2.E-07
EU12	5.E-06	1.E-06	7.E-07	NA	NA	4.E-06	3.E-06	1.E-06
EU13	NA	1.E-06	8.E-07	NA	NA	NA	NA	1.E-06
EU14N	1.E-05	3.E-06	2.E-06	NA	NA	9.E-06	7.E-06	3.E-06
EU14S	9.E-07	2.E-07	1.E-07	NA	NA	7.E-07	5.E-07	2.E-07
EU15/16	7.E-07	2.E-07	1.E-07	NA	NA	5.E-07	4.E-07	2.E-07
EU17	2.E-06	5.E-07	3.E-07	NA	NA	NA	NA	6.E-07
EU19N	3.E-04	NA	NA	NA	NA	NA	NA	7.E-05
EU19S	3.E-05	NA	NA	NA	NA	NA	NA	7.E-06
EU20	NA	3.E-07	2.E-07	NA	NA	NA	NA	3.E-07
EU22	4.E-06	8.E-07	5.E-07	NA	NA	NA	NA	9.E-07
EU24	6.E-06	1.E-06	9.E-07	NA	NA	NA	NA	2.E-06
EU25	NA	3.E-07	2.E-07	NA	NA	NA	NA	4.E-07
EU26	5.E-05	NA	NA	NA	NA	4.E-05	3.E-05	1.E-05
Snow Creek-SW	NA	NA	NA	NA	NA	2.E-08	2.E-08	9.E-09

Non-PCB-Based Risk Calculations

Exposure	Industrial	Commercial Visitor		Schools & Day Care		Recreational		Trespasser
	Adult	Adult	Young Child	Adult	Young Child	Young Child	Adolescent	Adolescent
Sitewide	3.E-04	6.E-05	6.E-05	2.E-04	6.E-04	2.E-04	8.E-05	2.E-05

Notes:

Highlighted values exceed USEPA's risk threshold.

EU: exposure unit

NA: not available

PCB: polychlorinated biphenyl

RME: reasonable maximum exposure

USEPA: United States Environmental Protection Agency

Table 7-2. Noncancer Risk Summary - RME Non-residential Surface Soil

Anniston PCB Site, OU-1/OU-2, Anniston, Alabama

PCB-Based Risk Calculations

Exposure Unit	Industrial	Commercial Visitor		Schools & Day Care		Recreational		Trespasser
	Adult	Adult	Young Child	Adult	Young Child	Young Child	Adolescent	Adolescent
EU1	0.3	0.06	0.05	NA	NA	NA	NA	0.2
EU2	2	0.4	0.4	NA	NA	2	3	1
EU3	NA	0.08	0.08	NA	NA	0.4	0.5	0.2
EU5	8	2	2	NA	NA	NA	NA	5
EU6	NA	0.06	0.05	NA	NA	0.3	0.4	0.2
EU7	NA	NA	NA	3	14	6	8	4
EU8	NA	0.01	0.008	NA	NA	0.04	0.06	0.03
EU9	0.03	0.007	0.006	NA	NA	NA	NA	0.02
EU10	1	0.3	0.3	NA	NA	2	2	0.9
EU11	0.06	0.01	0.01	NA	NA	NA	NA	0.04
EU12	0.3	0.07	0.07	NA	NA	0.2	0.5	0.2
EU13	NA	0.08	0.08	NA	NA	NA	NA	0.2
EU14N	0.8	0.2	0.2	NA	NA	0.8	1	0.5
EU14S	0.06	0.01	0.01	NA	NA	0.06	0.09	0.04
EU15/16	0.05	0.01	0.01	NA	NA	0.05	0.07	0.03
EU17	0.2	0.04	0.03	NA	NA	NA	NA	0.1
EU19N	18	NA	NA	NA	NA	NA	NA	12
EU19S	2	NA	NA	NA	NA	NA	NA	1
EU20	NA	0.02	0.02	NA	NA	NA	NA	0.06
EU22	0.3	0.06	0.05	NA	NA	NA	NA	0.2
EU24	0.4	0.09	0.08	NA	NA	NA	NA	0.3
EU25	NA	0.02	0.02	NA	NA	NA	NA	0.07
EU26	4	NA	NA	NA	NA	4	5	2
Snow Creek SW	NA	NA	NA	NA	NA	0.001	0.003	0.002

Non-PCB-Based Risk Calculations

Exposure	Industrial	Commercial Visitor		Schools & Day Care		Recreational		Trespasser
	Adult	Adult	Young Child	Adult	Young Child	Young Child	Adolescent	Adolescent
Sitewide	0.7	0.2	0.4	0.7	4	2	0.5	0.1

Notes:

Highlighted values are HIs above 1.

EU: exposure unit

HI: hazard index

NA: not available

PCB: polychlorinated biphenyl

RME: reasonable maximum exposure

7-3. Soil PCDD/DF/DL-PCB Data Toxic Equivalency (TEQ) Values

Location	Field Sample ID	QC Type	DL-PCB TEQ ng/kg	PCDD/DF TEQ ng/kg	Total TEQ ng/kg
CA-01-3928-01	S70396	Original	0.126	12.3	12.4
CA-03-1806-07	S70019	Original	0.054	7.45	7.50
CA-03-1806-09	S70021	Original	1.38	11.3	12.7
CA-04-1080-10	S70037	Original	0.126	3.38	3.51
CA-05-1782-06	S70538	Original	0.803	1.88	2.68
CA-05-1782-06	S70539	Original	0.777	2.09	2.87
CA-06-2205-13	S70079	Original	0.051	2.24	2.29
CA-07-1435-02	S70082	Original	0.453	6.39	6.84
CA-07-1435-07	S70087	Original	0.231	3.13	3.36
CA-09-1722-17	S70422	Original	0.042	7.92	7.96
CA-09-1722-17	S70423	Field Duplicate	0.102	8.17	8.27
CA-10-1807-02	S70566	Original	374	58.8	433
CA-10-1807-02	S70567	Original	3.23	201	204
CA-10-2287-16	S70300	Original	3.17	41.4	44.6
CA-11-2057-08	S70270	Original	748	45.4	793
CA-12-2737-01	S70099	Original	18	6.77	24.8
CA-13-2900-08	S70114	Original	5.72	5.96	11.7
CA-13-2900-08	S70115	Field Duplicate	5.53	6.35	11.9
CA-14-3002-01	S70118	Original	34.8	28.6	63.4
CA-14-9999-16	S70134	Original	0.204	7.19	7.39
CA-15-2550-13	S70151	Original	1900	107	2010
CA-15-3016-16	S70154	Original	5.38	33.9	39.3
CA-16-2883-05	S70305	Original	0	5.49	5.49
CA-16-2883-06	S70306	Original	0	2.01	2.01
CA-17-3450-01	S70322	Original	1.5	52.4	53.9
CA-17-3592-05	S70326	Original	8.42	67.4	75.8
CA-18-4697-01	S70160	Original	0	1.33	1.33
CA-18-4880-05	S70164	Original	0.18	6.13	6.31
CA-19-8558-12	S70192	Original	0	4.51	4.51
CA-20-4643-03	S70427	Original	0.621	3.62	4.24
CA-21-5657-13	S70359	Original	0.171	3.79	3.96
CA-21-5603-11	S70357	Original	0	3.02	3.02
CA-22-5621-04	S70380	Original	0	31.6	31.6
CA-22-5981-17	S70394	Original	0.051	1.6	1.65
CA-23-5801-01	S70199	Original	0.084	0.85	0.934
CA-23-5801-04	S70202	Original	0.048	9.43	9.48
CA-24-6098-14	S70723	Original	3.65	38.6	42.3
CA-24-6098-14	S70724	Original	0.506	3.49	4.00
CA-24-6164-23	S70459	Original	0.06	5.08	5.14
CA-24-6388-37	S70473	Original	0	1.45	1.45
CA-25-6127-01	S70475	Original	0	2230	2230
CA-25-6156-15	S70489	Original	0.048	2.74	2.79
CA-26-6673-06	S70373	Original	0.372	8.62	8.99
CA-27-6730-02	S70221	Original	0	0.607	0.607
CA-27-6730-09	S70229	Original	0	0.363	0.363
CA-29-7301-11	S70252	Original	0	7.57	7.57
CA-29-7536-18	S70259	Original	0.147	1.29	1.44
CA-30-7494-03	S70492	Original	0	3.34	3.34

Note:
1. Non-detect values were not included in the TEQ calculation

DL: dioxin-like
ID: identification
ng/kg: nanogram(s) per kilogram
PCB: polychlorinated biphenyl
PCDD/DF: dioxin and furan
QC: quality control
TEQ: toxicity equivalent

Table 8-1. Summary of Remedial Goal Options
Anniston PCB Site, Anniston, Alabama

		BaP Equivalent RGO (mg/kg) Need to multiply by factor of approx. 7.3 [3]					
		Cancer			Noncancer		
	Target Risk Limit =	1.00E-06	1.00E-05	1.00E-04	0.1	1	3
Scenario	Age						
Ind/Comm. Worker	Adult	0.2	2	21	NA	NA	NA
Comm. Visitor	Adult	0.9	9	93	NA	NA	NA
	Young Child	1	13	128	NA	NA	NA
Schools/Daycare	Adult	0.3	3	31	NA	NA	NA
	Young Child	0.1	1	11	NA	NA	NA
Tresspasser	Adolescent	1	10	97	NA	NA	NA
Recreational user	Young Child	0.3	3	27	NA	NA	NA
	Adolescent	0.4	4	40	NA	NA	NA
Construction Worker	Adult	5	53	534	NA	NA	NA
Utility Worker	Adult	53	534	5,341	NA	NA	NA
	Background [2] =		NA			NA	

		Total PCB RGO (mg/kg)					
		Cancer			Noncancer		
	Target Risk Limit =	1.00E-06	1.00E-05	1.00E-04	0.1	1	3
Scenario	Age						
Ind/Comm. Worker	Adult	2	21	206	3	29	88
Comm. Visitor	Adult	9	91	910	13	130	390
	Young Child	14	142	1,423	15	146	439
Schools/Daycare	Adult	3	34	342	5	49	146
	Young Child	1	12	116	1	12	36
Tresspasser	Adolescent	8	81	809	5	46	139
Recreational user	Young Child	3	28	278	3	29	86
	Adolescent	4	35	352	2	20	60
Construction Worker	Adult	56	565	5,645	10	97	290
Utility Worker	Adult	565	5,645	56,454	97	968	2,903
	Background [2] =		NA			NA	

		Arsenic RGO (mg/kg)					
		Cancer			Noncancer		
	Target Risk Limit =	1.00E-06	1.00E-05	1.00E-04	0.1	1	3
Scenario	Age						
Ind/Comm. Worker	Adult	4	38	382	61	608	1,824
Comm. Visitor	Adult	17	169	1,692	269	2,687	8,062
	Young Child	22	217	2,169	84	837	2,510
Schools/Daycare	Adult	5	53	530	85	845	2,535
	Young Child	2	20	200	8	77	231
Tresspasser	Adolescent	20	195	1,950	125	1,252	3,757
Recreational user	Young Child	5	48	481	19	185	556
	Adolescent	8	79	787	51	506	1,517
Construction Worker	Adult	93	925	9,254	60	595	1,785
Utility Worker	Adult	925	9,254	92,538	595	5,951	17,853
	Background [2] =		32			32	

		Chromium RGO (mg/kg)					
		Cancer			Noncancer		
	Target Risk Limit =	1.00E-06	1.00E-05	1.00E-04	0.1	1	3
Scenario	Age						
Ind/Comm. Worker	Adult	6	57	568	304	3,038	9,114
Comm. Visitor	Adult	25	251	2,512	1,343	13,429	40,286
	Young Child	23	228	2,277	878	8,776	26,329
Schools/Daycare	Adult	6	57	570	305	3,050	9,151
	Young Child	3	26	255	98	984	2,953
Tresspasser	Adolescent	92	918	9,175	1,965	19,649	58,948
Recreational user	Young Child	6	61	614	237	2,367	7,102
	Adolescent	22	221	2,208	473	4,731	14,192
Construction Worker	Adult	108	1,080	10,799	694	6,936	20,807
Utility Worker	Adult	1,080	10,799	107,990	6,936	69,357	208,072
	Background [2] =		41			41	

Notes:
(1): RGOs were not calculated for dioxin. TEQ for dioxin and dioxin-like compounds compared to regional screening level (0.73 ug/kg industrial and 0.05 ug/kg residential).
(2): Fort McClellan surface/subsurface background UPL (CDM 2008a).
(3): Toxicity of PAHs changed after HHRA complete. Values in table should be multiplied by approximate factor = 7.3.

Table 8-2
Summary of Benthic Invertebrate Benchmarks/Toxicity Values and Avian and Mammalian Site-Specific Risk-Based Concentrations[1]
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

	Low Benchmarks/ Toxicity Values[2]	NOAEL Site-Specific Risk-Based Concentrations						
Constituent	**Benthic Invertebrates**	**Mallard**	**Tree Swallow**	**Spotted Sandpiper**	**Pied-Billed Grebe**	**Muskrat**	**Little Brown Bat**	**Raccoon**
tPCB (mid-range sensitivity)	1	5	1	1	5	4	0.3	3
tPCB (high sensitivity)	nc	0.4	0.05	0.1	0.4	na	na	na
Barium	nc	160	542	169	214	474	1819	1235
Chromium	43	97	19	26	131	109	24	229
Cobalt	50	120	72	57	149	142	94	370
Lead	36	41	136	22	58	140	528	403
Manganese	nc	473	4661	287	563	169	1808	549
Mercury	0.2	1	0.3	0.3	0.7	5	2	7
Nickel	23	243	32	46	164	77	11	110
Vanadium	nc	13	20	5.9	19	178	334	495
	High Benchmarks/ Toxicity Values[2]	**LOAEL Site-Specific Risk-Based Concentrations**						
tPCB (mid-range sensitivity)	3	14	2	3	14	12	1	8
tPCB (high sensitivity)	nc	1	0.1	0.3	1	na	na	na
Barium	nc	322	1086	340	429	1106	4249	2884
Chromium	111	102	20	27	138	128	28	269
Cobalt	nc	123	74	59	153	193	128	504
Lead	128	82	272	43	117	265	1000	763
Manganese	nc	919	9063	559	1095	214	2282	693
Mercury	1	3	1	0.8	2	9	3	13
Nickel	49	295	39	56	199	154	22	220
Vanadium	nc	26	42	12	38	355	667	988

[1]All Values are mg/kg sediment

[2]Benthic Invertebrate values for tPCBs represent EC0 and EC10 values for most sensitive species and endpoint from site-specific toxicity testing.
LOAEL: lowest observed adverse effect level
mg/kg: milligram(s) per kilogram
na: not applicable
nc: no criteria available
NOAEL: no observed adverse effect level
OU: Operable Unit
tPCB: total polychlorinated biphenyl

Table 9-1. Summary of Snow Creek Deposits

Location	Predominant Sediment Type(s)	Depostional Environment	Area (sf)	Depth to Refusal (ft)	Volume (cy)	Cores Analyzed (n)	Samples (n)	Mean PCB (mg/kg)	Maximum PCB (mg/kg)
S-1-01	dark brown silt and fine to medium sand, trace coarse sand over gravel, rock/silt along edge of channel, slight oil sheen	terrace deposit	1000	1.3	48	1	2	17	31
S-1-02	sand, silt, and railroad bedding gravels washed down by the steep bank	low terrace deposit	162	0.3	2	1	1	8.0	8.0
S-1-03	fine to very coarse sands, gravels, rocks	low terrace/ aggrading bar	280	0.8	8			15	>10
S-1-04	mixture fine to very coarse sand, silts, gravels, rocks; silt and fine sand along edge of channel/terrace	low terrace deposit	900	0.8	27	1	2	15	17
S-1-05	silt, fine sand, aquatic plant roots over rock, gravel	low terrace	180	0.3	2	1	1	11	11
S-1-06	brown fine sand, little silt, oil sheen	channel deposit	48	1.5	3			15	>10
S-1-07	soft silt over silt and fine sand, heavy oil sheen, strong organic odor behind RR tie in creek	channel deposit	144	1.5	8	1	3	5.9	16
S-1-08	soft brown silt over fine sand and clay, grey with black staining	drainage ditch outlet/ 2nd channel during high flow	75	1.0	3	1	3	27	37
S-1-09	fine sand to very coarse sand, gravel, trace silt, oil sheen, organic odor	aggrading bar	36	0.5	1			15	>10
S-1-10	soft dark brown silt over tan fine sandy clay, oil sheen	low terrace	45	1.5	3	1	3	19	29
S-1-11A	brown silt and fine sand over dark brown silt, fine to medium sand, small gravel	low terrace deposit with secondary channel	120	0.5	2	1	3	0.94	2.2

Table 9-1. Summary of Snow Creek Deposits

Location	Predominant Sediment Type(s)	Depostional Environment	Area (sf)	Depth to Refusal (ft)	Volume (cy)	Cores Analyzed (n)	Samples (n)	Mean PCB (mg/kg)	Maximum PCB (mg/kg)
S-1-11B	brown silt and fine sand over dark brown silt, fine to medium sand, small gravel with some medium size gravel	low terrace deposit with secondary channel	600	0.5	11	1	1	12	12
S-1-12	fine to medium sand, trace coarse sand, orange brown upper part, bottom part fine sand and silt	low terrace/ channel deposit	675	0.5	13	1	2	1.4	2.1
S-1-13	fine sand to very coarse sand, gravel	sand bar deposit	20	1.2	1			15	>10
S-1-14	fine sand to very coarse sand, gravel, rocks	bank deposit/ high terrace	1000	0.3	9			15	>10
S-1-15	fine sand to very coarse sand, gravels, small to medium rock	channel deposit/ aggrading bar	225	0.6	5			15	>10
S-1-16	mostly fine sand, some medium to coarse sand, gravels, rock	bank deposit/ high terrace	750	0.9	25	1	2	30	32
SED-A09	Standalone sample location		50	1.0	2	1	1	7.8	7.8
S-1-17	medium sand to very coarse sand, gravels, small/medium rock	aggrading bar	192	1.0	7			15	>10
S-2-01	brown medium to very coarse sand, some gravels	channel deposit	270	1.0	10			15	>10
CP-C-9	Standalone sample location		50	1.0	2	1	1	2.0	2.0
S-2-02	dark brown to black silt with fine to medium sand, some coarse sand, gravels	exposed channel deposit/ aggrading bar	1000	0.5	19	1	1	19	19
CP-C-10	Standalone sample location		50	1.0	2	1	3	6.2	12

Table 9-1. Summary of Snow Creek Deposits

Location	Predominant Sediment Type(s)	Depostional Environment	Area (sf)	Depth to Refusal (ft)	Volume (cy)	Cores Analyzed (n)	Samples (n)	Mean PCB (mg/kg)	Maximum PCB (mg/kg)
SED-A10	Standalone sample location		50	1.0	2	1	1	6.9	6.9
S-2-03A	silt, fine to very coarse sand, gravel over rock	channel deposit/ aggrading bars	100	0.3	1	1	1	3.8	3.8
S-2-03B	fine sand to coarse sand	channel deposit/ aggrading bar	150	0.5	3			5	=>3 and <10
S-2-04A	fine sand to medium sand, trace silt	aggrading bar	125	0.5	2			5	=>3 and <10
S-2-04B	fine sand to coarse sand, trace silt over rock	aggrading bar	150	0.5	3			5	=>3 and <10
CP-C-11	Standalone sample location		50	1.0	2	1	3	3.4	7.5
S-2-05	fine sand to very coarse sand, gravel, small to large rocks 1"-4"	aggrading bar above culvert pipes	2600	2.5	241	1	2	5.9	6.4
S-2-06	fine sand to very coarse sand, gravels	exposed sediment built up in culvert pipes	14400	3.0	1600	3	9	22	60
S-2-07	fine sand, some silt, medium to coarse sand, gravel	channel deposit/ aggrading bar	756	0.4	10			15	>10
S-2-08	fine sand to very coarse sand, gravels, small rock	channel deposit/ aggrading bar	4800	1.0	178	1	3	15	20
S-2-09	fine sand to coarse sand	bank deposit/ channel deposit	120	0.4	2			15	>10
SED-A11	Standalone sample location		50	1.0	2	1	1	16	16
S-2-10	fine sand to very coarse sand, gravels	low terrace/ bank deposit	60	0.3	1			15	>10
S-2-11	fine sand to very coarse sand	channel deposit	216	0.6	5			15	>10
S-2-12	fine sand to very coarse sand, gravels	channel deposit/ low terrace	100	0.5	2			15	>10
S-2-13	fine sand to medium sand, gravels, rock, some silt	channel deposit/ aggrading bar	640	0.5	12			15	>10

Table 9-1. Summary of Snow Creek Deposits

Location	Predominant Sediment Type(s)	Depostional Environment	Area (sf)	Depth to Refusal (ft)	Volume (cy)	Cores Analyzed (n)	Samples (n)	Mean PCB (mg/kg)	Maximum PCB (mg/kg)
PECON-011	Standalone sample location		50	1.0	2	1	1	4.3	4.3
PECON-012	Standalone sample location		50	1.0	2	1	1	8.5	8.5
S-2-14	fine sand to very coarse sand, gravels, rock	aggrading bar	225	0.5	4			15	>10
SED-A12	Standalone sample location		50	1.0	2	1	1	3.9	3.9
S-2-15	fine sand to very coarse sand, trace silt, organics	aggrading bar/ channel deposit	84	0.6	2			5	=>3 and <10
S-2-16	mostly fine to medium sand, debris, some coarse sand, gravels	channel deposit	750	2.5	69	1	2	3.7	4.0
S-3-01	fine sand to coarse sand, some silt, some gravels, little medium size rocks	channel deposit	480	0.5	9	1	2	4.1	4.8
S-3-02	fine sand, some medium to coarse sand, some silt	low terrace deposit	800	1.0	30	1	3	12	17
S-3-03	fine sand to medium sand, trace coarse sand, gravels	terrace/channel deposit	225	0.5	4			5	=>3 and <10
S-3-04	fine to coarse sand, some silt, vegetated along right bank, appears to have been dumped from side of channel	channel deposit	270	0.3	3			5	=>3 and <10
S-3-05	fine sand and silt, trace medium to coarse sand	channel deposit/ low terrace	100	1.0	4	1	2	1.8	2.1
S-3-06	mostly fine sand, trace medium to coarse sand	channel deposit	100	0.5	2			2	<3
S-3-07	mostly fine sand to coarse sand, little silt, some very coarse sand, gravels, small to large stone	aggrading bar	2000	0.8	56	1	2	0.71	0.76

Table 9-1. Summary of Snow Creek Deposits

Location	Predominant Sediment Type(s)	Depostional Environment	Area (sf)	Depth to Refusal (ft)	Volume (cy)	Cores Analyzed (n)	Samples (n)	Mean PCB (mg/kg)	Maximum PCB (mg/kg)
S-5-10	medium sand to very coarse sand, gravels, rock, cobble	aggrading bar/ low terrace	500	0.7	13			2	<3
PECON-020	Standalone sample location		50	1.0	2	1	1	0.75	0.75
S-5-11A	fine sand over coarse sand to very coarse sand, gravels	sand mound	96	4.0	14			2	<3
S-5-11B	fine sand over coarse sand to very coarse sand, gravels	sand mound	96	4.0	14			2	<3
FE2-001-A	Standalone sample location		50	1.0	2	1	1	0.90	0.90
CA-25-9999-90	Standalone sample location		50	1.0	2	1	2	5.9	11
S-5-12A	medium sand to very coarse sand, gravel	aggrading bar	240	1.0	9			5	=>3 and <10
FE2-001-C	Standalone sample location		50	1.0	2	1	1	2.5	2.5
S-5-12B	medium sand to very coarse sand, gravel	aggrading bar	175	1.0	6			2	<3
S-5-13	fine sand to very coarse sand, gravels, rock, few cobbles	aggrading bar/ low terrace	3300	0.9	110	1	1	1.3	1.3
S-5-14	coarse sand to very coarse sand, gravel; fine sand some medium sand on terrace; medium to very coarse sand, gravels/ rock on aggrading bar	aggrading bar/ low terrace	7800	1.5	433	2	4	1.4	1.6
PCWaste-004-B	Standalone sample location		50	1.0	2	1	1	1.2	1.2

Table 9-1. Summary of Snow Creek Deposits

Location	Predominant Sediment Type(s)	Depostional Environment	Area (sf)	Depth to Refusal (ft)	Volume (cy)	Cores Analyzed (n)	Samples (n)	Mean PCB (mg/kg)	Maximum PCB (mg/kg)
S-4-01	medium sand to very coarse sand, gravels, rock, cobble, debris	aggrading bar	75	0.4	1			2	<3
S-4-02	fine sand with silt over medium sand to very coarse sand, gravels, rock	high terrace	192	0.5	3	1	2	0.83	1.1
S-5-01	fine sand, some medium sand, some very coarse sand, gravels, rock	high terrace/ bank deposit	960	0.7	25	1	1	0.76	0.76
S-5-02	fine sand, silt along left bank over rock, gravels	low terrace	30	0.4	0	1	1	4.5	4.5
S-5-03	silt and fine sand over fine sand, trace medium sand	high terrace/ bank deposit	315	0.8	9	1	2	3.7	5.8
S-5-04	fine sand to coarse sand up high, medium to very coarse sand, gravels, rock, stone	low to high terrace/ channel deposit	2250	3.0	250	2	3	1.8	1.9
S-5-05	medium sand to very coarse sand, gravels, rock	aggrading bar	2600	1.5	144	1	2	1.5	1.9
S-5-06	fine sand to very coarse sand, gravels, some silt, organic matter, leaves	aggrading bar/ channel deposit	330	0.5	6	1	2	2.5	2.7
S-5-07	mostly gravel, rock over some coarse sand to very coarse sand	aggrading bar/ channel deposit	1920	0.2	14			2	<3
S-5-08A	medium to very coarse sand, gravels, rock	aggrading bar	735	0.6	16			2	<3
S-5-08B	medium sand to very coarse sand, gravels, rock		900	0.4	13			2	<3
S-5-09	medium to very coarse sand, gravels, rock 1"-6"	aggrading bar	1350	0.5	25			2	<3

Table 9-1. Summary of Snow Creek Deposits

Location	Predominant Sediment Type(s)	Depostional Environment	Area (sf)	Depth to Refusal (ft)	Volume (cy)	Cores Analyzed (n)	Samples (n)	Mean PCB (mg/kg)	Maximum PCB (mg/kg)
S-5-15	coarse to very coarse sand, gravels, rock, small cobble; low terrace has fine sand over small cobble	aggrading bar/ low terrace	3120	0.5	58			2	<3
S-5-16	fine sand to very coarse sand, gravel, rock	aggrading bar	3750	0.5	69			2	<3
S-5-17	coarse sand to very coarse sand, gravel, rock	aggrading bar	3000	0.5	56			2	<3
S-5-18	coarse sand to very coarse sand, gravel, rock	aggrading bar	3000	0.5	56			2	<3
S-5-19	medium sand to very coarse sand, gravel, rock	aggrading bar	3000	0.8	89			2	<3
S-5-20	coarse sand to very coarse sand, gravel, rock	aggrading bar	1000	0.6	22			2	<3
S-5-21	fine sand to very coarse sand, gravel	aggrading bar	175	0.9	6			2	<3
S-5-22	fine sand to very coarse sand, gravel	aggrading bar	1200	0.8	36			2	<3
S-5-23	coarse sand to very coarse sand, gravel, rock	aggrading bar	150	1.2	7			2	<3
S-5-24	medium to very coarse sand, gravel	channel deposit	240	2.0	18	1	2	1.2	1.2
S-5-25	fine sand to coarse sand, little gravel	aggrading bar/ sand bar	150	0.9	5			2	<3

Notes:

Shading — Indicates an estimated concentration based on spatial location.

Shading — Indicates sample was not collected as part of the deposit characterization program and areas, depths, and volumes are an estimate.

cy: cubic yards
ft: feet
mg/kg: milligram(s) per kilogram
n: sample size
PCB: polychlorinated biphenyl
sf: square feet

Table 10-1. Comparative Analysis of Remedial Alternatives for Residential Soil

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and/or Volume by Treatment	Short-Term Effectiveness	Implementability	Cost in millions ($M)
RS-1	No Action	Does not provide protection of human health and the environment where PCBs in soil > 1mg/kg	Not Evaluated Further					0
RS-2	Complete Non-Time-Critical Removal and Manage PCB Residuals	Provides protection of human health and the environment through O&M of residual PCBs in subsurface and under structures	Complies with ARARs	Effective and permanent over the long term provided subsurface residuals are not exposed through erosion and structures remain in place	Does not include treatment, would not reduce toxicity, mobility, or volume	Short-term impacts similar to previous removals and manageable	Implementable	7.3
RS-3	Excavate PCBs ≥ 1 mg/kg at All Depths and Manage PCB Residuals	Provides protection of human health and the environment through O&M of residual PCBs under structures	Complies with ARARs	Effective and permanent over the long term provided structures remain in place	Does not include treatment, would not reduce toxicity, mobility, or volume	Additional short-term impacts as compared to the other alternatives including impacts to properties where surface soil removals previously occurred	Implementable	15.7

ARAR: applicable or relevant and appropriate requirement
PCB: polychlorinated biphenyl
RS: Residential Soil

Table 10-2. Comparative Analysis of Remedial Alternatives for Special Use Properties

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and/or Volume by Treatment	Short-Term Effectiveness	Implementability	Cost in millions ($M)
SU-1	No Action	Does not provide protection where removals have not been conducted	Not Evaluated Further					0
SU-2	Excavate Low Activity Areas to Non-Residential Goal and Manage PCB Residuals	Provides protection of human health and the environment	Complies with ARARs	Effective and permanent over longterm provided activity areas don't change, erosion does not expose PCB waste, and structures remain in place	Does not include treatment, would not reduce toxicity, mobility, or volume	Minimal additional impacts	Implementable	0.5
SU-3	Excavate Low Activity Areas to Residential Goal and Manage PCB Residuals	Provides protection of human health and the environment	Complies with ARARs	Effective and permanent over longterm provided erosion does not expose PCB waste and structures remain in place	Does not include treatment, would not reduce toxicity, mobility, or volume	Short-term impacts similar to previous removals and manageable	Implementable	3.1
SU-4	Excavate PCBs ≥ 1 mg/kg in High and Low Activity Areas and Manage PCB Residuals	Provides protection of human health and the environment	Complies with ARARs	Effective and permanent over the long term provided structures remain in place	Does not include treatment, would not reduce toxicity, mobility, or volume	Additional short-term impacts as compared to the other alternative including impacts where surface soil removals previously occurred	Implementable	3.9

ARAR: applicable or relevant and appropriate requirement

Table 10-3. Comparative Analysis of Remedial Alternatives for Interim Measures

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and/or Volume	Short-Term Effectiveness	Implementability	Cost in millions ($M)
IM-1	No Action	Not Evaluated Further	-	-	-	-	-	0
IM-2	Expand Existing IMs to Meet Non-Residential Goals; Excavate any PTW found within IMs if Leaching to Groundwater	Provides protection of human health and the environment	Compliant with ARARs	Effective and permanent as long as caps and covers remain in place	Does not include treatment to reduce toxicity, mobility, or volume	Short-term impacts similar to other construction conducted for the Site	Implementable	2.6
IM-3	Expand Existing IMs to Meet Non-Residential Goals; Excavate Potential PTW at Railroad (RR) and McDaniel; and Excavate any PTW found within IMs if Leaching to Groundwater	Provides protection of human health and the environment	Compliant with ARARs	Effective and permanent as long as caps and covers remain in place; provide permanent fix for contaminated soil at RR and McDaniel	Does not include treatment to reduce toxicity, mobility, or volume	Short-term concerns with excavation of high-concentration materials in a drainage way	Implementable	2.6
IM-4	Excavate around Existing IMs to Meet Non-Residential Goals; Excavate any PTW found within IMs if Leaching to Groundwater	Provides protection of human health and the environment	Compliant with ARARs	Effective and permanent as long as caps and covers remain in place; provide permanent fix for PCBs outside current IMs	Does not include treatment to reduce toxicity, mobility, or volume	Short-term concerns with excavation of high-concentration materials in a drainage way	Implementable; May be difficult to excavate adjacent to an active railroad line	4.3

ARAR: applicable or relevant and appropriate requirement
IM: Interim Measure
PTW: principal threat waste

Table 10-4. Comparative Analysis of Remedial Alternatives for Soil in Dredge Spoil Piles

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and/or Volume by Treatment	Short-Term Effectiveness	Implementability	Cost in millions ($M)
DSP-1	No Action	Does not protect human health or Snow Creek Sediment.	Not Evaluated Further					0
DSP-2	Excavate to Non-Residential Goal and Offsite Disposal	Provides protection of human health and the environment.	Complies with ARARs.	Effective and permanent over the long term.	Does not include treatment to reduce toxicity, mobility, or volume.	Manageable. Truck traffic more disruptive than DSP-3.	Implementable	0.9
DSP-3	Excavate to Non-Residential Goal and Onsite Disposal	Provides protection of human health and the environment.	Complies with ARARs.	Effective and permanent over the long term.	Does not include treatment to reduce toxicity, mobility, or volume.	Manageable. Least long distance truck traffic.	Implementable	0.5
DSP-4	Excavate All Dredge Spoil Piles and Offsite Disposal	Provides protection of human health and the environment.	Complies with ARARs.	Effective and permanent over the long term.	Does not include treatment to reduce toxicity, mobility, or volume.	Manageable. More area disrupted than DSP-2 and DSP-3. Higher level of truck traffic for long distance.	Implementable	1.4
DSP-5	Excavate All Dredge Spoil Piles and Onsite Disposal	Provides protection of human health and the environment.	Complies with ARARs.	Effective and permanent over the long term.	Does not include treatment, to reduce toxicity, mobility, or volume.	Manageable. More area disrupted than DSP-2 and DSP-3. Highest level of truck traffic for long distance.	Implementable More access needed than DSP-2 and DSP-3	0.7

ARAR: Applicable or Relevant and Appropriate Requirement
DSP: Dredge Spoil Piles

Table 10-5. Comparative Analysis of Remedial Alternatives for Unapproved Waste Disposal Areas

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility and/or Volume by Treatment	Short-Term Effectiveness	Implementability	Cost in millions ($M)
UWDA-1	No Action	Not protective of human health or the environment	Not Evaluated Further					0
UWDA-2	Soil Cap and Marker Layer	Provides protection of human health and the environment if cap maintained	Complies with ARARs	Effective but not as permanent over the long term as other alternatives	Does not include treatment to reduce toxicity, mobility or volume	Short-term impacts from construction similar to other construction activities conducted for the Site	Implementable	1.6
UWDA-3	RCRA Subtitle- D Cap	Provides protection of human health and the environment if cap maintained	Complies with ARARs	Effective and permanent over the long term if cap remains in place	Does not include treatment to reduce toxicity, mobility or volume	Short-term impacts from construction similar to other construction activities conducted for the Site	Implementable	2.8
UWDA-4	Excavate Waste and Off-Site Disposal	Provides protection of human health and the environment	Complies with ARARs	Effective and most permanent over the long term because waste removed	Does not include treatment to reduce toxicity, mobility or volume with the possible exception of treatment of metals prior to disposal	Significant short-term impacts; the size and duration would be significantly larger and deeper than other removals conducted elsewhere on the Site	Implementable, but would need significant predesign work, engineering planning, and controls to conduct in a manner that would be safe for the Site, the workers, and the public	41.2

ARAR: applicable or relevant and appropriate requirement
IC: institutional control
O&M: operation and maintenance
RCRA: Resource Conservation and Recovery Act
UWDA: unapproved waste disposal area

Table 10-6. Comparative Analysis of Remedial Alternatives for Non-Residential Soil

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and/or Volume by Treatment	Short-Term Effectiveness	Implement-ability	Cost in millions ($M)	
								a) 21 mg/kg	b) 9 mg/kg
NRS-1	No Action	Is not protective of human health or the environment	Not Evaluated Further					0	0
NRS-2	Combination Capping and Excavation; Onsite and Offsite Disposal; and Management of PCB Residuals	Provides protection of human health and the environment	Complies with ARARs	Effective and permanent but slightly less so than NRS-3, NRS-4, and NRS-5	No treatment to reduce toxicity, mobility, or volume	Manageable over similar time period as other alternatives	Implement with existing technology	7.9	10.1
NRS-3	Excavate Soil; Onsite and Offsite Disposal; and Manage PCB Residuals	Provides protection of human health and the environment	Complies with ARARs	Effective and permanent over the long term	No treatment to reduce toxicity, mobility, or volume	Manageable over similar time period as other alternatives	Implement with existing technology	10.0	12.7
NRS-4	Excavate; Offsite Disposal; and Manage PCB Residuals	Provides protection of human health and the environment	Complies with ARARs	Effective and permanent over the long term	No treatment to reduce toxicity, mobility, or volume	Manageable over similar time period as other alternatives	Implement with existing technology	10.4	14.6
NRS-5	Excavate, Offsite Treatment of Soil and Manage of PCB Residuals	Provides protection of human health and the environment	Complies with ARARs	Effective and permanent over the long term	Includes treatment to reduce the toxicity, mobility, and volume of PCBs	Manageable over similar time period as other alternatives, with the exception of long-distance trucking under this alternative	Implement with existing technology but off-site treatment facilities remote and limited	21.0	36.6
NRS-6	Excavate, Onsite Thermal Desorption of Soil and Manage PCB Residuals	Provides protection of human health and the environment	Complies with ARARs	Effective and permanent over the long term	Includes treatment to reduce the toxicity, mobility, and volume of PCBs	Manageable over similar time period as other alternatives; more community outreach and approvals due to the potential for emissions	Implement with existing technology, assuming that a thermal treatment vendor can meet operating requirements	19.1	46.2

ARAR: applicable or relevant and appropriate requirement

Table 10-7. Comparative Analysis of Remedial Alternatives for Groundwater at T-11

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity Mobility and Volume by Treatment	Short-Term Effectiveness	Implement-ability	Cost in millions ($M)
GW-1	No Action	Is not protective	Not Evaluated Further	-	-	-	-	0
GW-2	Excavate High Concentrations and Surface Soil, Offsite Disposal, Soil Cap and Monitor Groundwater	Provides protection of human health and the environment	Will comply with ARARs in time	Effective over the long term and permanent if cap is not disturbed and leaching no longer occurs	Does not include treatment to reduce toxicity, mobility, or volume	Impacts associated with construction are manageable	Can be implemented with available resources recognizing the challenges in working in this isolated area	2.2
GW-3	Excavate of High Conc. and Surface Soil, Offsite Disposal, Low-permeability Cap, Monitor Groundwater and Operations and Maintenance (O&M)	Provides protection of human health and the environment	Will comply with ARARs in time	Effective over the long term and permanent if cap is not disturbed	Does not include treatment to reduce toxicity, mobility, or volume	Impacts associated with construction are manageable	Can be implemented with available resources recognizing the challenges in working in this isolated area	3.3
GW-4	Excavate High Concentrations and Surface Soil, Offsite Disposal, Low-permeability Cap, Pump and Treat Groundwater, Monitor Groundwater and O&M	Provides protection of human health and the environment	Will comply with ARARs in time	Effective over the long term and permanent	Reduces volume and toxicity through the treatment of groundwater but not principal threat waste in soil	Impacts associated with construction are manageable	Can be implemented with available resources recognizing the challenges in working in this isolated area	4.2

Table 10-8. Comparative Analysis of Remedial Alternatives for Snow Creek Sediment and Creek Banks

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and/or Volume	Short-Term Effectiveness	Implementability	Cost in millions ($M)	
								a) 3mg/kg	b) 1mg/kg
SED-1	No Action	Is not protective	Not Evaluated Further	-	-	-	-	0	
SED-2	Combination Excavate, Onsite and Offsite Disposal, and Monitored Natural Attenuation	Provides protection of human health and the environment	Complies with ARARs including the AWQC	Effective over the long term and permanent; will take longer to reach sediment and surface water goals	Does not include treatment to reduce toxicity, mobility, or volume	Fewer impacts than SED-3 or SED-4 based on less expansive sediment removal	Some implementability challenges exist, especially for sediment in the Highway 202 culverts	2.7	-
SED-3	Excavate and Onsite and Offsite Disposal	Provides protection of human health and the environment	Complies with ARARs including the AWQC	Effective over the long term and permanent	Does not include treatment to reduce toxicity, mobility, or volume	Potential impacts during construction can be managed	Some implementability challenges exist, especially for sediment in the Highway 202 culverts	2.9	4.1
SED-4	Excavation and Off-Site Disposal	Provides protection of human health and the environment	Complies with ARARs including the AWQC	Effective over the long term and permanent	Does not include treatment to reduce toxicity, mobility, or volume	Potential impacts during construction can be managed	Some implementability challenges exist, especially for sediment in the Highway 202 culverts	3.1	4.5

ARAR: applicable or relevant and appropriate requirement
MNR: monitored natural recovery

Table 12-1. Remedial Goals for Selected Remedy

Category	Remedial Goal	Basis
Residential Soil (RS-2)	Surface Soil: PCBs 1 mg/kg Subsurface Soil: PCBs 10 mg/kg	NTC Removal Streamlined Risk Assessment and RI/FS Human Health Risk Assessment
Special Use Properties (SU-3)	HAA Surface Soil: PCBs 1 mg/kg HAA Subsurface Soil PCBs 10 mg/kg LAA Surface Soil: PCBs 1 mg/kg LAA Subsurface Soil PCBs 10 mg/kg or 97 mg/kg	NTC Removal Streamlined Risk Assessment and RI/FS Human Health Risk Assessment
Interim Measures (IM-4) Dredge Spoil Piles (DSP-4) Unapproved Waste Disposal Areas (UWDA-3) Non-residential Soil (NRS-4) Groundwater and PTW at T-11 (GW-4)	Surface Soil: PCBs 21 mg/kg[1] PAHs 153 mg/kg Chromium 382 mg/kg Dioxins and DL Compounds 0.73µg/kg Subsurface Soil: PCBs 97 mg/kg Dioxins and DL Compounds 0.73µg/kg Groundwater: PCBs 0.5µg/L	Human Health Risk Assessment and Chemical-Specific ARARs
Sediment and Creek Banks (SED-4)	Sediment: PCBs (3 mg/kg) barium (322 mg/kg) chromium (111 mg/kg) cobalt (59 mg/kg) lead (128 mg/kg) manganese (1,100 mg/kg) mercury (1 mg/kg) nickel (46 mg/kg) vanadium (41 mg/kg) Surface Water: PCBs 0.014 µg/L lead 2.5 µg/L chromium VI 11 µg/L chromium III 74 µg/L	Streamlined Ecological Risk Assessment and Chemical-Specific ARARs

Notes:

1. When determining areas to cleanup to meet PCB RG of 21 mg/kg in non-residential surface soil, no areas with PCB concentrations ≥ 50 mg/kg will be left in place.

Table 12-2a. Summary of Selected Remedy Costs

Alternative		Capital Costs	Long-Term Cost		Administrative / Management Costs	Contingency Costs	Total Net Present Worth Cost 7% Discount Rate
			Annual	Total Present Worth (Years 1-30)			
Residential Soil (RS) Table 12-2b	RS-2	$3,726,000	$113,000	$1,402,000	$816,000	$1,398,000	**$7,342,000**
Special Use Properties (SU) Table 12-2c	SU-3	$1,890,000	$25,000	$234,000	$390,000	$614,000	**$3,153,000**
Interim Measures (IM) Table 12-2d	IM-4	$1,842,000	$100,000	$1,241,000	$431,000	$801,000	**$4,315,000**
Dredge Spoil Piles (DSP) Table 12-2e	DSP-4	$932,000	$0	$0	$187,000	$280,000	**$1,399,000**
Unapproved Waste Disposal Areas (UWDA) Table 12-2f	UWDA-3	$1,317,000	$50,000	$620,000	$295,000	$519,000	**$2,751,000**
Nonresidential Soil (NRS) Table 12-2g	NRS-4	$2,679,000	$413,000	$5,125,000	$792,000	$1,829,000	**$10,425,000**
Groundwater at T-11 (GW) Table 12-2h	GW-4	$2,366,000	$40,000	$496,000	$498,000	$809,000	**$4,169,000**
Sediment and Creek Banks (SED) Table 12-2i	SED-4	$1,897,000	$15,000	$186,000	$389,000	$606,000	**$3,078,000**
Total		$16,649,000		$9,304,000	$3,798,000	$6,856,000	**$36,607,000**

Table 12-2b. Estimated Costs for Remedial Alternative RS-2
Anniston PCB Site, Anniston, Alabama

Alternative RS-2: Remove surface soils on residential properties with polychlorinated biphenyl (PCB) concentrations ≥1 milligram per kilogram (mg/kg) and subsurface soils with PCB concentrations ≥10 mg/kg. This alternative is consistent with actions already taken under the Non-Time Critical (NTC) Removal Action Agreement and the Stipulation for residential properties where property access was available and the properties were not overgrown with vegetation. Soil management would be implemented as part of the remedial alternative for residential properties where subsurface soil PCB residuals (between 1 mg/kg and 10 mg/kg) remain. Additional removal actions would be implemented for properties if access is granted or if overgrown conditions change. Soils generated during additional removals may be disposed of on-site in the south staging and soil management area (SSSMA) provided that the PCB concentration results from the five-point composite samples collected for the property are <10 mg/kg.

Item No.	Item	Unit Cost	Units	Estimated Quantity	Estimated Cost
	Capital Costs				
1.	Program Administration and Sampling	$617,600	Lump Sum	1	$617,600
2.	Excavation, Handling, and On-Site Disposal (<10 mg/kg)	$5.00	Cubic Feet	494,900	$2,474,500
3.	Upcharge for T&D Material Off-Site (≥10 ppm <50 ppm)	$75.00	Cubic Yard	2,100	$157,500
4.	Upcharge for T&D Material Off-Site (≥50 ppm)	$300.00	Cubic Yard	300	$90,000
5.	Backfill Delivery and Placement	$21	Cubic Yard	18,400	$386,400
				TOTAL CAPITAL COST	**$3,726,000**
	Long-Term Costs (Soil Management Program)				
6.	Addressing PCBs Concentrations at Depth	$32,000	Annually	1	$32,000
7.	Properties with Structures	$81,000	Annually	1	$81,000
				TOTAL ANNUAL LONG-TERM COST	**$113,000**
	Present Worth of Long-Term Costs				
8.	Years of Long-Term Program (Items 6 & 7)	30	Years		
9.	Discount Rate	7	%		
				PRESENT WORTH OF ANNUAL LONG-TERM COSTS (YEARS 1-30)	**$1,402,000**
	Administrative/Management				
				CONSTRUCTION BONDING (3% of Capital Cost)	**$112,000**
				PROJECT MANAGEMENT (5% of Capital Cost)	**$186,000**
				PROJECT MANAGEMENT (5% of Long-Term Cost)	**$70,000**
				ENGINEERING DESIGN/PERMITTING (6% of Capital Cost)	**$224,000**
				CONSTRUCTION MANAGEMENT (6% of Capital Cost)	**$224,000**
				SUBTOTAL	**$5,944,000**
	Contingency Costs				
				CONTINGENCY CAPITAL COSTS (15% scope + 15% bid)	**$1,118,000**
				CONTINGENCY LONG-TERM COSTS (10% scope + 10% bid)	**$280,000**
				TOTAL PRESENT WORTH	**$7,342,000**

General Notes:

- Cost estimate is based on past experience, cost estimating resources, and vendor estimates. Costs provided in 2016 dollars. This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative.
- Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost.
- Cost factors based on *A Guide to Developing and Documenting Cost Estimates During Feasibility Study,* prepared by the United States Environmental Protection Agency (USEPA) and United States Army Corps of Engineers (USACE), July 2000.
- Cost estimate does not include previously implemented remediation activities.

Table 12-2b. Estimated Costs for Remedial Alternative RS-2
Anniston PCB Site, Anniston, Alabama

Assumptions:

1. Sampling and administrative costs include administrative efforts, maintaining project database, sampling efforts not completed, preparing removal packages, etc. Based on previous experience in Operable Units 1 and 2 (OU-1/OU-2). Note that complete depth data are not available for every property. Additional sampling would be required to address depth impacts.
2. Includes costs for labor, equipment, and materials to perform removal obligations for properties without access or that are unsuitable for removal. Assumes transportation and on-site disposal of excavated soils at the SSSMA. Assumes residential property removal quantities with PCBs at depth based on existing sampling data. A 10% contingency was added to the remedial quantities to address potential PCB impacts in the underlying soil where data are not available.
3. Additional costs for labor, equipment, and materials to load, transport, and dispose of materials with >10 but <50 mg/kg PCBs at the off-site Three Corners facility. A 10% contingency was added to the remedial quantities to address potential PCB impacts in the underlying soil where data are not available.
4. Additional costs for labor, equipment, and materials to load, transport, and dispose of materials with >50 mg/kg PCBs at the off-site Emelle facility. A 10% contingency was added to the remedial quantities to address potential PCB impacts in the underlying soil where data are not Includes labor, equipment, and materials to purchase, import, place, grade, and compact general fill and topsoil to replace removed materials to pre-removal grades.
5. A soil management program would be implemented for residential properties where residual PCB concentrations (between 1 mg/kg and 10 mg/kg) remain in subsurface soil underlying areas that were previously remediated. Soil management activities would include interactive outreach with local landowners and/or local communities regarding any plans to disturb these impacted subsurface soils. If replacement of subsurface soils is not feasible at a particular property, provisions would be made for on-site or off-site disposal of these materials and for the placement of clean fill material back into the excavation area.
6. Annual activities under this item are assumed to include sampling of 11 residential properties where structures are demolished and soil removals on 4 of those properties. It is assumed that excavated soil from 3 of the properties would be disposed of on-site in the SSSMA
   (based on assumed PCB concentrations less than 10 mg/kg from 5-point composite samples), and soil from 1 property would be disposed of off-site at a nonhazardous waste landfill (based on assumed PCB concentrations less than 10 mg/kg from 5-point composite samples). The estimate assumes that the level of activities will decrease each year as properties are addressed.
7. Assumes 30 years for implementation of the soil management program. Based on industry standard and guidance in the document titled *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study,* prepared by USEPA and USACE, July 2000 Documenting Cost Estimates During the Feasibility Study, prepared by USEPA and USACE, July 2000.

Table 12-2c. Estimated Costs for Remedial Alternative SU-3
Anniston PCB Site, Anniston, Alabama

Alternative SU-3: Excavate surface soils with polychlorinated biphenyl (PCB) concentrations ≥1 milligram per kilogram (mg/kg) in the high activity portions of the special use properties. Nonresidential surface soils in low activity areas with PCB concentrations > 1 mg/kg would be removed and disposed of on-site/off-site. The non-residential surface soil in the low activity areas is being addressed to provide a cancer risk of 1×10^{-6} for the young child under the school/day care exposure scenario. Remove subsurface soils with PCB concentrations ≥10 mg/kg. Excavated soils with PCB concentrations <10 mg/kg would be disposed of on-site in the south staging and soil management area (SSSMA), and soils with PCB concentrations ≥ 10 mg/kg would be disposed of in an appropriately permitted off-site landfill. On-site disposal of soils with PCB concentrations <10 mg/kg that have been characterized by five-point composite samples is provided for in the Stipulation through the Non-Time Critical (NTC) Removal Action Agreement. Soil management for subsurface soils would include interactive outreach with landowners regarding any plans to disturb subsurface soils in areas where removal actions were conducted under the Stipulation. If a structure is removed, implement soil removal with on-site/off-site disposal where PCB surface concentrations are ≥1 mg/kg or subsurface concentrations are ≥10 mg/kg.

Item No.	Item	Unit Cost	Units	Estimated Quantity	Estimated Cost
	Capital Costs				
1.	Program Administration and Sampling	$75,000	Lump Sum	1	$75,000
2.	Excavation and On-Site Disposal (<10 mg/kg) (low activity)	$5.50	Cubic Feet	286,400	$1,575,200
3.	Upcharge for T&D Material Off-Site (≥10 ppm <50 ppm)	$75	Cubic Yard	230	$17,250
4.	Backfill Delivery and Placement	$21	Cubic Yard	10,600	$222,600
				TOTAL CAPITAL COST	**$1,890,000**
	Long-Term Costs				
5.	Soil Management Program	$11,000	Annually	1	$11,000
6.	High Activity Properties with Structures	$14,000	Annually	1	$14,000
				TOTAL ANNUAL LONG-TERM COST	**$25,000**
	Present Worth of Long-Term Costs				
7.	Years of Long-Term Program (Item 5)	30	Years		
8.	Years of Long-Term Program (Item 6)	10	Years		
9.	Discount Rate	7	%		
				PRESENT WORTH OF ANNUAL LONG-TERM COSTS (YEARS 1-30)	**$234,000**
	Administrative/Management				
				CONSTRUCTION BONDING (3% of Capital Cost)	**$57,000**
				PROJECT MANAGEMENT (5% of Capital Cost)	**$95,000**
				PROJECT MANAGEMENT (5% of Long-Term Cost)	**$12,000**
				ENGINEERING DESIGN/PERMITTING (6% of Capital Cost)	**$113,000**
				CONSTRUCTION MANAGEMENT (6% of Capital Cost)	**$113,000**
				SUBTOTAL	**$2,514,000**
	Contingency Costs				
				CONTINGENCY CAPITAL COSTS (15% scope + 15% bid)	**$567,000**
				CONTINGENCY LONG-TERM COSTS (10% scope + 10% bid)	**$47,000**
				TOTAL PRESENT WORTH	**$3,128,000**

General Notes:

- Cost estimate is based on past experience, cost estimating resources, and vendor estimates. Costs provided in 2016 dollars.This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative.
- Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost.
- Cost factors based on *A Guide to Developing and Documenting Cost Estimates During Feasibility Study,* prepared by the United States Environmental Protection Agency (USEPA) and United States Army Corps of Engineers (USACE), July 2000.
- Cost estimate does not include previously implemented remediation activities.

Table 12-2c. Estimated Costs for Remedial Alternative SU-3
Anniston PCB Site, Anniston, Alabama

Assumptions:

1. Sampling and administrative costs include administrative efforts, maintaining project database, sampling efforts not completed, preparing removal packages, etc. Based on previous experience in Operable Units 1 and 2 (OU-1/OU-2). Note that depth data are not available. Additional sampling would be required to assess depth impacts.
2. Includes costs for labor, equipment, and materials to remove soils on low activity special use properties with PCB concentrations greater than or equal to 1 mg/kg. Assumes transportation and on-site disposal of excavated soils at the SSSMA. Assumes low activity special use property removal quantities with PCBs greater than or equal to 1 mg/kg (19 properties - 249,000 square feet) based on existing sampling data, plus a contingency factor of 15% to address potential PCB impacts in the underlying soil where data are not available. Assumes that clean fill material above the PCB-containing soil would be removed with the impacted soil and placed in the SSSMA.
3. Includes additional costs for off-site transportation and disposal of soils with PCB concentrations greater than 10 mg/kg and less than 50 mg/kg. Quantity is based on 1 low activity area where composite sample data exceeded 10 mg/kg.
4. Includes labor, equipment, and materials to purchase, import, place, grade, and compact general fill and topsoil to replace removed materials to pre-removal grades.
5. A soil management program would be implemented for special use properties where residual PCB concentrations (between 1 mg/kg and 10 mg/kg) remain in subsurface soil. Soil management activities would include interactive outreach with local landowners and/or local communities regarding any plans to disturb these PCB-containing subsurface soils. If replacement of subsurface soils is not feasible at a particular property, provisions would be made for on-site or off-site disposal of these materials and for the placement of clean fill material back into the excavation area. This cost estimate assumes that approximately 500 square feet of area will be addressed on an annual basis as part of the soil management program and that soils generated during the soil management program would be disposed of on-site in the SSSMA.
6. Annual activities under this item assume that sampling and remediation is performed on 1 special use property each year where a structure(s) is demolished. Cost estimate assumes that soil excavated from 75% of the properties would be disposed of on-site in the SSSMA and 25% would be disposed of off-site at a nonhazardous waste landfill. The estimate assumes that the level of activities will decrease each year as properties are addressed.
7. The estimate assumes that efforts associated with low activity properties will continue for 30 years. Based on industry standard and guidance in the document titled *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study,* prepared by USEPA and USACE, July 2000.
8. The estimate assumes that efforts will continue for 10 years as properties are addressed.
9. Present worth is estimated based on a 7% beginning-of-year discount rate. Present cost factor based on *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study,* prepared by USEPA and USACE, July 2000.

Table 12-2d. Estimated Costs for Remedial Alternative IM-4
Anniston PCB Site, Anniston, Alabama

Alternative IM-4: Expand existing interim measures (IMs) including portions of the Eastside Area, the Eastside Drainage Way (including the drainage ditch to the north), and the Northside Area to meet the nonresidential preliminary remediation goal (PRG) for polychlorinated biphenyls (PCBs) of 21 milligrams per kilogram (mg/kg) and address locations with PCBs ≥ 50 mg/kg. This would include the excavation and off-site disposal of surface soils in the IM expansion areas, placing a 12-inch layer of clean backfill and vegetation to stabilize the areas. Further evaluate potential principal threat waste (PTW) in the Eastside IM during the remedial design (RD) to confirm PTW is not present. If PTW is found to be present, these materials will be addressed as part of the remedy using an approach selected by the United States Environmental Protection Agency (USEPA) as part of the RD. Conduct long-term operation and maintenance (O&M) for the covers and implement institutional controls (ICs), if applicable.

Item No.	Item	Unit Cost	Units	Estimated Quantity	Estimated Cost
	Capital Costs				
1.	Mobilization / Demobilization	10%	Lump Sum	1	$26,000
2.	Temporary Facilities	$10,000	Month	3	$30,000
3.	Clearing and Site Preparation	$4,000	Acre	2.5	$10,000
4.	Surveying	$13,000	Lump Sum	1	$13,000
5.	Erosion, Sediment, and Storm Water Control	$10,000	Lump Sum	1	$10,000
6.	Excavation	$20	Ton	6,200	$124,000
7.	Transportation and Off-site Disposal (≥50 mg/kg)	$200	Ton	6,200	$1,240,000
8.	Backfill Delivery and Placement	$21	Cubic Yard	4,200	$88,200
9.	Surface Restoration	$28,300	Acre	3	$70,750
10.	Contractor Health & Safety/Air Monitoring	$10,000	Month	3	$30,000
11.	PTW Evaluation	$100,000	Lump Sum	1	$100,000
12.	Institutional Controls	$100,000	Lump Sum	1	$100,000
				TOTAL CAPITAL COST	**$1,842,000**
	Long-Term Costs				
13.	Cover Inspection and Maintenance	$100,000	Annually	1	$100,000
				TOTAL ANNUAL LONG-TERM COST	**$100,000**
	Present Worth of Long-Term Costs				
14.	Years of Long-Term Program	30	Years		
15.	Discount Rate	7	%		
				PRESENT WORTH OF ANNUAL LONG-TERM COSTS (YEARS 1-30)	**$1,241,000**
	Administrative/Management				
				CONSTRUCTION BONDING (3% of Capital Cost)	**$55,000**
				PROJECT MANAGEMENT (5% of Capital Cost)	**$92,000**
				PROJECT MANAGEMENT (5% of Long-Term Cost)	**$62,000**
				ENGINEERING DESIGN/PERMITTING (6% of Capital Cost)	**$111,000**
				CONSTRUCTION MANAGEMENT (6% of Capital Cost)	**$111,000**
				SUBTOTAL	**$3,514,000**
	Contingency Costs				
				CONTINGENCY CAPITAL COSTS (15% scope + 15% bid)	**$553,000**
				CONTINGENCY LONG-TERM COSTS (10% scope + 10% bid)	**$248,000**
				TOTAL PRESENT WORTH	**$4,315,000**

General Notes:

- Cost estimate is based on past experience, cost estimating resources, and vendor estimates. Costs provided in 2016 dollars.
- This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost.
- Cost factors based on *A Guide to Developing and Documenting Cost Estimates During Feasibility Study,* prepared by the USEPA and United States Army Corps of Engineers (USACE), July 2000.
- Cost estimate does not include previously implemented remediation activities.

Table 12-2d. Estimated Costs for Remedial Alternative IM-4
Anniston PCB Site, Anniston, Alabama

Assumptions:

1. Includes costs for mobilization/demobilization of labor, equipment, and materials to perform the remedial construction activities. The cost is estimated as 10% of the total capital cost for the alternative, excluding transportation/disposal and ICs costs. It is assumed that a single mobilization/demobilization will be necessary.
2. Includes costs for temporary facilities and utilities including project trailers, sanitation/waste facilities and services, field office services, and fuel storage.
3. Includes costs for labor, equipment, and materials to perform clearing, construct support facilities areas, and otherwise prepare the site for construction.
4. Includes costs for labor, equipment, and materials to perform pre- and post-construction survey of the IM remedial areas to verify, confirm, and document pre- and post-construction elevations and conditions.
5. Includes costs for labor, equipment, and materials to install and manage temporary erosion and sedimentation controls.
6. Includes costs for labor, equipment, and materials to remove soil from areas exceeding the nonresidential PRG for PCBs of 21 mg/kg and areas with PCBs ≥ 50 mg/kg.
7. Includes costs for labor, equipment, and materials to transport and dispose of soil offsite from areas exceeding the nonresidential PRG for PCBs of 21 mg/kg and areas with PCBs ≥ 50 mg/kg.
8. Includes labor, equipment, and materials to purchase, import, place, grade, and compact general fill and topsoil to replace materials removed to meet surrounding grade.
9. Includes costs for labor, equipment, and materials to restore disturbed areas following construction. Includes topsoil placement, grading, seeding, mulching, and limited tree/shrub planting.
10. Includes costs for labor, equipment, and materials for contractor health and safety activities, monitoring dust and air emissions during intrusive activities, and dust control, as necessary.
11. The scope of the investigation to confirm that PTW is not present at the Eastside Area will be developed in conjunction with the USEPA as part the predesign investigation.
12. Includes administrative and legal costs to implement ICs (e.g., deed restrictions, environmental covenants) to limit future property use where engineering controls are installed.
13. Long-term O&M activities would include periodic inspection of the engineered cover systems to document their condition and perform maintenance and repairs as needed to maintain the integrity of the cover system.
14. Assumes 30 years for implementation of long-term cover inspection and maintenance activities based on industry standard and guidance in the document titled *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study,* prepared by USEPA and USACE, July 2000.
15. Present worth is estimated based on a 7% beginning-of-year discount rate. Present cost factor based on *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study,* prepared by USEPA and USACE, July 2000.

Table 12-2e. Estimated Costs for Remedial Alternative DSP-4
Anniston PCB Site, Anniston, Alabama

Alternative DSP-4: Excavation and off-site disposal of dredge spoil pile SC-1, SC-2, SC-7, and SC-8. All of the excavated materials are anticipated to have polychlorinated biphenyls (PCBs) concentrations <50 milligrams per kilogram (mg/kg) and would be disposed of in an off-site nonhazardous waste landfill. The area beneath the dredge spoil piles would be addressed as part of the nonresidential portion of the floodplain.

Item No.	Item	Unit Cost	Units	Estimated Quantity	Estimated Cost
	Capital Costs				
1.	Mobilization / Demobilization	10%	Lump Sum	1	$32,000
2.	Temporary Facilities	$10,000	Month	1	$10,000
3.	Clearing and Site Preparation	$20,000	Acre	2.1	$42,000
4.	Surveying	$6,000	Lump Sum	1	$6,000
5.	Erosion, Sediment, and Storm Water Control	$4,500	Lump Sum	1	$4,500
6.	Soil Excavation	$25	Cubic Yard	7,300	$182,500
7.	Waste Transportation and Off-site Disposal (<50 mg/kg)	$50	Ton	10,950	$547,500
8.	Backfill Delivery and Placement	$21	Cubic Yard	1,800	$37,800
9.	Surface Restoration	$28,300	Acre	2.1	$59,430
10.	Contractor Health & Safety/Air Monitoring	$10,000	Month	1	$10,000
11.	Predesign Investigation	$5,000	Lump Sum	0	$0
				TOTAL CAPITAL COST	**$932,000**
	Long-Term Costs				
12.	None	$0	Annually	1	$0
				TOTAL ANNUAL LONG-TERM COST	**$0**
	Present Worth of Long-Term Costs				
13.	Years of Long-Term Program	0	Years		
14.	Discount Rate	7	%		
				PRESENT WORTH OF ANNUAL LONG-TERM COSTS (YEARS 1-30)	**$0**
	Administrative/Management				
				CONSTRUCTION BONDING (3% of Capital Cost)	**$28,000**
				PROJECT MANAGEMENT (5% of Capital Cost)	**$47,000**
				PROJECT MANAGEMENT (5% of Long-Term Cost)	**$0**
				ENGINEERING DESIGN/PERMITTING (6% of Capital Cost)	**$56,000**
				CONSTRUCTION MANAGEMENT (6% of Capital Cost)	**$56,000**
				SUBTOTAL	**$1,119,000**
	Contingency Costs				
				CONTINGENCY CAPITAL COSTS (15% scope + 15% bid)	**$280,000**
				CONTINGENCY LONG-TERM COSTS (10% scope + 10% bid)	**$0**
				TOTAL PRESENT WORTH	**$1,399,000**

General Notes:

- Cost estimate is based on past experience, cost estimating resources, and vendor estimates. Costs provided in 2016 dollars.
- This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative.
- Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost.
- Cost factors based on *A Guide to Developing and Documenting Cost Estimates During Feasibility Study,* prepared by the United States Environmental Protection Agency and United States Army Corps of Engineers, July 2000.

Table 12-2e. Estimated Costs for Remedial Alternative DSP-4
Anniston PCB Site, Anniston, Alabama

Assumptions:

1. Includes costs for mobilization/demobilization of labor, equipment, and materials to perform the remedial construction activities. The cost is estimated as 10% of the total capital cost for the alternative, excluding transportation/disposal costs. It is assumed that a single mobilization/demobilization will be necessary.
2. Includes costs for temporary facilities and utilities including project trailers, sanitation/waste facilities and services, field office services, and fuel storage.
3. Includes costs for labor, equipment, and materials to perform clearing, construct support facilities areas, and otherwise prepare the site for construction. Clearing costs assume that approximately 1.2 acres of heavily wooded area will require clearing to allow access to complete the dredge spoil removal activities.
4. Includes costs for labor, equipment, and materials to perform pre- and post-construction survey of the remedial areas to verify, confirm, and document pre- and post-construction elevations and conditions.
5. Includes costs for labor, equipment, and materials to install and manage temporary erosion and sedimentation controls.
6. Includes costs for labor, equipment, and materials to excavate approximately dredge spoil SC-1, 2, 7, and 8. Based on prior observations during prior reconnaissance efforts, it is estimated that the dredge spoil thickness is 3 feet and approximately 7,300 cubic yards of soil will be excavated under this alternative.
7. Includes transportation and on-site disposal of excavated soils from SC-1, 2, 7 and 8 with PCB concentrations less than 50 mg/kg. Assumes that excavated soils under this line item will be disposed of in the south staging and soil management area. Cost estimate assumes a soil density of 1.5 tons per cubic yard.
8. Includes labor, equipment, and materials to purchase, import, place, grade, and compact general fill and topsoil to replace materials removed to meet surrounding grade.
9. Includes costs for labor, equipment, and materials to restore disturbed areas following construction. Includes topsoil placement, grading, seeding, mulching, and limited tree/shrub planting.
10. Includes costs for labor, equipment, and materials for contractor health and safety activities, monitoring dust and air emissions during intrusive activities, and dust control, as necessary.
11. Includes costs for labor, equipment, and materials to perform predesign soil sampling activities for dredge spoil pile SC-2 to determine if the results of the sampling indicated that the PCB exposure point concentration is greater than or equal to 21 mg/kg.
12. No long-term monitoring, maintenance, or inspection is included under this alternative.

Table 12-2f. Estimated Costs for Remedial Alternative UWDA-3
Anniston PCB Site, Anniston, Alabama

Alternative UWDA-3: Placement of a low permeability cap to cover the unauthorized waste materials and to minimize potential impacts to groundwater. This alternative also includes groundwater monitoring and long-term operation and maintenance (O&M) to be effective. Institutional controls (ICs) are necessary for the cap and may be necessary for groundwater.

Item No.	Item	Unit Cost	Units	Estimated Quantity	Estimated Cost
	Capital Costs				
1.	Mobilization / Demobilization	10%	Lump Sum	1	$111,000
2.	Temporary Facilities	$10,000	Month	3	$33,448
3.	Clearing and Site Preparation	$5,000	Acre	4.5	$22,578
4.	Surveying	$12,000	Lump Sum	1	$12,000
5.	Erosion, Sediment, and Storm Water Control	$19,000	Lump Sum	1	$19,000
6.	Install Low-Permeability RCRA Cap	$45	Square Yard	21,900	$985,500
7.	Contractor Health & Safety/Air Monitoring	$10,000	Month	3	$33,448
8.	Institutional Controls	$100,000	Lump Sum	1	$100,000
				TOTAL CAPITAL COST	**$1,317,000**
	Long-Term Costs				
9	Cap Inspection and Maintenance	$50,000	Annually	1	$50,000
				ADDITIONAL ANNUAL LONG-TERM COST	**$50,000**
	Present Worth of Additional Long-Term Costs				
10.	Years of Long-Term Program	30	Years		
11.	Discount Rate	7	%		
				PRESENT WORTH OF ANNUAL LONG-TERM COSTS (YEARS 1-30)	**$620,000**
	Administrative/Management				
				CONSTRUCTION BONDING (3% of Capital Cost)	**$40,000**
				PROJECT MANAGEMENT (5% of Capital Cost)	**$66,000**
				PROJECT MANAGEMENT (5% of Long-Term Cost)	**$31,000**
				ENGINEERING DESIGN/PERMITTING (6% of Capital Cost)	**$79,000**
				CONSTRUCTION MANAGEMENT (6% of Capital Cost)	**$79,000**
				SUBTOTAL	**$2,232,000**
	Contingency Costs				
				CONTINGENCY CAPITAL COSTS (15% scope + 15% bid)	**$395,000**
				CONTINGENCY LONG-TERM COSTS (10% scope + 10% bid)	**$124,000**
				TOTAL PRESENT WORTH	**$2,751,000**

General Notes:

- Cost estimate is based on past experience, cost estimating resources, and vendor estimates. Costs provided in 2016 dollars.
- This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost.
- Cost factors based on *A Guide to Developing and Documenting Cost Estimates During Feasibility Study* , prepared by the United States Environmental Protection Agency (USEPA) and United States Army Corps of Engineers (USACE), July 2000.

Table 12-2f. Estimated Costs for Remedial Alternative UWDA-3
Anniston PCB Site, Anniston, Alabama

Assumptions:

1. Includes costs for mobilization/demobilization of labor, equipment, and materials to perform the remedial construction activities. The cost is estimated as 10% of the total capital cost for the alternative. It is assumed that a single mobilization/ demobilization will be necessary.
2. Includes costs for temporary facilities and utilities including project trailers, sanitation/waste facilities and services, field office services, and fuel storage.
3. Includes costs for labor, equipment, and materials to perform clearing, construct support facilities areas, and otherwise prepare the site for construction.
4. Includes costs for labor, equipment, and materials to perform pre- and post-construction survey of the remedial areas to verify, confirm, and document pre- and post-construction elevations and conditions.
5. Includes costs for labor, equipment, and materials to install and manage temporary erosion and sedimentation controls.
6. Includes costs for labor, equipment, and materials to install low-permeability Resource Conservation and Recovery Act caps over the unapproved waste disposal areas (UWDAs), consisting of low-density polyethylene geomembrane, double-sided geocomposite, 18 inches of cover soil, and vegetated cover. The cost estimate assumes that cover system will be placed at the UWDAs over a total footprint of 197,100 square feet. Soil cover for Ashley Street/Legrande is approximately 1.3 acres and the Wilborn #1 property is approximately 3.2 acres.
7. Includes costs for labor, equipment, and materials for contractor health and safety activities, monitoring dust and air emissions during intrusive activities, and dust control, as necessary.
8. Includes administrative and legal costs to implement ICs (e.g., deed restrictions, environmental covenants) to limit future property use where engineering controls are installed.
9. Long-term O&M activities would include periodic inspection of the engineered cover systems to document their condition and maintenance and repairs as needed to maintain the integrity of the cover system.
10. Assumes 30 years for implementation of long-term cover inspection and maintenance activities based on industry standard and guidance in the document titled *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study* , prepared by USEPA and USACE, July 2000.
11. Present worth is estimated based on a 7% beginning-of-year discount rate. Present cost factor based on *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study* , prepared by USEPA and USACE, July 2000.

Table 12-2g. Estimated Costs for Remedial Alternative NRS-4 (21 mg/kg PRG)
Anniston PCB Site, Anniston, Alabama

Alternative NRS-4: Excavate surface soils to achieve an exposure unit (EU)-wide exposure point concentration (EPC) below the nonresidential surface soil premediation goal (RG) of 21 milligrams per kilogram (mg/kg), dispose of soil off-site, and backfill the excavated areas with clean soil, and soil management. Excavated soils would be disposed of in an appropriately permitted off-site landfill. Soil management would be conducted as part of the remedy. The soil management activities would limit future intrusive activities on the nonresidential properties from adversely impacting the effectiveness of the nonresidential surface soil remedy and the remedy implemented for nearby residential properties. Specific soil management activities would include active outreach with property owners, local city building departments, area utility companies, and county/state-wide transportation agencies regarding any plans to disturb soils in nonresidential areas where construction activities could impact the nonresidential or adjacent residential remedies. Utility organizations that would typically be contacted as part of the outreach process include sewer, water, gas, electric, oil, cable/fiber optic, etc. Periodic observations of the nonresidential areas would be conducted under confirm that land use continues to be nonresidential.

Item No.	Item	Unit Cost	Units	Estimated Quantity	Estimated Cost
	Capital Costs				
1.	Mobilization / Demobilization	10%	Lump Sum	1	$73,000
2.	Temporary Facilities	$10,000	Month	5	$50,000
3.	Clearing and Site Preparation	$10,000	Acre	7.0	$70,000
4.	Surveying	$35,000	Lump Sum	1	$35,000
5.	Erosion, Sediment, and Storm Water Control	$28,000	Lump Sum	1	$28,000
6.	Soil Excavation	$25	Cubic Yard	9,700	$242,500
7.	Soil Backfill Placement	$21	Cubic Yard	9,700	$203,700
8.	Waste Transportation and Off-Site Disposal (≥50 mg/kg)	$200	Ton	7,700	$1,540,000
9.	Waste Transportation and Off-Site Disposal (<50 mg/kg)	$50	Ton	6,900	$345,000
10.	Surface Restoration	$6,000	Acre	7.0	$42,000
11.	Contractor Health & Safety/Air Monitoring	$10,000	Month	5	$50,000
				TOTAL CAPITAL COST	**$2,679,000**
	Long-Term Costs				
12.	Soil Management Program	$413,000	Annually	1	$413,000
				ADDITIONAL ANNUAL LONG-TERM COST	**$413,000**
	Present Worth of Additional Long-Term Costs				
13.	Years of Long-Term Program	30	Years		
14.	Discount Rate	7	%		
				PRESENT WORTH OF ANNUAL LONG-TERM COSTS (YEARS 1-30)	**$5,125,000**
	Administrative/Management				
				CONSTRUCTION BONDING (3% of Capital Cost)	**$80,000**
				PROJECT MANAGEMENT (5% of Capital Cost)	**$134,000**
				PROJECT MANAGEMENT (5% of Long-Term Cost)	**$256,000**
				ENGINEERING DESIGN/PERMITTING (6% of Capital Cost)	**$161,000**
				CONSTRUCTION MANAGEMENT (6% of Capital Cost)	**$161,000**
				SUBTOTAL	**$8,596,000**
	Contingency Costs				
				CONTINGENCY CAPITAL COSTS (15% scope + 15% bid)	**$804,000**
				CONTINGENCY LONG-TERM COSTS (10% scope + 10% bid)	**$1,025,000**
				TOTAL PRESENT WORTH	**$10,425,000**

Table 12-2g. Estimated Costs for Remedial Alternative NRS-4 (21 mg/kg PRG)
Anniston PCB Site, Anniston, Alabama

General Notes:

- Cost estimate is based on past experience, cost estimating resources, and vendor estimates. Costs provided in 2016 dollars.
- This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost.
- Cost factors based on *A Guide to Developing and Documenting Cost Estimates During Feasibility Study,* prepared by the United States Environmental Protection Agency (USEPA) and United States Army Corps of Engineers (USACE), July 2000.

Assumptions:

1. Includes costs for mobilization/demobilization of labor, equipment, and materials to perform the remedial construction activities. The cost is estimated as 10% of the total capital cost for the alternative, excluding transportation/disposal costs. It is assumed that a single mobilization/demobilization will be necessary.
2. Includes costs for temporary facilities and utilities including project trailers, sanitation/waste facilities and services, field office services, and fuel storage.
3. Includes costs for labor, equipment, and materials to perform clearing, construct support facilities areas, and otherwise prepare the site for construction.
4. Includes costs for labor, equipment, and materials to perform pre- and post-construction survey of the remedial areas to verify, confirm, and document pre- and post-construction elevations and conditions.
5. Includes costs for labor, equipment, and materials to install and manage temporary erosion and sedimentation controls.
6. Includes costs for labor, equipment, and materials to remove surface soils to achieve an EU-wide PCB EPC below the nonresidential surface soil PRG of 21 mg/kg. The target remedial areas are located in EU-5, EU-7, EU-14N, EU-19N, EU-19S, and EU-26. To achieve specific PRGs for non-PCB constituents of concern, EU-22 and EU-24 will be targeted to achieve a chromium PRG of 538 mg/kg, EU-14N and the Northside Area will be targeted to achieve a polycyclic aromatic hydrocarbon PRG of 21 mg/kg, and EU-25 will be targeted to achieve a polychlorinated dibenzo-p-dioxin/dibenzofuran toxic equivalent PRG of 0.6 micrograms per kilogram. The cost estimate assumes that 9,700 cubic yards of soil within a footprint of 7 acres will be excavated from these EUs.
7. Includes labor, equipment, and materials to purchase, import, place, grade, and compact a geotextile marker layer, general fill, and topsoil to replace removed materials to pre-removal grades.
8. Includes transportation and off-site disposal of excavated materials with PCB concentrations greater than or equal to 50 mg/kg at a Toxic Substances Control Act regulated landfill. This cost estimate assumes that approximately 56% of the soil excavated under this alternative would be greater than or equal to 50 mg/kg. Cost estimate assumes a soil density of 1.5 tons per cubic yard.
9. Includes transportation and off-site disposal of excavated materials with PCB concentrations less than 50 mg/kg at a nonhazardous landfill. This cost estimate assumes that approximately 44% of the soil excavated under this alternative would be less than 50 mg/kg. Cost estimate assumes a soil density of 1.5 tons per cubic yard.
10. Includes costs for labor, equipment, and materials to restore the disturbed areas following construction. Includes grading, seeding, mulching, and other necessary surface restoration.
11. Includes costs for labor, equipment, and materials for contractor health and safety activities, monitoring dust and air emissions during intrusive activities, and dust control, as necessary.
12. Soil management would include active outreach with property owners, local city building departments, area utility companies, and county/state-wide transportation agencies regarding any plans to disturb soils in nonresidential areas where construction activities could impact the nonresidential or residential remedies. Cost estimates assumes that soil management will be required on 5 nonresidential properties per year. In addition, this cost estimate assumes that one large soil management project will be implemented every other year or 2 moderately sized soil management projects will be implemented each year. Includes periodic observations of the nonresidential areas to confirm that land use continues to be nonresidential.
13. Assumes 30 years for implementation of the soil management program based on industry standard and guidance in the document titled *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study,* prepared by USEPA and USACE, July 2000.
14. Present worth is estimated based on a 7% beginning-of-year discount rate. Present cost factor based on *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study,* prepared by USEPA and USACE, July 2000.

Table 12-2h. Estimated Costs for Remedial Alternative GW-4
Anniston PCB Site, Anniston, Alabama

Alternative GW-4: Excavate 18 inches of soil across the broader T-11 area and deeper soils immediately surrounding T-11 to protect groundwater, meet the surface soil remediation goals (RGs), and maintain the hydraulic profile. Excavated soils would be disposed of off-site. Install a low-permeability cap to limit infiltration. Install and temporarily operate and maintain a groundwater extraction and treatment system with discharge of treated waters to Snow Creek. Remove approximately two pore volumes of groundwater from affected area. System performance and additional actions, if any, will be assessed and implemented using an adaptive site management approach. Conduct operation and maintenance (O&M) for the low-permeability cap. Groundwater monitoring will be necessary. Implement institutional controls (ICs) for groundwater and the cap.

Item No.	Item	Unit Cost	Units	Estimated Quantity	Estimated Cost
	Capital Costs				
1.	Mobilization / Demobilization	10%	Lump Sum	1	$110,000
2.	Temporary Facilities (including access)	$200,000	Lump Sum	1	$200,000
3.	Clearing and Site Preparation	$50,000	Lump Sum	1	$50,000
4.	Surveying	$40,000	Lump Sum	1	$40,000
5.	Erosion, Sediment, and Storm Water Control	$10,000	Lump Sum	1	$10,000
6.	Soil Excavation	$25	Cubic Yard	4,500	$112,500
7.	Waste Transportation and Off-Site Disposal (≥50 mg/kg)	$200	Ton	5,000	$1,000,000
8.	Waste Transportation and Off-Site Disposal (<50 mg/kg)	$50	Ton	1,600	$80,000
9.	Install Low-Permeability Cap	$45	Square Yard	8,300	$373,500
10.	Armor Stone Placement	$45	Ton	500	$22,500
11.	Groundwater Extraction Wells	$20,000	Each	2	$40,000
12.	Well Abandonment and Reinstallation	$15,000	Lump Sum	1	$15,000
13.	Trenching/Piping	$40,000	Lump Sum	1	$40,000
14.	Groundwater Treatment System Installation	$70,000	Lump Sum	1	$70,000
15.	Groundwater Treatment System Startup	$50,000	Lump Sum	1	$50,000
16.	Contractor Health & Safety/Air Monitoring	$12,000	Month	6	$72,000
17.	Institutional Controls	$30,000	Lump Sum	1	$30,000
18.	Predesign Investigation	$50,000	Lump Sum	1	$50,000
				TOTAL CAPITAL COST	**$2,366,000**
	Long-Term Costs				
19.	Cap Inspection & Repair	$10,000	Annually	1	$10,000
20.	Groundwater Monitoring & Reporting	$5,000	Annually	1	$5,000
21.	Groundwater Treatment System O&M	$25,000	Annually	1	$25,000
				ADDITIONAL LONG-TERM COST	**$40,000**
	Present Worth of Long-Term Costs				
22.	Years of Long-Term Program	30	Years		
23.	Discount Rate	7	%		
				PRESENT WORTH OF ANNUAL LONG-TERM COSTS (YEARS 1-30)	**$496,000**
	Administrative/Management				
				CONSTRUCTION BONDING (3% of Capital Cost)	**$71,000**
				PROJECT MANAGEMENT (5% of Capital Cost)	**$118,000**
				PROJECT MANAGEMENT (5% of Long-Term Cost)	**$25,000**
				ENGINEERING DESIGN/PERMITTING (6% of Capital Cost)	**$142,000**
				CONSTRUCTION MANAGEMENT (6% of Capital Cost)	**$142,000**
				SUBTOTAL	**$3,360,000**
	Contingency Costs				
				CONTINGENCY CAPITAL COSTS (15% scope + 15% bid)	**$710,000**
				CONTINGENCY LONG-TERM COSTS (10% scope + 10% bid)	**$99,000**
				TOTAL PRESENT WORTH	**$4,169,000**

Table 12-2h. Estimated Costs for Remedial Alternative GW-4
Anniston PCB Site, Anniston, Alabama

General Notes:

- Cost estimate is based on past experience, cost estimating resources, and vendor estimates. Costs provided in 2016 dollars. This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative.
- Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost.
- Cost factors based on *A Guide to Developing and Documenting Cost Estimates During Feasibility Study,* prepared by the United States Environmental Protection Agency (USEPA) and United States Army Corps of Engineers (USACE), July 2000.

Assumptions:

1. Includes costs for mobilization/demobilization of labor, equipment, and materials to perform the remedial construction activities. The cost is estimated as 10% of the total capital cost for the alternative, excluding transportation/disposal costs. It is assumed that a single mobilization/demobilization will be necessary.
2. Includes costs for temporary facilities and utilities including project trailers, sanitation/waste facilities and services, field office services, and fuel storage. This line item also include costs for constructing access across Snow Creek to the T-11 area.
3. Includes costs for labor, equipment, and materials to perform clearing, construct support facilities areas, and otherwise prepare the site for construction.
4. Includes costs for labor, equipment, and materials to perform pre- and post-construction survey of the remedial areas to verify, confirm, and document pre- and post-construction elevations and conditions.
5. Includes costs for labor, equipment, and materials to install and manage temporary erosion and sedimentation controls. Includes costs for labor, equipment, and materials to excavate 18 inches of soil across the broader T-11 area and high-concentration soils immediately surrounding well T-11 to protect groundwater, meet the surface soil PRGs, and maintain the hydraulic profile of surface soil. The cost estimate assumes that this will involve the removal of 4,500 cubic yards of soil within a footprint of 1.7 acres.
6. Includes transportation and off-site disposal of excavated materials with polychlorinated biphenyl (PCB) concentrations greater than or equal to 50 mg/kg at a Toxic Substances Control Act regulated landfill. This cost estimate assumes that 75% of the soil material excavated within the upper 18 inches would be greater than or equal to 50 mg/kg. Cost estimate assumes a soil density of 1.5 tons per cubic yard.
7. Includes transportation and off-site disposal of excavated materials with PCB concentrations less than 50 mg/kg at a nonhazardous landfill. The estimated volume of excavated material for off-site disposal under this line item is assumed to be approximately 25% of the total volume. Cost estimate assumes a soil density of 1.5 tons per cubic yard.
8. Includes costs for labor, equipment, and materials to install a low-permeability cap over the T-11 area, consisting of low-density polyethylene geomembrane, double-sided geocomposite, 18 inches of cover soil, and vegetated cover. The cost estimate assumes that cover system will be installed over approximately 1.7 acres.
9. Includes costs for labor, equipment, and materials to deliver and install approximately 500 tons of riprap stone to protect the cover from storm water runoff and erosion.
10. Includes costs for labor, equipment, and materials to install two groundwater extraction wells. Costs include costs for drilling, logging, reporting, mobilization/demobilization, decontamination, disposal, pumping, well development, etc.
11. Includes costs for labor, equipment, and materials for well abandonment and reinstallation where necessary.
12. Includes costs for labor, equipment, and materials to install and connect piping associated with the groundwater extraction and treatment system.
13. Includes costs for labor, equipment, and materials to install an activated carbon groundwater treatment system, including electrical and plumbing connections.
14. Includes costs for labor, equipment, and materials to startup, test, troubleshoot, and prepare the groundwater extraction/ treatment system. Includes costs for labor, equipment, and materials for contractor health and safety activities, monitoring dust and air emissions during intrusive activities, and dust control, as necessary.
15. Includes administrative and legal costs to implement ICs (e.g., deed restrictions, groundwater use restrictions) to limit future property use where engineering controls are installed.
16. Includes costs for labor, equipment, and materials to perform a predesign investigation to gather supplemental data and information needed to finalize the design of the groundwater extraction/treatment system.
17. Includes annual periodic inspection of the low-permeability cap to document its condition and determine if maintenance or repairs are needed.
18. Groundwater monitoring is assumed to be conducted once per year for the 30-year O&M period and will be coordinated with other site groundwater sampling events.
19. For this estimate, it is assumed that the groundwater extraction system will be operated for one year. This assumption will be evaluated as part of the predesign investigation.
20. Assumes 30 years for implementation of long-term cover inspection and maintenance activities based on industry standard and guidance in the document titled *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study,* prepared by USEPA and USACE, July 2000.
21. Present worth is estimated based on a 7% beginning-of-year discount rate. Present cost factor based on *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study,* prepared by USEPA and USACE, July 2000.

Table 12-2i. Estimated Costs for Remedial Alternative SED-4
Anniston PCB Site, Anniston, Alabama

Alternative SED-4: Remove sediment from culverts and excavate sediment from the OU-1/OU-2 portion of Snow Creek with polychlorinated biphenyl (PCB) concentrations above preliminary remediation goals (PRGs) with off-site disposal for all excavated materials. The RGs for Snow Creek and the associated creek bank areas include 3 milligrams per kilogram (mg/kg) for PCBs in sediment and 21 mg/kg for PCBs in the adjoining creek bank areas. The chronic ambient water quality criteria (AWQC) value of 0.014 micrograms per liter (µg/L) also applies to the waters of Snow Creek. RGs for metals that apply to Snow Creek sediment include for 322 mg/kg barium, 111 mg/kg for chromium, 59 mg/kg for cobalt, 128 mg/kg for lead, 1,100 for manganese, 1 mg/kg for mercury, 49 mg/kg for nickel and 41 mg/kg for vanadium. Stabilize creek banks that are unstable or may become unstable during or following excavation of creek sediment and that have soil concentrations above sediment RGs.

Item No.	Item	Unit Cost	Units	Estimated Quantity	Estimated Cost
	Capital Costs				
1.	Mobilization / Demobilization	10%	Lump Sum	1	$146,000
2.	Temporary Facilities	$10,000	Month	5	$50,000
3.	Site Preparation	$64,000	Acres	1.9	$121,600
4.	Material Staging Pad	$135,000	Lump Sum	1	$135,000
5.	Surveying	$50,000	Lump Sum	1	$50,000
6.	Sediment Excavation and Handling	$210	Cubic Yard	2,500	$525,000
7.	Sediment Dewatering and Stabilization	$110	Cubic Yard	2,500	$275,000
8.	Backfill Placement	$35	Cubic Yard	700	$24,500
9.	Waste Transportation and Off-Site Disposal (≥50 mg/kg)	$200	Ton	600	$120,000
10.	Waste Transportation and Off-Site Disposal (<50 mg/kg)	$50	Ton	3,500	$175,000
11.	Shoreline Restoration	$95,000	Lump Sum	1	$95,000
12.	Bank Stabilization	$6.50	Square Feet	13,800	$89,700
13.	Contractor Health & Safety/Air Monitoring	$10,000	Month	5	$50,000
14.	Predesign Investigation	$40,000	Lump Sum	1	$40,000
				TOTAL CAPITAL COST	**$1,897,000**
	Long-Term Costs				
15.	Long-Term Monitoring	$15,000	Annually	1	$15,000
				ADDITIONAL LONG-TERM COST	**$15,000**
	Present Worth of Long-Term Costs				
16.	Years of Long-Term Program	30	Years		
17.	Discount Rate	7	%		
				PRESENT WORTH OF ANNUAL LONG-TERM COSTS (YEARS 1-30)	**$186,000**
	Administrative/Management				
				CONSTRUCTION BONDING (3% of Capital Cost)	**$57,000**
				PROJECT MANAGEMENT (5% of Capital Cost)	**$95,000**
				PROJECT MANAGEMENT (5% of Long-Term Cost)	**$9,000**
				ENGINEERING DESIGN/PERMITTING (6% of Capital Cost)	**$114,000**
				CONSTRUCTION MANAGEMENT (6% of Capital Cost)	**$114,000**
				SUBTOTAL	**$2,472,000**
	Contingency Costs				
				CONTINGENCY CAPITAL COSTS (15% scope + 15% bid)	**$569,000**
				CONTINGENCY LONG-TERM COSTS (10% scope + 10% bid)	**$37,000**
				TOTAL PRESENT WORTH	**$3,078,000**

General Notes:

- Cost estimate is based on past experience, cost estimating resources, and vendor estimates. Costs provided in 2016 dollars.
- This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost.
- Cost factors based on *A Guide to Developing and Documenting Cost Estimates During Feasibility Study,* prepared by the United States Environmental Protection Agency (USEPA) and United States Army Corps of Engineers (USACE), July 2000.

Table 12-2i. Estimated Costs for Remedial Alternative SED-4
Anniston PCB Site, Anniston, Alabama

Assumptions:

1. Includes costs for mobilization/demobilization of labor, equipment, and materials to perform the remedial construction activities. The cost is estimated as 10% of the total capital cost for the alternative, excluding transportation/disposal costs. It is assumed that a single mobilization/demobilization will be necessary.
2. Includes costs for temporary facilities and utilities including project trailers, sanitation/waste facilities and services, field office services, and fuel storage.
3. Includes costs for labor, equipment, and materials to perform clearing, construct support facilities areas, install temporary gravel roads for access, and otherwise prepare the site for construction. Estimate assumes that 1.9 acres of upland area adjacent to Snow Creek will require clearing, construction of temporary access ways, and erosion/ sedimentation control in order to access the various targeted sediment deposits throughout Snow Creek. The unit cost is based on site clearing ($10,000 per acre), erosion/sedimentation control ($4,000 per acre), and construction of temporary gravel access roads ($50,000 per acre).
4. Includes costs for labor, equipment, and materials to construct a temporary material staging pad for the sediment excavated from the creek. The cost estimate assumes a 75-foot by 150-foot material staging area constructed of a 6-inch gravel subbase and 6-inch asphalt pavement and equipped with a 12-inch berm and sloped to a sump.
5. Includes costs for labor, equipment, and materials to perform pre- and post-construction survey of the remedial areas to verify, confirm, and document pre- and post-construction elevations and conditions.
6. Includes costs for labor, equipment, and materials to remove sediment obstructing culverts and excavation of sediment from the OU-1/OU-2 portion of Snow Creek with concentrations greater than PRGs. The cost estimate assumes that this will include the removal of 2,500 cubic yards of sediment within a footprint of 35,000 square feet. Cost estimate assumes that a long-reach excavator and a smaller skidsteer unit will be used to excavate the targeted sediment
7. deposits and load those materials into watertight trucks for transfer to a material staging area. Due to the isolated
8. nature of the sediment deposits, this cost estimate assumes that the average sediment removal production rate will be 50 cubic yards per day.
9. Sediment dewatering and stabilization cost assumes handling of dredged soils and stabilization of dredged material with a stabilization agent (5% by volume). Water generated during dredged material staging and processing (including storm water) will be collected and treated prior to discharge to Snow Creek or to a local publicly owned treatment works.
10. Includes labor, equipment, and materials to purchase, import, and place a 1-foot backfill layer in the excavated areas.
11. Includes transportation and off-site disposal of excavated materials with PCB concentrations greater than or equal to 50 mg/kg at a Toxic Substances Control Act regulated landfill. Based on available PCB data, this cost estimate assumes that approximately 20% (320 cubic yards) of sediment within the Highway 202 culvert will have PCB concentrations exceeding 50 mg/kg. Cost estimate assumes a soil density of 1.5 tons per cubic yard plus additional weight (5% by volume) for applying stabilization agents.
12. Includes transportation and off-site disposal of excavated materials with PCB concentrations less than 50 mg/kg at a nonhazardous landfill. This cost estimate assumes that approximately 2,100 cubic yards of sediment will be less than
13. 50 mg/kg. Cost estimate assumes a soil density of 1.5 tons per cubic yard plus additional weight (5% by volume) for applying stabilization agents.
14. Includes costs for labor, equipment, and materials for removing the temporary roads constructed to provide access to the creek, importing and placing 6 inches of topsoil in the disturbed upland areas, seeding the topsoil, and planting a limited number of shrubs/trees in the disturbed upland areas. This cost estimate also assumes that riprap will be used to stabilize the shoreline in approximately one-third of the areas where sediment deposits were removed.
15. Includes costs for labor, equipment, and materials to perform bank stabilization of unstable creek banks. For cost estimating purposes, it is assumed that 1,400 linear feet of creek banks will require either engineered stabilization measures or natural stabilization measures. This cost estimate assumes that bank stabilization measures will include one or more of the following: placing "dirty" riprap, planting live stakes, or installing articulated concrete mats to protect against continued bank erosion.
16. Includes costs for labor, equipment, and materials for contractor health and safety activities, monitoring dust and air emissions during intrusive activities, and dust control, as necessary.
    Includes costs for labor, equipment, and materials to perform predesign investigation activities. Under this alternative, it is assumed that the predesign investigation will include sediment sampling to characterize sediment deposits that were not previously sampled.
    Includes sediment and surface water sampling and analysis to monitor the effectiveness of the remedy. The cost estimate assumes that 10 surface water samples and 10 sediment samples will be collected and analyzed during sampling events that occur once every 5 years. Assumes 30 years for implementation of long-term cover inspection and maintenance activities based on industry standard and guidance in the document titled *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study,* prepared by USEPA and USACE, July 2000.
17. Present worth is estimated based on a 7% beginning-of-year discount rate. Present cost factor based on *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study,* prepared by USEPA and USACE, July 2000.

Table 13-1
Chemical-Specific ARARs and TBCs
OU-1/OU-2 Record of Decision
Anniston PCB Site, Anniston, Alabama

Action / Medium	Requirements	Prerequisite	Citation
Restoration of groundwater to its beneficial uses	May not exceed MCLs for organics and inorganics established under the Safe Drinking Water Act National Revised Primary Drinking Water Regulations for community water systems.	Presence of contaminants in groundwater of the state designated as potential underground sources of drinking water as defined in ADEM Admin. Code. r. 335-6-8-.03 – **relevant and appropriate**	40 C.F.R. § 141.61(a) and (c) 40 C.F.R. § 141.62(b) ADEM Admin. Code r. 335-7-2-.03(1) ADEM Admin. Code r. 335-7-2-.04(1) ADEM Admin. Code r. 335-7-2-.05(1)
Cleanup of PCB-contaminated soil at sites in *industrial* areas	Recommends cleanup levels should be established within a range of 10 to 25 ppm PCB. Recommends treatment, where practicable, for principal threat wastes. (i.e. Soils contaminated with PCBs greater than or equal to 500 ppm).	CERCLA site with PCB contamination in soil requiring response action – **TBC**	USEPA *Guidance on Remedial Actions for Superfund Sites with PCB Contamination* [EPA/540/G-90/007] (USEPA 1990), Page 30.
Cleanup of PCB-contaminated soil at sites in *residential* areas	Recommends cleanup levels should be established at 1 ppm PCB. Recommends treatment, where practicable, for principal threat wastes. (i.e. Soils contaminated with PCBs greater than or equal to 100 ppm).	CERCLA site with PCB contamination in soil requiring response action – **TBC**	USEPA *Guidance on Remedial Actions for Superfund Sites with PCB Contamination* [EPA/540/G-90/007] (USEPA 1990), Page 28.
Groundwater	PCB MCLG (non-enforceable) = 0, PCB MCL (enforceable) MCL = 0.5 µg/L	PCBs in groundwater – **relevant and appropriate**	40 C.F.R. § 141.61(a) and (c)
Surface water	PCBs in freshwater aquatic life chronic criterion = 0.014 µg/L	PCBs in surface water – **relevant and appropriate**	33 U.S.C. §1251 et seq. 40 C.F.R. § 131.36 ADEM Admin. Code r. 335-6-10

ADEM: Alabama Department of Environmental Management
ARAR: applicable or relevant and appropriate requirement
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R.: Code of Federal Regulations
MCL: maximum contaminant level
MCLG: maximum contaminant level goal
µg/L: microgram(s) per liter
PCB: polychlorinated biphenyl
ppm: parts per million
TBC: to be considered
USEPA: United States Environmental Protection Agency

Table 13-2
Location-Specific ARARs and TBCs
OU-1/OU-2 Record of Decision
Anniston PCB Site, Anniston, Alabama

Location	Requirement	Prerequisite	Citation
In or near the creek	US Army Corps of Engineers (USACE) approval may be required to excavate or fill, to alter or modify the course, location, condition, or capacity of the channel related to work activities in any navigable water of the US.	Construction activities in navigable waters - wetlands This could include dams or dikes in navigable waters of the US, as well as other structures or work including excavation, dredging, and/or disposal activities in navigable waters of the US. Particular focus is on activities that alter or modify the course, condition, location, or capacity of a navigable water of the US – **relevant and appropriate**	Rivers and Harbors Act of 1899, Section 10 USACE regulations 33 U.S.C. § 403
Presence of Federally Endangered or Threatened species listed in 50 C.F.R. 17.11(h) – or critical habitat of such species listed in 50 C.F.R. § 17.95	Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary of Interior, after consultation as appropriate with affected States, to be critical, unless such agency has been granted an exemption for such action by the Committee pursuant to subsection (h) of this section. *NOTE:* Despite that consultation may be considered an administrative requirement, it should be performed to ensure activities are in compliance with substantive provisions of the Endangered Species Act and regulations.	Agency action that may jeopardize listed wildlife species or destroy or adversely modify critical habitat - **applicable**	16 U.S.C. § 1536(a)(2) -or Section 7(a)(2) of the Endangered Species Act of 1973
Floodplain impacts	Land-disturbing activities within the Special Flood Hazard Area require contact with the Floodplain Administrator of the City of Anniston prior to the commencement of these activities.	Agency work in the floodplain – **relevant and appropriate**	National Flood Insurance Program administered by the Federal Emergency Management Agency, City of Anniston enacted Flood Damage Prevention Ordinance number 04-O-03.
Creek impacts	Require consultation with the US Fish and Wildlife Service and the fish and wildlife agency of the state where the water body is located for the purpose of preventing loss of and damage to wildlife resources.	Diversion, channelling, or other activity that modifies a stream or river and affects fish or wildlife waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted . . . or otherwise controlled or modified – **relevant and appropriate**	Impounding, diverting or controlling of waters 16 U.S.C. § 662(a)
Presence of Migratory Birds listed in 50 C.F.R. § 10.13	No person may take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such bird except as may be permitted under the terms of a valid permit issued pursuant to the provisions of this part and part 13 of this chapter, or as permitted by regulations in this part, or part 20 of this subchapter (the hunting regulations).	Action that has potential impacts on or is likely to result in a "take" (as defined in 50 C.F.R. § 10.12) of migratory birds – **applicable**	Migratory Bird Treaty Act 16 U.S.C. § 703(a) 50 C.F.R. § 10.12 50 C.F.R. § 21.11
Bald or Golden Eagle habitat	This Act provides for the protection of the bald eagle (the national emblem) and the golden eagle by prohibiting the taking, possession, and commerce of such birds.	Determination of the presence of bald eagle or golden eagle – **relevant and appropriate**	16 U.S.C. §668 (a)-(b) 50 C.F.R. Part 22
Location encompassing *aquatic ecosystem* as defined in 40 CFR 230.3(c), Wetlands	Except as provided under [CWA] section 404(b)(2), no discharge of dredged or fill material into an aquatic ecosystem shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, or if it will cause or contribute to significant degradation of the waters of the United States.	Remedial work that involves a location encompassing an *aquatic ecosystem* (including wetlands) as defined in 40 C.F.R. § 230.3(c). Action that involves the discharge of dredged or fill material into waters of the United States, including jurisdictional wetlands – **applicable**	40 C.F.R. §§ 230.10(a) and (c) Clean Water Act regulations – Section 404(b) Guidelines
Location encompassing *aquatic ecosystem* as defined in 40 CFR 230.3(c), Wetlands	Except as provided under [CWA] section 404(b)(2), no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps [in accordance with Subpart H at 40 CFR 230.70 *et seq. Actions To Minimize Adverse Effects*] have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem.		40 C.F.R. § 230.10(d) Clean Water Act Regulations – Section 404(b) Guidelines

Table 13-2
Location-Specific ARARs and TBCs
OU-1/OU-2 Record of Decision
Anniston PCB Site, Anniston, Alabama

Location	Requirement	Prerequisite	Citation
Location encompassing *aquatic ecosystem* as defined in 40 CFR 230.3(c), Wetlands	Must comply with the substantive requirements of the NWP 38 General Conditions, as appropriate, and any regional or case-specific conditions recommended by the USACE District Engineer, after consultation.	On-site CERCLA action conducted by a Federal agency that involves the discharge of dredged or fill material into waters of the United States, including jurisdictional wetlands or work that involves a location encompassing an *aquatic ecosystem* (including wetlands) as defined in 40 C.F.R. § 230.3(c) - **TBC**	Clean Water Act-Nation Wide Permit (38) Cleanup of Hazardous and Toxic Waste 33 C.F.R § 323.3(b)
Wetlands	Requires that the U.S. Fish and Wildlife Service and the related state agency be consulted prior to structural modifications of any body of water, including wetlands with a view to the conservation of wildlife resources by preventing loss of and damage to such resources.	The local agencies would be consulted to determine protective measures to prevent loss of wildlife resources for actions that involve the structural modification of any water body including wetlands - **relevant and appropriate**	Fish and Wildlife Coordination Act, 16 U.S.C. §662(a) 33 C.F.R. § 323.3(b)
Presence of floodplain designated as such on a map[1]	Shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains.	Federal actions that involve potential impacts to, or take place within, floodplains – **TBC**	Executive Order No. 11988, *Floodplain Management*, Section 1, 42 Fed. Reg. 26951 (May 25, 1977)
	Shall consider alternatives to avoid, to the extent possible, adverse effects and incompatible development in the floodplain. Design or modify its action in order to minimize potential harm to or within the floodplain.		Executive Order No. 11988, *Floodplain management*, Section 2(a)2, 42 Fed. Reg. 26951 (May 25, 1977),
	Where possible, an agency shall use natural systems, ecosystem processes, and nature-based approaches when developing alternatives for consideration.		Executive Order 13690 Section 2(c)
Presence of floodplain designated as such on a map	The Agency shall design or modify its actions so as to minimize[2] harm to or within the floodplain.	Federal actions affecting or affected by Floodplain as defined in 44 C.F.R. § 9.4 – **relevant and appropriate**	44 C.F.R. § 9.11(b)(1) *Mitigation*
	The Agency shall restore and preserve natural and beneficial floodplain values.		44 C.F.R. § 9.11(b)(3) *Mitigation*
	The Agency shall minimize: -Potential harm to lives and the investment at risk from the base flood, or in the case of critical actions[3] from the 500-year flood; -Potential adverse impacts that action may have on floodplain values.		44 C.F.R. § 9.11(c)(1) *Mitigation*
	Evaluate and avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction, loss, degradation or modification of wetlands; avoid direct or indirect support of new construction in wetlands unless there is no practicable alternative to such construction and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use; and preserve and enhance beneficial values of wetlands.	Federal actions that involve potential impacts to or take place within wetlands - **TBC**	Executive Order No. 11990, *Protection of Wetlands* 42 Fed. Reg. 26961 (May 25, 1977), Sections 1. (a) and 2(a), 40 C.F.R. Part 6.302(a)

ARAR: applicable or relevant and appropriate requirement
C.F.R.: Code of Federal Regulations
PCB: polychlorinated biphenyl
TBC: to be considered
US: United States
U.S.C.: United States Code

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[1] Under 44 CFR § 9.7 ***Determination of proposed action's location***, Paragraph (c) *Floodplain determination*. One should consult the FEMA Flood Insurance Rate Map (FIRM), the Flood Boundary Floodway Map (FBFM) and the Flood Insurance Study (FIS) to determine if the Agency proposed action is within the base floodplain.
2 Minimize means to reduce to smallest amount or degree possible. See 44 C.F.R. 9.4 Definitions.
3 See 44 C.F.R. 9.4 *Definitions, Critical Action*. Critical actions include, but are not limited to, those which create or extend the useful life of structures or facilities such as those that produce, use or store highly volatile, flammable, explosive, toxic or water-reactive materials.

Table 13-3
Action-Specific ARARs and TBCs
OU-1/OU-2 Record of Decision
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
General Construction Standards – All Land-Disturbing Activities			
Activities causing storm water runoff (e.g., clearing, grading, excavation)	Shall fully implement and regularly maintain effective BMPs to the maximum extent practicable and in accordance with the operator's Construction Best Management Plan (CBMPP).	All new and existing construction activities as defined in ADEM Admin. Code r. 335-6-12-.02(e) disturbing one (1) acre or more in size - **applicable**	ADEM Admin. Code r. 335-6-12-.05(2)
	Appropriate, effective pollution abatement/prevention facilities, structural and nonstructural BMPs, and management strategies shall be fully implemented prior to and concurrent with commencement of the regulated activities and regularly maintained during construction as needed at the site to meet or exceed the requirements of this chapter until construction is complete, effective reclamation and/or storm water quality remediation is achieved.		
	The operator shall take all reasonable steps to prevent and/or minimize, to the maximum extent practicable, any discharge in violation of this chapter or which has a reasonable likelihood of adversely affecting the quality of groundwater or surface water receiving the discharge(s).		ADEM Admin. Code r. 335-6-12-.06(4)
	Implement a comprehensive CBMPP appropriate for site conditions consistent with the substantive requirements of ADEM Admin. Code r. 335-6-12-.21 that has been prepared and certified by a Qualified Credentialed Professional.		ADEM Admin. Code r. 335-6-12-.21(2)(a)
	The CBMPP shall include a description of appropriate, effective water quality BMPs to be implemented at the site as needed to ensure compliance with this chapter and include but not be limited to the measures provided in subsections 1 through 14.		ADEM Admin. Code r. 335-6-12-.21(2)(b)
	BMPs shall be designed, implemented, and regularly maintained to provide effective treatment of discharges of pollutants in storm water resulting from runoff generated by probable storm events expected/predicted during construction disturbance based on historic precipitation information, and during extended periods of adverse weather and seasonal conditions.		ADEM Admin. Code r. 335-6-12-.21(4)

Table 13-3
Action-Specific ARARs and TBCs
OU-1/OU-2 Record of Decision
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
Activities causing fugitive dust emissions	Shall not cause, suffer, allow or permit any materials to be handled, transported, or stored; or a building, its appurtenances, or a road to be used . . . without taking reasonable precautions to prevent particulate matter from becoming airborne.	Fugitive emissions from construction operations, grading, or the clearing of land – **TBC**	ADEM Admin. Code r. 335-3-4-.02(1)[1]
	Shall not cause or permit the discharge of visible fugitive dust emissions beyond the lot line of the property on which the emissions originate.		ADEM Admin. Code r. 335-3-4-.02(2)[2]
Groundwater Monitoring/Extraction Well Installation, Operation, and Abandonment			
Construction of extraction and monitoring wells	All materials used in the construction of a water well shall have the structural strength to accomplish the purpose for which they are installed.	Installation of wells as defined in ADEM Admin. Code r. 335-9-1-.02(g) – **relevant and appropriate**	ADEM Admin. Code r. 335-9-1-.05(a)- (c)
	Must meet any relevant substantive requirements under ADEM Admin. Code r. 335-9-1.-.05 Materials and Admin. Code r. 335-9-1.-.06 Construction Standards related to casings, liners, screens, development, and capping of wells.		ADEM Admin. Code r. 335-9-1-.06(a), (b), (c), (d), (e) & (h)
	Any holes remaining after construction or testing attempts shall be properly backfilled.		ADEM Admin. Code r. 335-9-1-.06(h)
Construction of monitoring wells	Must be cased in a manner that maintains the integrity of the monitoring well bore hole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable sample collection at depths where appropriate aquifer flow zones exist. The annular space (i.e., the space between the bore hole and well casing) above the sampling depth must be sealed with a suitable material (e.g., cement grout or bentonite slurry) to prevent contamination of samples and the groundwater.	Installation of groundwater monitoring wells at a RCRA facility in order to detect any statistically significant amounts of hazardous waste or hazardous waste constituents – **relevant and appropriate**	ADEM Admin. Code r. 335-14-5-.06(8)(c)
	Monitoring wells must be operated and maintained in a manner to prevent soil, surface water, and/or groundwater contamination. This requirement includes the installation of protective barriers around monitoring wells, where necessary, to prevent damage to the well from traffic or other causes.		
	All monitoring wells must have functional key or combination locks on the wellhead covers to prevent unauthorized access. All monitoring wells must be assigned an identifying number by the facility, and such numbers must be permanently affixed to the outer casing of each monitoring well.		
Abandonment of extraction wells, monitoring wells, and boreholes	Any well to be abandoned shall be permanently sealed in the following manner: The well must be filled with a puddled clay material containing 50 ppm of chlorine to within 20 feet of the top of the well. The top 20 feet shall be filled with cement grout or concrete.	Abandonment of extraction wells, monitoring wells, and boreholes – **relevant and appropriate**	ADEM Admin. Code r. 335-9-1-.06(g)

Table 13-3
Action-Specific ARARs and TBCs
OU-1/OU-2 Record of Decision
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
Waste Generation, Characterization, Segregation, and Storage—Primary Wastes (e.g., excavated soils) and Secondary Wastes (e.g., treatment residues)			
Characterization of solid waste (all primary and secondary wastes) (e.g. excavated sediment and soil)	Must determine if solid waste is excluded from regulation under 40 C.F.R. § 261.4(b); and	Generation of solid waste as defined in 40 C.F.R. § 261.2 —**applicable**	40 C.F.R. § 262.11(a)
	Must determine if waste is listed as hazardous waste under subpart D 40 C.F.R. Part 261; or	Generation of solid waste which is not excluded under 40 C.F.R. § 261.4(a) — **applicable**	40 C.F.R.§ 262.11(b)
Characterization of solid waste (all primary and secondary wastes) cont. (e.g. excavated sediment and soil)	Must determine whether the waste is (characteristic waste) identified in subpart C of 40 C.F.R. part 261 by either: (1) Testing the waste according to the methods set forth in subpart C of 40 C.F.R. part 261, or according to an equivalent method approved by the Administrator under 40 C.F.R. 260.21; or (2) Applying knowledge of the hazard characteristic of the waste in light of the materials or the processes used.		40 C.F.R. § 262.11(c)
	Must refer to Parts 261, 262, 264, 265, 266, 268, and 273 of Chapter 40 for possible exclusions or restrictions pertaining to management of the specific waste.	Generation of solid waste which is determined to be hazardous waste – **applicable**	40 C.F.R. § 262.11(d)
Characterization of RCRA hazardous waste (all primary and secondary wastes) (e.g. excavated sediment and soil)	Must obtain a detailed chemical and physical analysis on a representative sample of the waste(s), which at a minimum contains all the information that must be known to treat, store, or dispose of the waste in accordance with pertinent sections of 40 C.F.R. Parts 264 and 268.	Generation of RCRA hazardous waste for storage, treatment, or disposal – **applicable**	40 C.F.R. § 264.13(a)(1)

Table 13-3
Action-Specific ARARs and TBCs
OU-1/OU-2 Record of Decision
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
Determinations for management of RCRA hazardous waste (e.g. excavated sediment and soil)	Must determine if the hazardous waste has to be treated before land disposal. This is done by determining if the waste meets the treatment standards in 40 CFR 268.40, 268.45, or 268.49 by testing in accordance with prescribed methods or use of generator knowledge of waste. This determination can be made concurrently with the hazardous waste determination required in 40 CFR 262.11.	Generation of RCRA hazardous waste for storage, treatment or disposal - **applicable**	40 C.F.R. § 268.7(a)(1)
	Must comply with the special requirements of 40 CFR 268.9 in addition to any applicable requirements in 40 CFR 268.7.	Generation of waste or soil that displays a hazardous characteristic of ignitability, corrosivity, reactivity, or toxicity for storage, treatment or disposal - **applicable**	40 C.F.R. § 264.7(a)(1)
Determinations for management of RCRA hazardous waste (e.g. excavated sediment and soil)	Must determine each USEPA Hazardous Waste Number (waste code) applicable to the waste in order to determine the applicable treatment standards under 40 C.F.R. 268 et seq. Note: This determination may be made concurrently with the hazardous waste determination required in Sec. 262.11 of this chapter.	Generation of RCRA characteristic hazardous waste for storage, treatment, or disposal – **applicable**	40 C.F.R. § 268.9(a)
	Must determine the underlying hazardous constituents [as defined in 40 C.F.R. § 268.2(i)] in the characteristic waste.	Generation of RCRA characteristic hazardous waste (and is not D001 non-wastewaters treated by CMBST, RORGS, or POLYM of Section 268.42 Table 1) for storage, treatment, or disposal **– applicable**	40 C.F.R. § 268.9(a)
	Must determine if the hazardous waste meets the treatment standards in 40 C.F.R. 268.40, 268.45, or 268.49 by testing in accordance with prescribed methods or use of generator knowledge of waste. Note: This determination can be made concurrently with the hazardous waste determination required in 40 C.F.R. 262.11.		40 C.F.R. § 268.9(a)
Temporary on-site storage of RCRA hazardous waste in containers (e.g. excavated sediment and soil)	A generator may accumulate hazardous waste at the facility provided that:	Accumulation of RCRA hazardous waste on-site as defined in 40 C.F.R. § 260.10 – **applicable**	40 C.F.R. § 262.34(a)
	• Waste is placed in containers that comply with 40 C.F.R. §§ 265.171-173; and		40 C.F.R. § 262.34(a)(1)(i)
	• The date upon which accumulation begins is clearly marked and visible for inspection on each container; and		40 C.F.R. § 262.34(a)(2)
	• Container is marked with the words "hazardous waste"; or	Accumulation of 55 gallons or less of RCRA hazardous waste	40 C.F.R. § 264.34(a)(3)

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	• Container may be marked with other words that identify the contents.	or 1 quart of acutely hazardous waste listed in 261.33(e) at or near any point of generation – **applicable**	40 C.F.R. § 262.34(c)(1)
Use and management of RCRA hazardous waste in containers (e.g. excavated sediment and soil)	If container is not in good condition (e.g., severe rusting, structural defects) or if it begins to leak, must transfer waste into a container in good condition.	Storage of RCRA hazardous waste in containers – **applicable**	40 C.F.R. § 265.171
	Use container made or lined with materials compatible with waste to be stored so that the ability of the container is not impaired.		40 C.F.R. § 265.172
	Keep containers closed during storage, except to add/remove waste.		40 C.F.R. § 265.173(a)
	Open, handle, and store containers in a manner that will not cause containers to rupture or leak.		40 C.F.R. § 265.173(b)
Storage of RCRA hazardous waste in container area (e.g. excavated sediment and soil)	Area must have a containment system designed and operated in accordance with 40 C.F.R. § 264.175(b).	Storage of RCRA hazardous waste in containers with free liquids – **applicable**	40 C.F.R. § 264.175(a)
	Area must be sloped or otherwise designed and operated to drain liquid from precipitation, or containers must be elevated or otherwise protected from contact with accumulated liquid.	Storage of RCRA hazardous waste in containers that do not contain free liquids (other than F020, F021, F022, F023, F026 and F027) – **applicable**	40 C.F.R. § 264.175(c)(1)(2)
Closure performance standard for RCRA container storage unit	Must close the facility (e.g., container storage unit) in a manner that: • Minimizes the need for further maintenance; • Controls minimizes or eliminates to the extent necessary to protect human health and the environment, post–closure escape of hazardous waste, hazardous constituents, leachate, contaminated run –off, or hazardous waste decomposition products to the ground or surface waters or the atmosphere; and • Complies with the closure requirements of subpart, but not limited to, the requirements of 40 CFR 264.178 for containers.	Storage of RCRA hazardous waste in containers **– applicable**	40 CFR § 264.111

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Closure of RCRA container storage unit (e.g. excavated sediment and soil)	At closure, all hazardous waste and hazardous waste residues must be removed from the containment system. Remaining containers, liners, bases, and soils containing or contaminated with hazardous waste and hazardous waste residues must be decontaminated or removed. [Comment: At closure, as throughout the operating period, unless the owner or operator can demonstrate in accordance with 40 CFR 261.3(d) of this chapter that the solid waste removed from the containment system is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of parts 262 through 266 of this chapter].	Storage of RCRA hazardous waste in containers in a unit with a containment system – **applicable**	40 C.F.R. § 264.178
Temporary on-site storage of remediation waste in RCRA staging piles (e.g., excavated sediment and soil)	Must be located within the contiguous property under the control of the owner/operator where the wastes are to be managed in the staging pile originated.	Accumulation of *solid non-flowing hazardous remediation waste* (or remediation waste otherwise subject to land disposal restrictions) as defined in 40 C.F.R. § 260.10 – **applicable** Storage of remediation waste in a staging pile - **applicable**	40 C.F.R. § 264.554(a)(1)
	For purposes of this section, temporary storage includes mixing, sizing, blending or other similar physical operations so long as intended to prepare the wastes for subsequent management or treatment at a facility if used only during remedial operations.		40 C.F.R. § 264.554(a)(1)
	Staging piles may be used to store hazardous remediation waste (or remediation waste otherwise subject to land disposal restrictions) based on approved standards and design criteria designated for that staging pile. *NOTE*: Design and standards of the staging pile should be included in CERCLA Remedial Design document approved or issued by EPA.		40 C.F.R. § 264.554(b)
Performance criteria for RCRA staging pile	• Must facilitate a reliable, effective, and protective remedy;		40 C.F.R. § 264.554(d)(1)(i)
	• Must be designed to prevent or minimize releases of hazardous wastes and constituents into the environment, and minimize or adequately control cross-media transfer as necessary to protect human health and the environment (e.g., use of liners, covers, run-off/run-on controls); and		40 C.F.R. § 264.554(d)(1)(ii)
	• Must not operate for more than 2 years, except when an operating term extension under 40 C.F.R. 264.554(i) is granted. • Note: Must measure the 2-year limit (or other operating term specified) from first time remediation waste is placed in staging pile.		40 C.F.R. § 264.554(d)(1)(iii) 40 C.F.R. § 264.554(h)
	• Must not use staging pile longer than the length of time designated by USEPA in appropriate decision document.		40 C.F.R. § 264.554(i)(1)

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Design criteria for RCRA staging pile	Extension of up to an additional 180 days beyond the operating term limit may be granted provided the continued operation of the staging pile: • Will not pose a threat to human health and the environment; and • Is necessary to ensure timely and efficient implementation of remedial actions at the facility.		40 C.F.R. 264.554(i)(1)(i) and (ii)
	In setting standards and design criteria, must consider the following factors: • Length of time pile will be in operation; • Volumes of waste you intend to store in the pile; • Physical and chemical characteristics of the wastes to be stored in the unit; • Potential for releases from the unit; • Hydrogeological and other relevant environmental conditions at the facility that may influence the migration of any potential releases; and • Potential for human and environmental exposure to potential releases from the unit.		40 C.F.R. § 264.554(d)(2)(i) –(vi)
Operation of a RCRA staging pile	Must not place ignitable or reactive remediation waste in a staging pile unless the remediation waste has been treated, rendered, or mixed before placed in the staging pile so that: • The remediation waste no longer meets the definition of ignitable or reactive under 40 C.F.R. 261.21 or 40 C.F.R. 261.23; and • You have complied with 40 C.F.R. §264.17(b); or	Storage of ignitable or reactive remediation waste in staging pile – **applicable**	40 C.F.R. §264.554(e) 40 C.F.R. §264.554(e)(1)(i) and (ii)
	• Must manage the remediation waste to protect it from exposure to any material or condition that may cause it to ignite or react.		40 C.F.R. §264.554(e)(2)
	Must not place in the same staging pile unless you have complied with 40 C.F.R. § 264.17(b).	Storage of "incompatible" remediation waste (as defined in 40 C.F.R. § 260.10) in staging pile – **applicable**	40 C.F.R. § 264.554(f)(1)
	Must separate the incompatible waste or materials or protect them from one another by using a dike, berm, wall, or other device.	Staging pile of remediation waste stored nearby to incompatible wastes or materials in containers, other piles, open tanks or land disposal units – **applicable**	40 C.F.R. § 264.554(f)(2)
	Must not pile remediation waste on same base where incompatible wastes or materials were previously piled unless you have sufficiently decontaminated the base to comply with 40 C.F.R. § 264.17(b).		40 C.F.R. § 264.554(f)(3)

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Closure of staging piles of RCRA remediation waste	Must be closed within 180 days after the operating term by removing or decontaminating all remediation waste, contaminated containment system components, and structures and equipment contaminated with waste and leachate.	Storage of remediation waste in a staging pile in a previously contaminated area – **applicable**	40 C.F.R. § 264.554(j)(1)
	Must decontaminate contaminated subsoils in a manner that USEPA determines will protect human health and the environment.		40 C.F.R. § 264.554(j)(2)
	Must be closed within 180 days after the operating term according to 40 C.F.R. §§ 264.258(a) and 264.111, or 265.258(a) and 265.111.	Storage of remediation waste in a staging pile in an uncontaminated area – **applicable**	40 C.F.R. § 264.554(k)
Waste Treatment and Disposal — Contaminated Groundwater, Excavated Soils, Debris, and Secondary Wastes			
Discharge to surface water	These standards govern discharge of water into surface waters. Due to the degraded nature of Snow Creek, regulated discharges into the waterway must meet ambient water quality criteria at the discharge point. There is a prohibition on new discharges into waters that do not meet applicable water quality criteria unless certain conditions are met.	NPDES requirements for point source discharges to surface water (e.g., Snow Creek) – **relevant and appropriate**	33 U.S.C. 1342; 40 C.F.R. 131 40 C.F.R. 122.4(i)
General duty to mitigate for discharge	Take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of effluent standards which has a reasonable likelihood of adversely affecting human health or the environment.	Discharge of pollutants to surface waters of the State – **applicable**	40 CFR § 122.41(d)
Operation and maintenance of treatment system	Properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used to achieve compliance with the effluent standards. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures.	Discharge of pollutants to surface waters of the State – **applicable**	40 CFR § 122.41(e)

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Technology-based treatment requirements for wastewater discharge	To the extent that EPA promulgated effluent limitations are inapplicable, develop on a case-by-case Best Professional Judgment (BPJ) basis under Section 402(a)(1)(B) of the CWA, technology based effluent limitations by applying the factors listed in section 125.3(d) and shall consider: • The appropriate technology for this category or class of point sources, based upon all available information; and Any unique factors relating to the discharger.	Discharge of pollutants to surface waters from other than a POTW – **applicable**	40 CFR § 125.3(c)(2)
Water quality-based effluent limits for wastewater discharge	Must develop water quality based effluent limits that ensure that: • The level of water quality to be achieved by limits on point source(s) established under 40 CFR § 122.44(d)(1)(vii) is derived from, and complies with all applicable water quality standards; and • Effluent limits developed to protect narrative or numeric water quality criteria are consistent with the assumptions and any available waste load allocation for the discharge prepared by the State and approved by EPA pursuant to 40 *CFR* § 130.7.	Discharge of pollutants to surface waters that causes, or has reasonable potential to cause, or contributes to an instream excursion above a narrative or numeric criteria within a State water quality standard – **applicable**	40 CFR § 122.44(d)(1)(vii)
Monitoring requirements for discharges	In addition to 40 CFR § 122.48 (a) and (b) and to assure compliance with effluent limitations requirements to monitor, one must monitor, as appropriate, according to the substantive requirements provided in 40 CFR § 122.44(i)(1)(i) through (iv). *NOTE:* Monitoring location and frequency will be conducted in accordance with CERCLA Remedial Action Work Plan.	Discharge of pollutants to surface waters – **applicable**	40 CFR § 122.44(i)(1) 40 CFR § 122.44(i)(2)
	All effluent limitations, standards and prohibitions shall be established for each outfall or discharge point, except as provided under 40 CFR § 122.44(k).		
	All effluent limitations, standards and prohibitions, including those necessary to achieve water quality standards, shall unless impracticable be stated as: Maximum daily and average monthly discharge limitations for all discharges	Continuous discharge of pollutants to surface waters – **applicable**	

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Discharge of PCB contaminated water	For water discharged to a treatment works (as defined in 40 CFR § 503.9 (aa), or to navigable waters, meet standard of < 3 ppb PCBs; Or a PCB discharge limit included in a permit issued under section 307(b) or 402 of the Clean Water Act.	Water containing PCBs regulated for disposal – **applicable**	40 CFR § 761.79(b)(1)(ii) 40 CFR § 761.450(a)(3)
Discharge of treated groundwater to surface water	Comply with any applicable substantive water quality requirements under the Alabama Water Pollution Control Act or the CWA including application of technology- or ambient water quality-based effluent limitations to ensure discharge does not cause or contribute to violation of water quality standards.	Discharge of pollutants into waters of the State – **applicable**	ADEM Admin. Code r. 335-6-6-.04(f), (h), (i), and (j)
	Conditions for the discharge shall meet the requirements, as appropriate, provided in ADEM Admin. Code r. 335-6-6-.14 such as the following: • Technology-based effluent limitations and standards under Sections 301, 302, 303, 304, 307, 318, and 405 of the CWA, including any applicable toxic effluent standard or prohibition under 40 C.F.R. Subchapter N. • Other requirements in addition to or more stringent than promulgated effluent limitations, guidelines, or standards under Sections 301, 306, 307, 318, and 405 of the CWA where necessary to achieve water quality standards established under Section 303 of the CWA and Alabama Water Pollution Control Act §2-22-9(g)		ADEM Admin. Code r. 335-6-6-.14 (3)(a), (b), (e)
	Limitations must be applied to control all pollutants or pollutant parameters that are or may be discharged at a level which cause, have reasonable potential to cause, or contribute to an exceedance of a narrative or numerical water quality standard.		ADEM Admin. Code r. 335-6-6-.14(e)(1)(i)
Discharge to POTW	Discharge of pollutants that pass through POTW without treatment, interfere with POTW operation, contaminate POTW sludge, or endanger health/safety of POTW workers, is prohibited. Discharge must comply with local POTW pretreatment program, including POTW-specific pollutants, spill prevention program requirements, and reporting and monitoring requirements.	Discharge to a POTW – **relevant and appropriate**	40 C.F.R. 403.5 and local POTW regulations 40 C.F.R. 270.60

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Discharge of treated groundwater to POTW	Shall not introduce into publicly or privately owned treatment works any pollutant(s) which, alone or in conjunction with a discharge or discharges from other sources, cause pass through or interference or in any other manner adversely impact the operation or performance of the treatment works, to include the method of sludge disposal in use by the publicly or privately owned treatment works.	Discharge pollutants into POTW or privately owned treatment facility operated by a person other than the indirect discharger – **applicable**	ADEM Admin. Code r. 335-6-5-.03(1)
	The following pollutants may not be introduced into a POTW:		ADEM Admin. Code r. 335-6-5-.03(2)
	• Pollutants which create a fire or explosion hazard in the POTW, including, but not limited to, waste streams with a closed cup flashpoint of less than 140 degrees Fahrenheit (°F) or 60 degrees Centigrade (°C) using the test methods specified in 40 C.F.R. § 261.21;		ADEM Admin. Code r. 335-6-5-.03(2)(a)
	• Pollutants which will cause corrosive structural damage to the treatment works, but in no case discharges with pH lower than 5.0, unless the treatment works are specifically designed to accommodate such discharges;		ADEM Admin. Code r. 335-6-5-.03(2)(b)
	• Solid or viscous pollutants in amounts which will cause obstruction to the flow in sewers, or other interference with the operation of the treatment works;		ADEM Admin. Code r. 335-6-5-.03(2)(c)
	• Any pollutant, including oxygen demanding pollutants released in a discharge of such volume or strength as to cause interference in the treatment works;		ADEM Admin. Code r. 335-6-5-.03(2)(d)
	• Heat in amounts which will inhibit biological activity in the treatment plant resulting in interference but in no case in such quantities that the temperature of the influent, at the treatment plant, exceeds 40 °C (104 °F) unless the treatment plant is designed to accommodate such heat;		ADEM Admin. Code r. 335-6-5-.03(2)(e)
	• Pollutants which result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems;		ADEM Admin. Code r. 335-6-5-.03(2)(f)
	• Any trucked or hauled pollutants, except at discharge points designated by the treatment works; and		ADEM Admin. Code r. 335-6-5-.03(2)(g)
	• Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through.		ADEM Admin. Code r. 335-6-5-.03(2)(h)
Disposal of RCRA hazardous waste in a land-based unit	May be land disposed if it meets the requirements in the table "Treatment Standards for Hazardous Waste" at 40 C.F.R. § 268.40 before land disposal.	Land disposal, as defined in 40 C.F.R. § 268.2, of restricted RCRA waste – **applicable**	40 C.F.R. § 268.40(a)

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(e.g. off-site permitted landfill)	All underlying hazardous constituents [as defined in 40 C.F.R. 268.2(i)] must meet the Universal Treatment Standard (UTS), found in 40 C.F.R. 268.48 Table UTS prior to land disposal.	Land disposal of restricted RCRA characteristic wastes (D001-D043) that are not managed in a wastewater treatment system that is regulated under the CWA, that is CWA equivalent, or that is injected into a Class I nonhazardous injection well – **applicable**	40 C.F.R. §268.40(e)
Disposal of RCRA hazardous waste in a land-based unit (e.g. off-site permitted landfill)	To determine whether a hazardous waste identified in this section exceeds the applicable treatment standards of 40 CFR § 268.40, the initial generator must test a sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentration in the waste extract or waste, or the generator may use knowledge of the waste. If the waste contains constituents (including UHCs in the characteristic wastes) in excess of the applicable UTS levels in 40 CFR § 268.48, the waste is prohibited from land disposal, and all requirements of part 268 are applicable, except as otherwise specified.	Land disposal of RCRA toxicity characteristic wastes (D004 – D011) that are newly identified (i.e., wastes, soil, or debris identified by the TCLP but not the Extraction Procedure) – **applicable**	40 C.F.R. § 268.34(f)
Disposal of RCRA *hazardous waste soil* in a land-based unit (e.g. off-site permitted landfill)	Must be treated according to the alternative treatment standards of 40 C.F.R. § 268.49(c) or according to the universal treatment standards [specified in 40 C.F.R. § 268.48 Table UTS] applicable to the listed and/or characteristic waste contaminating the soil prior to land disposal.	Land disposal, as defined in 40 C.F.R. 268.2, of restricted hazardous soils – **applicable**	40 C.F.R. § 268.49(b)
Treatment of RCRA *hazardous waste soil*	Prior to land disposal, all "constituents subject to treatment" as defined in 40 C.F.R. § 268.49(d) must be treated as follows:	Treatment of restricted hazardous waste soils – **applicable**	40 C.F.R. § 268.49(c)(1)
	• For nonmetals (except carbon disulfide, cyclohexanone, and methanol), treatment must achieve a 90% reduction in total constituent concentrations, except as provided in 40 C.F.R. § 268.49(c)(1)(C).		40 C.F.R. § 268.49(c)(1)(A)

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	• For metals and carbon disulfide, cyclohexanone, and methanol), treatment must achieve a 90% reduction in total constituent concentrations as measured in leachate from the treated media (tested according to toxicity characteristic leaching procedure or 90% reduction in total constituent concentrations (when a metal removal technology is used), except as provided in 40 C.F.R. § 268.49(c)(1)(C). • When treatment of any constituent subject to treatment to a 90% reduction standard would result in a concentration less than 10 times the universal treatment standard for that constituent, treatment to achieve constituent concentrations less than 10 times the universal treatment standard is not required. [UTSs are identified in 40 C.F.R. § 268.48 Table UTS]. Note: Treatment required for soils considered hazardous waste is expected to be performed at an off-site RCRA permitted facility prior to disposal.		40 C.F.R. § 268.49(c)(1)(B) 40 C.F.R. § 268.49(c)(1)(C)
	In addition to the treatment requirement required by paragraph (c)(1) of this section, soils must be treated to eliminate these characteristics.	Land disposal of soils that exhibit the characteristic of ignitability, corrosivity, or reactivity – **applicable**	40 C.F.R. § 268.49(c)(2)
	Provides methods on how to demonstrate compliance with the alternative treatment standards for contaminated soils that will be land disposed.	On-site treatment of restricted hazardous waste soils following alternative soil treatment of 40 C.F.R. § 268.49(c) –**TBC**	Guidance on Demonstrating Compliance with the LDR Alternative Soil Treatment Standards [EPA 530-R-02-003, July 2002]

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PCB Waste Generation, Management, Storage and Disposal			
Management of PCB waste (e.g., contaminated PPE, equipment, wastewater)	Any person storing or disposing of PCB waste must do so in accordance with 40 C.F.R. § 761, Subpart D.	Generation of waste containing PCBs at concentrations ≥50 ppm – **applicable**	40 C.F.R. § 761.50(a)
Management of PCB remediation waste	Any person cleaning up and disposing of PCBs shall do so based on the concentration at which the PCBs are found.	Generation of PCB remediation waste as defined in 40 C.F.R. § 761.3 – **applicable**	40 C.F.R. § 761.61
Temporary storage of PCB waste in a container(s)	Container(s) shall be marked as illustrated in 40 C.F.R. § 761.45(a).	Storage of PCBs and PCB Items at concentrations ≥50 ppm for disposal – **applicable**	40 C.F.R. § 761.40(a)(1)
	Storage area must be properly marked as required by 40 C.F.R. § 761.40(a)(10).		40 C.F.R. § 761.65(c)(3)
	Any leaking PCB items and their contents shall be transferred immediately to a properly marked non-leaking container(s).		40 C.F.R. § 761.65(c)(5)
	Container(s) shall be in accordance with requirements set forth in DOT HMR at 49 C.F.R. §§ 171-180.		40 C.F.R. § 761.65(c)(6)
Storage of PCB waste in *non-RCRA regulated unit* (Facility)	Storage facility must have: • Adequate roof and walls to prevent rainwater from reaching stored PCBs and PCB items; • Adequate floor that has continuous curbing with a minimum six-inch-high curb. Floor and curb must provide a containment volume equal to at least two times the internal volume of the largest PCB article or container or 25% of the internal volume of all articles or containers stored there, whichever is greater; • No drain valves, floor drains, expansion joints, sewer lines, or other openings that would permit liquids to flow from curbed area; • Floors and curbing constructed of Portland cement, concrete, or a continuous, smooth, nonporous surface that prevents or minimizes penetration of PCBs; and • Storage facility must not be located at a site that is below the 100-year flood water elevation. • Storage area must be properly marked as required by 40 C.F.R. § 761.40(a)(10).	Storage of PCBs and PCB items at concentrations of 50 ppm or greater for disposal – **applicable**	40 C.F.R. § 761.65(b)(1) 40 C.F.R. § 761.65(b)(1)(i) 40 C.F.R. § 761.65(b)(1)(ii) 40 C.F.R. § 761.65(b)(1)(iii) 40 C.F.R. § 761.65(b)(1)(iv) 40 C.F.R. § 761.65(b)(1)(v) 40 C.F.R. § 761.65(c)(3)

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Storage of PCB waste in a *RCRA-regulated* container storage area	Does not have to meet storage unit requirements in 40 C.F.R. § 761.65(b)(1) provided unit:	Storage of PCBs and PCB Items designated for disposal – **applicable**	40 C.F.R. § 761.65(b)(2)
	• Is permitted by USEPA under RCRA § 3004 to manage hazardous waste in containers and spills of PCBs cleaned up in accordance with Subpart G of 40 C.F.R. § 761; or		40 C.F.R. § 761.65(b)(2)(i)
	• Qualifies for interim status under RCRA § 3005 to manage hazardous waste in containers and spills of PCBs cleaned up in accordance with Subpart G of 40 C.F.R. § 761; or		40 C.F.R. § 761.65(b)(2)(ii)
	• Is permitted by an authorized state under RCRA § 3006 to manage hazardous waste in containers and spills of PCBs cleaned up in accordance with Subpart G of 40 C.F.R. § 761. • PCB spills cleaned up in accordance with Subpart G of 40 CFR 761. NOTE: Storage unit meeting the requirements of the RCRA ARARs for container storage units identified above would qualify as "interim status".		40 C.F.R. § 761.65(b)(2)(iii) 40 C.F.R. § 761.65(b)(2)(iv)
Temporary storage of Bulk PCB remediation waste in a TSCA waste pile (e.g. excavated soil)	May be stored at the cleanup site or site of generation for 180 days subject to the following conditions: • Waste must be placed in a pile designed and operated to control dispersal by wind, where necessary, by means other than wetting;	Storage of PCB remediation waste or PCB bulk product waste in a waste pile at a cleanup site or site of generation for up to 180 days – **applicable**	40 C.F.R. § 761.65(c)(9)(i)
	• Waste must not generate leachate through decomposition or other reactions.		40 C.F.R. § 761.65(c)(9)(ii)
	Storage site must have a liner designed, constructed, and installed to prevent any migration of wastes off or through liner into adjacent subsurface soil, groundwater or surface water at any time during the active life (including closure period) of the storage site.		40 C.F.R. § 761.65(c)(9)(iii)(A)
Construction of a TSCA storage pile liner	Liner must be: • Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure because of pressure gradients, physical contact with waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;		40 C.F.R. § 761.65(c)(9)(iii)(A)(1)

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Construction of a TSCA storage pile cover Construction of TSCA storage pile run-on control system Modification of TSCA waste pile requirements	• Placed on foundation or base capable of providing support to liner and resistance to pressure gradients above and below the liner to present failure because of settlement compression or uplift; and		40 C.F.R. § 761.65(c)(9)(iii)(A)(2)
	• Installed to cover all surrounding earth likely to be in contact with waste.		40 C.F.R. § 761.65(c)(9)(iii)(A)(3)
	The storage site must have a cover that meets the above requirements and is installed to cover all of the stored waste likely to be contacted by precipitation, and is secured so as not to be functionally disabled by winds expected under normal weather conditions at the storage site; and		40 C.F.R. § 761.65(c)(9)(iii)(B)
	The storage site must have a run-on control system designed, constructed, operated and maintained such that it:		40 C.F.R. § 761.65(c)(9)(iii)(C)
	• Prevents flow on the stored waste during peak discharge from at least a 25-year storm; and		40 C.F.R. § 761.65(c)(9)(iii)(C)(1)
	• Collects and controls at least the water volume resulting from a 24-hour, 25-year storm. Collection and holding facilities (e.g., tanks or basins) must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system.		40 C.F.R. § 761.65(c)(9)(iii)(C)(2)
	Requirements of 40 C.F.R. § 761.65(c)(9) may be modified under the risk-based disposal option of 40 C.F.R. § 761.61(c). NOTE: See ARAR entry below for requirements associated with use of 40 C.F.R. § 761.61(c).		40 C.F.R. § 761.65(c)(9)(iv)

Table 13-3
Action-Specific ARARs and TBCs
OU-1/OU-2 Record of Decision
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
PCB Treatment/Disposal			
Disposal of decontamination waste and residues	Such waste shall be disposed of at their existing PCB concentration unless otherwise specified in 40 C.F.R. § 761.79(g)(1) – (6).	Decontamination waste and residues – **applicable**	40 C.F.R. § 761.79(g)
	Are regulated for disposal as PCB remediation waste.	Distillation bottoms or residues and filter media – **applicable**	40 C.F.R. § 761.79(g)(1)
	Are regulated for disposal at their original concentration.	PCBs physically separated from regulated waste during decontamination, other than distillation bottoms and filter media – **applicable**	40 C.F.R. § 761.79(g)(2)
	Shall be disposed of in accordance with provisions for wastes from cleanup of PCB remediation waste at 40 C.F.R. § 761.61(a)(5)(v).	Non-liquid cleaning materials and PPE at any concentration of PCBs, including non-porous surfaces and other non-liquid materials (e.g. rags, gloves, booties) resulting from decontamination - **applicable**	40 C.F.R. § 761.79(g)(6)
Disposal of bulk PCB remediation waste off-site (self-implementing option)	May be sent off-site for decontamination or disposal provided the waste is either dewatered on-site or transported off-site in containers meeting the requirements of DOT HMR at 49 CFR parts 171-180.	Generation of bulk PCB remediation waste (as defined in 40 CFR 761.3) for disposal **– relevant and appropriate**	40 CFR § 761.61(a)(5)(i)(B)
	Shall be disposed of in accordance with the provisions for Cleanup wastes at 40 CFR 761.61(a)(5)(v)(A).	Bulk PCB remediation waste which has been de-watered and with a PCB concentration < 50 ppm – **relevant and appropriate**	40 CFR § 761.61(a)(5)(i)(B)(2)*(ii)*
Disposal of bulk PCB remediation waste off-site (self-implementing option)	Shall be disposed of: • in a hazardous waste landfill permitted by EPA under §3004 of RCRA; • in a hazardous waste landfill permitted by a State authorized under §3006 of RCRA; or in a PCB disposal facility approved under 40 CFR 761.60.	Bulk PCB remediation waste which has been de-watered and with a PCB concentration ≥ 50 ppm – **relevant and appropriate**	40 CFR § 761.61(a)(5)(i)(B)(2)*(iii)*

Table 13-3
Action-Specific ARARs and TBCs
OU-1/OU-2 Record of Decision
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
Performance-based disposal of PCB remediation waste	Shall dispose by one of the following methods: • in a high-temperature incinerator approved under 40 CFR 761.70(b); • by an alternate disposal method approved under 40 CFR 761.60(e); • in a chemical waste landfill approved under 40 CFR 761.75; • in a facility with a coordinated approval issued under 40 CFR 761.77; or • through decontamination in accordance with 40 CFR 761.79. *NOTE*: On-site TSCA chemical waste landfill that complies with the ARARs identified in this table in the signed ROD would be considered an approved landfill.	Disposal of non-liquid PCB remediation waste (as defined in 40 CFR 761.3) – **relevant and appropriate**	40 CFR § 761.61(b)(2) 40 CFR § 761.61(b)(2)(i) 40 CFR § 761.61(b)(2)(ii)
	Shall be disposed according to 40 CFR 761.60(a) or (e), or decontaminate in accordance with 40 CFR 761.79.	Disposal of liquid PCB remediation waste – **relevant and appropriate**	40 CFR § 761.61(b)(1)
Risk-based disposal of PCB remediation waste	May sample, cleanup or dispose of PCB remediation waste in a manner other than prescribed in 40 CFR 761.61(a) or (b) or store remediation waste in a manner other than prescribed in 40 CFR § 761.65 if application approved in writing by EPA Regional Administrator and EPA finds that the method will not pose an unreasonable risk of injury to [sic] human health or the environment. Each application must include information described in 40 CFR § 761.61(a)(3). *NOTE*: Appropriate information required in an application can be provided in a CERCLA document (e.g. FS, PP, or ROD) that is approved or issued by EPA.	Disposal of PCB remediation waste – **relevant and appropriate**	40 CFR § 761.61(c)

Table 13-3
Action-Specific ARARs and TBCs
OU-1/OU-2 Record of Decision
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
Disposal of PCB contaminated porous surfaces (self-implementing)	Shall be disposed on-site or off-site as bulk PCB remediation waste according to 40 C.F.R. § 761.61(a)(5)(i) or decontaminated for use according to 40 C.F.R. § 761.79(b)(4).	PCB remediation waste porous surfaces (as defined in 40 C.F.R. § 761.3) – **relevant and appropriate**	40 C.F.R. § 761.61(a)(5)(iii)
Disposal of PCB contaminated non-porous surfaces (Self-implementing option)	Shall be cleaned on-site or off-site to levels in 40 CFR 761.61(a)(4)(ii) using: • decontamination procedures under 40 CFR 761.79; • technologies approved under 40 CFR 761.60(e); or risk-based procedures/technologies under 40 CFR 761.61(c).	PCB remediation waste *non-porous surfaces* (as defined in 40 CFR 761.3) **– relevant and appropriate**	40 CFR § 761.61(a)(5)(ii)(A)(*1*)-(*3*)
Disposal liquid PCB remediation waste	Shall either: • Decontaminate the waste to the levels specified in 40 C.F.R. § 761.79(b)(1) or (2); or • Dispose of the waste in accordance with 40 C.F.R. § 761.61(b) or a risk-based approval under 40 C.F.R. § 761.61(c).	Liquid PCB remediation waste (as defined in 40 C.F.R. § 761.3) – **relevant and appropriate**	40 C.F.R. § 761.61(a)(5)(iv)(A) 40 C.F.R. § 761.61(a)(5)(iv)(B)
Disposal of PCB cleanup wastes (e.g., PPE, rags, non-liquid cleaning materials) (Self-implementing option)	Shall be disposed of either: • In a facility permitted, licensed, or registered by a State to manage municipal solid waste under 40 C.F.R § 258 or non-municipal, nonhazardous waste subject to 40 C.R.R.§§ 257.5 through 257.30; or • In an RCRA Subtitle C landfill permitted by a State to accept PCB waste; or • In an approved PCB disposal facility; or • Through decontamination under 40 C.F.R. § 761.79(b) or (c).	Generation of non-liquid PCBs at any concentration during and from the cleanup of PCB remediation waste – **relevant and appropriate**	40 C.F.R. § 761.61(a)(5)(v)(A)(1)-(4)
Disposal of PCB cleaning solvents, abrasives, and equipment (self-implementing option)	May be reused after decontamination in accordance with 40 C.F.R. §761.79; or For liquids, disposed in accordance with 40 C.F.R. § 761.60(a).	Generation of PCB wastes from the cleanup of PCB remediation waste – **relevant and appropriate**	40 C.F.R. § 761.61(a)(5)(v)(B) 40 C.F.R. § 761.60(b)(1)(i)(B)

Table 13-3
Action-Specific ARARs and TBCs
OU-1/OU-2 Record of Decision
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
Performance-based disposal of PCB remediation waste	Shall dispose by one of the following methods:	Disposal of non-liquid PCB remediation waste (as defined in 40 C.F.R. § 761.3) – **relevant and appropriate**	40 C.F.R. § 761.61(b)(2)
	• In a high-temperature incinerator approved under 40 C.F.R. § 761.70(b); • By an alternate disposal method approved under 40 C.F.R. § 761.60(e); • In a chemical waste landfill approved under 40 C.F.R. § 761.75; • In a facility with a coordinated approval issued under 40 C.F.R. § 761.77; or		40 C.F.R. § 761.61(b)(2)(i)
	• Through decontamination in accordance with 40 C.F.R. § 761.79.		40 C.F.R. § 761.61(b)(2)(ii)
	Shall be disposed according to 40 C.F.R. § 761.60(a) or (e), or decontaminated in accordance with 40 C.F.R. § 761.79.	Disposal of liquid PCB remediation waste – **relevant and appropriate**	40 C.F.R. § 761.61(b)(1)
Risk-based disposal of PCB remediation waste	May dispose of in a manner other than prescribed in 40 C.F.R. § 761.61(a) or (b) if approved in writing by USEPA and method will not pose an unreasonable risk of injury to human health or the environment. NOTE: USEPA Approval of alternative disposal method will be obtained by approval of the CERCLA document (e.g., ROD)	Disposal of PCB remediation waste – **relevant and appropriate**	40 C.F.R. § 761.61(c)

Action	Requirements	Prerequisite	Citation
PCB Decontamination/Cleanup/Cover Design and Containment of PCB Contaminated Soil			
Decontamination of PCB-contaminated water	For discharge to a treatment works as defined in 40 C.F.R. § 503.9 (aa), or discharge to navigable waters, meet standard of < 3 parts per billion PCBs; or	Water containing PCBs regulated for disposal – **applicable**	40 C.F.R. § 761.79(b)(1)(ii)
	For unrestricted use, meet standard of 0.5 parts per billion PCBs.		40 C.F.R. § 761.79(b)(1)(iii)

Table 13-3
Action-Specific ARARs and TBCs
OU-1/OU-2 Record of Decision
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
Decontamination of movable equipment contaminated by PCBs (self-implementing option)	May decontaminate by: • swabbing surfaces that have contacted PCBs with a solvent; • a double wash/rinse as defined in 40 CFR 761.360-378; or • another applicable decontamination procedure under 40 CFR § 761.79.	Movable equipment contaminated by PCBs and used in storage areas, tools and sampling equipment **– relevant and appropriate**	40 CFR § 761.79(c)(2)
Cap requirements for PCB bulk remediation waste left in place	Must do so in accordance with 40 C.F.R. § 264.310(a) and ensure it complies with the permeability, sieve, liquid limit and plasticity index parameters in 40 C.F.R. § 761.75(b)(1)(ii) through (b)(1)(v).	Designing and constructing a cap for on-site disposal of PCB remediation waste – **relevant and appropriate**	40 C.F.R. § 761.61(a)(7)
	Must be of sufficient strength to maintain its effectiveness and integrity during the use of the cap surface which is exposed to the environment.		
	A cap may not be contaminated at a level greater than or equal to 1 ppm PCBs.		
	A cap of compacted soil shall have a minimum thickness of 15 cm (10 inches).		
	A concrete or asphalt cap shall have a minimum thickness of 15 cm (6 inches).		
	Repairs shall begin within 72 hours of discovery for any breaches which would impair the integrity of the cap.		
Landfill cover design and construction	Must cover the landfill or cell with a final cover designed and constructed to: • provide long–term minimization of migration of liquids through the closed landfill; • function with minimum maintenance; • promote drainage and minimize erosion or abrasion of the cover; • accommodate settling and subsidence so that the cover's integrity is maintained; and • have a permeability less than or equal to the permeability of any bottom-liner system or natural sub-soils present.	Closure of a RCRA hazardous waste management unit – **relevant and appropriate**	40 CFR § 264.310(a)(1)–(5)

Table 13-3
Action-Specific ARARs and TBCs
OU-1/OU-2 Record of Decision
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
Disposal of PCB bulk product waste in a permitted Municipal Solid Waste or a Non Municipal - Non Hazardous Waste landfill	Any person may dispose of the following PCB bulk product waste in a facility permitted, licensed, or registered by a State as a municipal or non-municipal non-hazardous waste landfill: Plastics (such as plastic insulation from wire or cable; radio, television and computer casings; vehicle parts; or furniture laminates); preformed or molded rubber parts and components; applied dried paints, varnishes, waxes or other similar coatings or sealants; caulking; Galbestos; non-liquid building demolition debris; or non-liquid PCB bulk product waste from the shredding of automobiles or household appliances from which PCB small capacitors have been removed (shredder fluff).	On-site disposal of PCB bulk product waste – **applicable**	40 C.F.R. § 761.62(b)(1)(i)
Cap drainage design, construction and maintenance requirements for PCB bulk product waste left in place in capped areas	Owners and Operators of all facilities must design, construct and maintain: (1) A run-on control system to prevent flow onto the active and/or closed portions of the landfill during the peak discharge from a 25-year storm; (2) A run-off control system from the active and/or closed portions of the landfill to collect and control at least the water volume resulting from a 24-hour, 25-year storm. (3) On-site drainage structures to carry incident precipitation from the disposal site so as to minimize the generation of leachate, erosion and sedimentation.	Construction of a RCRA Subtitle D landfill; drainage specifications – **relevant and appropriate**	ADEM Admin. Code r. 335-13-4-.17 (1)-(3) 40 C.F.R. 264.301(g)-(h)

Cap requirements for Bulk PCB product waste left in place (Final caps for UWDA and T-11 area)	The requirements for closure of existing and proposed landfill units shall include the following unless otherwise noted. (b) A final cover system must be installed which is designed to minimize infiltration and erosion. The final cover system must be comprised of an erosion layer(s) underlain by an infiltration layer(s) as follows: (1) The infiltration layer for MSWLF and ILF must be comprised of a minimum of 18 inches of earthen material and/or a synthetic layer that has a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than 1 x 10-5 cm/sec, whichever is less. (c) Final soil cover shall be graded so that: (1) Surface water does not pond over the landfill unit. (2) The maximum final grade of the final cover system shall not exceed 25 percent or as specified by the Department to minimize erosion. (3) Slopes longer than 25 feet shall require horizontal terraces, of sufficient width for equipment operation, for every 20 feet rise in elevation or utilize other erosion control measures approved by the Department. (4) The minimum final grade of the final cover system shall not be less than 5 percent or as specified by the Department to minimize ponding. (d) A vegetative or some other appropriate cover must be established to minimize erosion and, when applicable, maximum evapotranspiration. Within 90 days after completion of final grading requirements on each phase the owner or operator shall prepare the final cover for the establishment of a vegetative cover or alternative cover. Deep rooted vegetation (roots that may grow below 6-inch erosion layer) shall be prohibited as vegetative cover. Preparation of a vegetative cover shall include, but not be limited to, the following: (1) Placement of appropriate species of grass seed, fertilizer and mulch; and (2) Watering and maintenance necessary such that germination of grass will occur.	Final closure requirements for a MSW or Industrial landfill **– relevant and appropriate**	ADEM Admin. Code r. 335-13-4.20 (2)(b)-(d)

Table 13-3
Action-Specific ARARs and TBCs
OU-1/OU-2 Record of Decision
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
Maintenance and protection of capped areas	The requirements for the Post-Closure care include the following. The owner or operator must conduct post-closure care following closure of the landfill unit. Post-closure care must be conducted for a minimum of 30 years, except as provided under 335-13-4.20(3)(b), and consist of at least the following: (1) Eroded areas shall be filled with suitable soil cover, compacted, graded and appropriate cover established as described in 335-13-4-.20(2)(d). (2) Areas which provide for ponding of surface water shall be filled, graded and an appropriate cover established as described in 335-13-4-.20(2)(d). (3) Landfilled areas with extensive surface cracks in soil cover shall be corrected as necessary, or as determined by the Department, to prevent infiltration of surface water. (4) An appropriate cover shall be maintained on the facility at all times as described in 335-13-4-.20(2)(d). (5) Access control structures shall be maintained or erected and signs shall be posted stating that the facility is closed. (d) Post-closure use of the property used for the disposal operation must never be allowed to disturb the integrity of the final cover, liner(s), or any other component of the containment system, or the function of the monitoring systems necessary to comply with the requirements of these Rules.	Post-Closure care requirements after final closure of a landfill**– relevant and appropriate**	ADEM Admin. Code r. 335-13-4.20 (3)(a)(1)-(5) ADEM Admin. Code r. 335-13-4.20 (3)(d)
Prevent unauthorized access	The owner or operator of the facility must control public access and prevent unauthorized vehicular traffic and illegal dumping of wastes by using artificial barriers, natural barriers, or both, as appropriate to protect human health and the environment.	Final closure of a landfill – **relevant and appropriate**	ADEM Admin. Code r. 335-13-4-.19

Table 13-3
Action-Specific ARARs and TBCs
OU-1/OU-2 Record of Decision
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
Transportation of Wastes			
Transportation of hazardous waste *on-site*	The generator manifesting requirements of 40 C.F.R. §§ 262.20-262.32(b) do not apply. Generator or transporter must comply with the requirements set forth in 40 C.F.R. §§ 263.30 and 263.31 in the event of a discharge of hazardous waste on a private or public right-of-way.	Transportation of hazardous wastes on a public or private right-of-way within or along the border of contiguous property under the control of the same person, even if such contiguous property is divided by a public or private right-of-way – **applicable**	40 C.F.R. § 262.20(f)
Transportation of hazardous waste *off-site*	Must comply with the generator requirements of 40 C.F.R. §§ 262.20-23 for manifesting, § 262.30 for packaging, § 262.31 for labeling, § 262.32 for marking, § 262.33 for placarding, §§ 262.40 and 262.41(a) for record keeping requirements, and § 262.12 to obtain USEPA ID number.	Preparation and initiation of shipment of hazardous waste off-site – **applicable**	40 C.F.R. § 262.10(h)
Transportation of PCB wastes *off-site*	Must comply with the manifesting provisions at 40 C.F.R. §§ 761.207 through 761.218.	Relinquishment of control over PCB wastes by transporting or offering for transport – **applicable**	40 C.F.R.§ 761.207(a)
Transportation of hazardous materials	Shall be subject to and must comply with all applicable provisions of the HMTA and DOT HMR at 49 C.F.R. §§ 171-180 related to marking, labeling, placarding, packaging, emergency response, etc.	Any person who, under contract with a department or agency of the federal government, transports "in commerce," or causes to be transported or shipped, a hazardous material – **applicable**	49 C.F.R. § 171.1(b) and (c)
Management of samples (i.e., contaminated soils and wastewaters)	Are not subject to any requirements of 40 CFR Parts 261 through 268 or 270 when: • The sample is being transported to a laboratory for the purpose of testing; • The sample is being transported back to the sample collector after testing; and • The sample collector ships samples to a laboratory in compliance with U.S.DOT, U.S. Postal Service, or any other applicable shipping requirements, including packing the sample so that it does not leak, spill or vaporize from its packaging.	Generation of samples of hazardous waste for purpose of conducting testing to determine its characteristics or composition – **applicable**	40 CFR § 261.4(d)(1)(i) and (ii) 40 CFR § 261.4(d)(2)

Table 13-3
Action-Specific ARARs and TBCs
OU-1/OU-2 Record of Decision
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
Land Use Restrictions/Institutional Controls			
Deed restrictions for closed landfills	(2) Closure. The requirements for closure of existing and proposed landfill units shall include the following unless otherwise noted. (i) Within 90 days after permit expiration, revocation or when final closure requirements in 335-13-4-.20 are achieved as determined by the Department, the permittee or owner of a facility shall record a notation onto the land deed containing the property utilized for disposal, and/or some other legal instrument that is normally examined during a title search, that will in perpetuity, notify any potential purchaser of the property that: 1. The land has been used as a solid waste disposal facility landfill unit; 2. Its use is restricted by the items contained in 335-13-4-.20(3)(c) and 335- 13-4-.20(3)(d); 3. The locations and dimensions of the landfill unit with respect to permanently surveyed benchmarks and section corners shall be on a plat prepared and sealed by a land surveyor; 4. Contain a note, prominently displayed, which states the name of the Permittee or operating agency, the type of landfill unit and the beginning and closure dates of the disposal activity. 5. Certification by an Engineer or Land Surveyor that all closure requirements have been completed as determined necessary by the Department.	Closure of Industrial Waste Landfill – **relevant and appropriate**	ADEM Admin. Code r. 335-13-4.20 (2)(i)(1)-(5)

Table 13-3
Action-Specific ARARs and TBCs
OU-1/OU-2 Record of Decision
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
Deed restrictions for caps, fences and low occupancy areas	Must maintain the cap or fence, in perpetuity.	Use of a cap or fence at PCB remediation waste cleanup site - **applicable**	40 C.F.R. 761.61(a)(8)
	Within 60 days of completion of the cleanup activity the owner shall record, in accordance with State law, a notification on the deed to the property, or on some other instrument which is normally examined during a title search, that will in perpetuity notify any potential purchaser of the property:		40 C.F.R. 761.61(a)(8)(i)(A)
	- that the land has been used for PCB remediation waste disposal and is restricted to use as a low occupancy area as defined in 40 C.F.R. 761.3.		40 C.F.R. 761.61(a)(8)(i)(A)(1)
	- of the existence of the fence or cap and the requirements to maintain the fence or cap.		40 C.F.R. 761.61(a)(8)(i)(A)(2)
	- the applicable cleanup levels at the site, inside the fence, and/or under the cap.		40 C.F.R. 761.61(a)(8)(i)(A)(3)
	May remove a fence or cap after conducting additional cleanup activities and achieving levels specified in 40 C.F.R. 761.61(a)(4) which do not require a fence or cap and remove the notice on the deed no earlier than 30 days after achieving these levels.		40 C.F.R. 761.61(a)(8)(ii)

[1] ADEM Admin. Code r. 335-3-4-.02(1) and (2) were held unconstitutional for being unduly vague (335-3-4-.02(1)) and too restrictive (335-3-4-.02(2)). See Ross Neeley Express, Inc. v. Ala. Dep't of Envtl. Mgmt., 437 So.2d 82 (Ala. 1983).
[2] See supra n.1.

ADEM: Alabama Department of Environmental Management
ARAR: applicable or relevant and appropriate requirement
BMP: best management practices
CBMMP: Construction Best Management Practices Plan
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act
CMBST: high temperature organic destruction (combustion); 40 C.F.R. 268.42; Table 1
C.F.R.: Code of Federal Regulations
CWA: Clean Water Act
DEACT: deactivation 40 C.F.R. 268.42; Table 1
NPDES: National Pollutant Discharge Elimination System
OSWER: Office of Solid Waste and Emergency Response
PCB: polychlorinated biphenyl
POLYM: polymerization; 40 C.F.R. 268.42; Table 1
POTW: publicly owned treatment works
PPE: personal protective equipment
ppm: parts per million
RCRA: Resource Conservation and Recovery Act of 1976
RORGS: recovery of organics; 40 C.F.R. 268.42; Table 1

DOT: US Department of Transportation
> : greater than
< : less than
≥ : greater than or equal to
≤ : less than or equal to
HMR: Hazardous Materials Regulations
HMTA: Hazardous Materials Transportation Act
LDR: Land Disposal Restrictions; 40 C.F.R. Part 268
TBC: To be considered
TSCA: Toxic Substances Control Act of 1976
US: United States
USEPA: United States Environmental Protection Agency
UTS: Universal Treatment Standards

APPENDIX B

ROD FIGURES

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Figure 5-47a-j:	Sample Locations and COC Concentrations in OU1/OU2 Sediment
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Figure 9-2a-c:	Eastside Area Candidate Remedial Areas
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Figure 9-6:	Candidate Remedial Areas for Nonresidential Surface Soil with a PCB RG of 9 mg/kg
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Figure 9-8a-b:	Candidate Remedial Areas for Nonresidential Surface Soil Exceeding the Chromium RG
Figure 9-9a-b:	Candidate Remedial Areas for Nonresidential Surface Soil Exceeding the PCDD/DF/DL-PCB RG
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Figure 9-12a-j:	Candidate Remedial Areas for Sediment/Creek Banks with a PCB RG of 1 mg/kg

City: SYR Div/Group: SWG Created By: K.IVES Last Saved By: kives
Anniston (B0010291.2010.00001)
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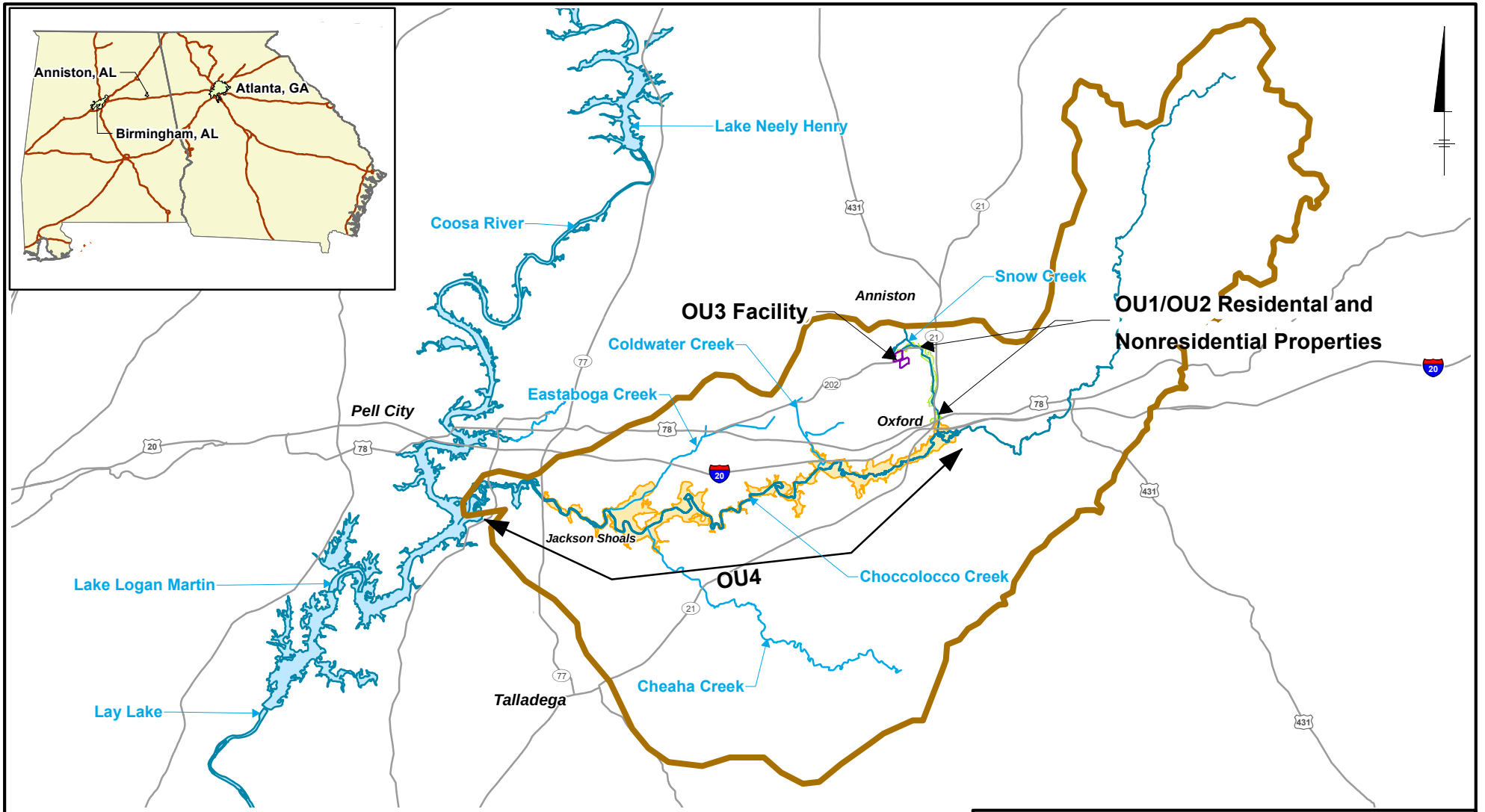

Legend

- Approximate Choccolocco Creek Watershed Boundary as Delineated in Basins 2.0
- OU4 100-Year Floodplain
- OU1/OU2 Downgradient Floodplain
- OU3 Boundary

0 6 12 Miles

Graphic Scale

Acronyms:
OU: operable unit
PCB: polychlorinated biphenyl

Anniston PCB Site: OU1/OU2 Anniston, Alabama

OU1/OU2 Record of Decision

Site Location Map

Solutia

Figure 1-1

City: SYR Div/Group: SWG Created By: K.Ives Last Saved By: vpaouncic
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Legend

- 100-Year Floodplain and Drainage Areas
- OU3
- OU4 100-Year Floodplain
- OU1/OU2 Exposure Unit
- Creek

0 2,200 4,400 Feet

Graphic Scale

Note:
1. 2013 Aerial imagery provided by Calhoun County.
2. mg/kg: milligrams per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record Of Decision

OU1/OU2 Area

Solutia

Figure
1-2

City: SYR Div/Group: SWG Created By: Last Saved By: ldrum
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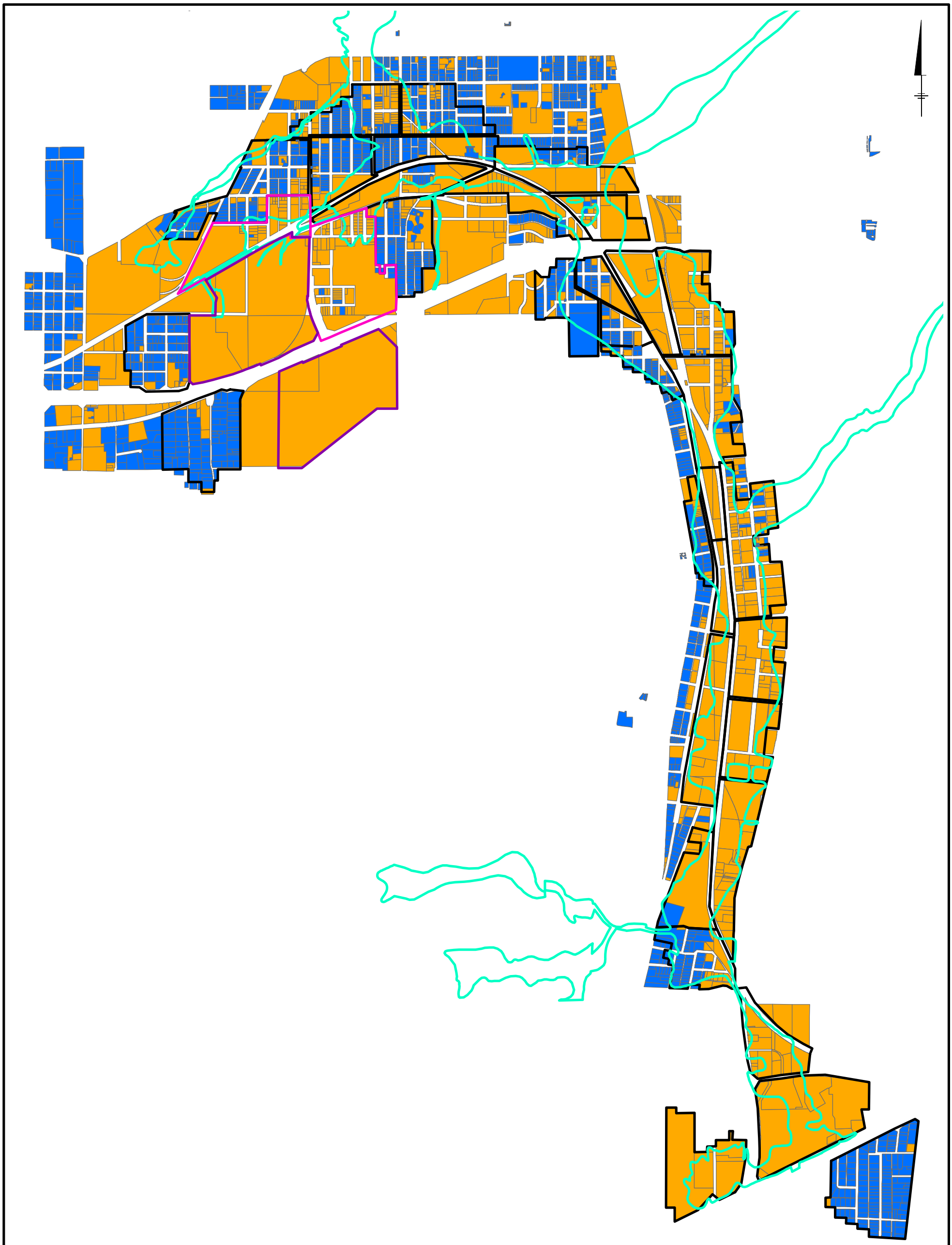


LEGEND

- OU3
- Northside and Eastside Boundaries
- 100-Year Floodplain and Drainage Areas
- Exposure Unit
- Residential
- Nonresidential

Note:
OU: operable unit
PCB: polychlorinated biphenyl

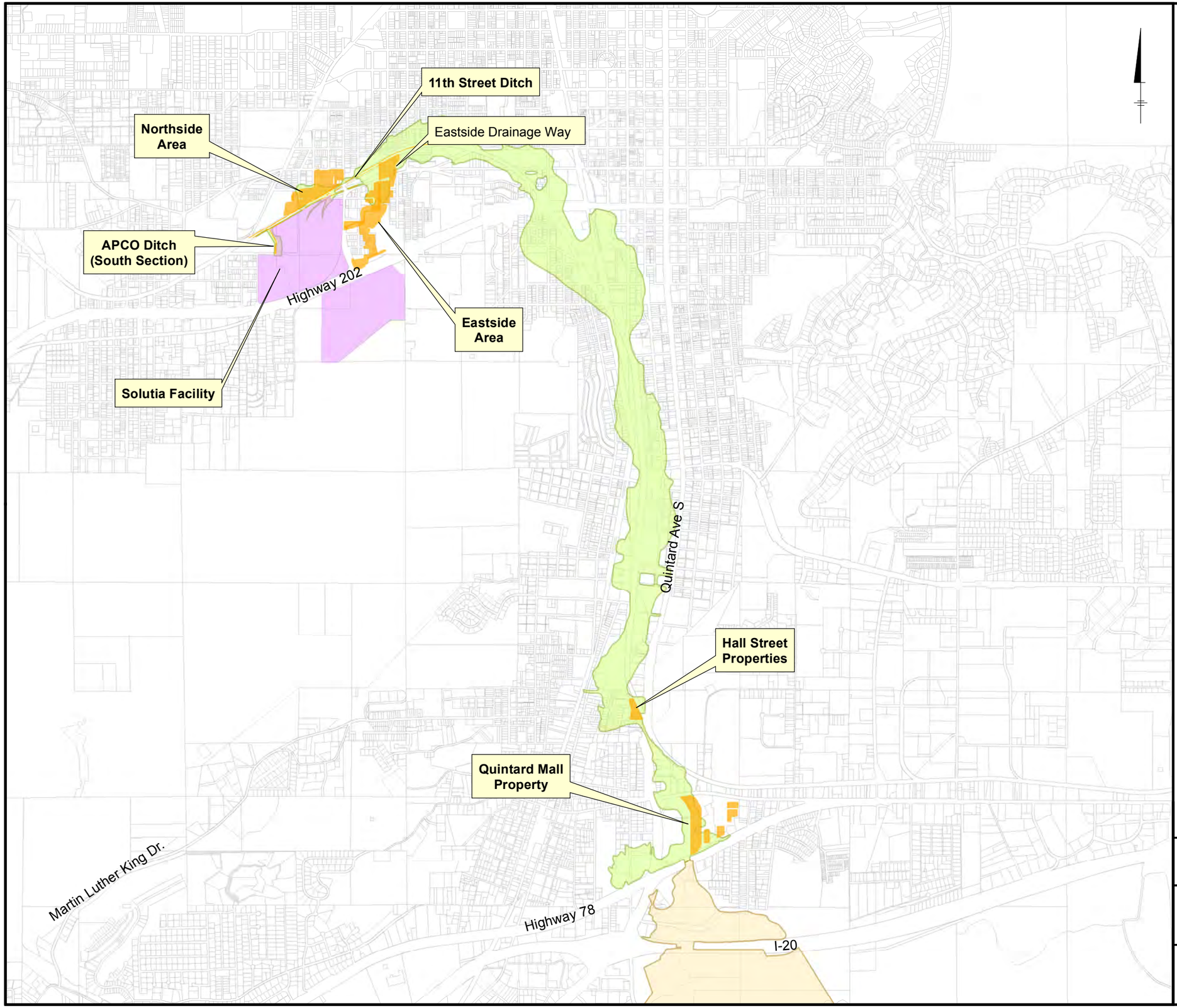
0 1,600 3,200 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Land Use in OU1/OU2

Solutia

Figure 1-3



Legend

- OU3 Boundary
- Interim Measure Locations
- OU4 100 Year Floodplain
- OU1/OU2 Downgradient Floodplain
- Parcels

Notes

1. The OU3 boundary shown has been modified since issuance of the OU3 IROD. P/S are currently working with USEPA to formally revise the boundary.

APCO: Alabama Power Company
CSSMA: central staging and soil management area
IROD: Interim Record of Decision
OU: operable unit
P/S: Pharmacia LLC and Solutia Inc.
USEPA: United States Environmental Protection Agency

References

Calhoun County Tax Parcels, 2011.

0 1,250 2,500 5,000 Feet

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

OU1/OU2 Interim Measures

Solutia

Figure 2-1

Interim Measure	Frequency[1] Detected		Minimum Detected PCB[2] (mg/kg)	Maximum Detected PCB (mg/kg)	Mean PCB[3] (mg/kg)	Median PCB[3] (mg/kg)
Northside Area	**213/234**	**91%**	**0.031**	**2800**	**102.71**	**15**
Not Under Cap	*46/59*	*78%*	*0.031*	*156*	*6.26*	*0.72*
Under Cap	*167/175*	*95%*	*0.045*	*2800*	*135.22*	*23*
Soil and geotextile cover	*107/114*	*94%*	*0.068*	*1900*	*75.13*	*21*
Concrete cover	*31/31*	*100%*	*0.045*	*380*	*41.60*	*19*
Soil HDPE geomembrane multi-layer cover	*10/11*	*91%*	*3.4*	*2800*	*479.13*	*260*
Asphalt non-woven geotextile multi-layer cover	*6/6*	*100%*	*4*	*79*	*30.67*	*21.5*
Asphalt HDPE geomembrane multi-layer cover	*13/13*	*100%*	*75*	*1600*	*642.69*	*580*

[1] Screening data are not summarized in the above table. Includes data from original and duplicate samples.

[2] Does not include nondetect samples

[3] A zero was substituted for nondetect samples

Figure 2-2b

Figure 2-2c

Figure 2-2d

Commerce St
Duncan Ave
Duncan Ave
Bancroft Ave
Parkwin Ave
Clydesdale Ave
Lehman St
9Th St
7Th St
Clydesdale Ave
10Th St
8Th St
Fernon Ave
Crawford Ave
Fernon Ave
202
EU3
EU5
EU6

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Maximum PCB concentration at any depth in analysis profile shown for each location. Screening data are presented where no analytical data are available. Analytical and screening data are presented in the OU-1/OU-2 Remedial Investigation Report.
3. Data associated with the 11th Street/APCO Ditch project are shown on separate figures.
4. Where IM cover systems were constructed, the data shown represent conditions below the cover.
5. Mean and median PCB concentrations were calculated using a replacement value of zero for nondetect samples.
6. APCO: Alabama Power Company
CSSMA: Central Staging and Soil Management Area
HDPE: high density polyethylene
IM: interim measure
mg/kg: milligrams per kilogram
OU: operable unit
PCB: polychlorinated biphenyl
ppm: parts per million

0 250 500 Feet
Graphic Scale

Legend

Total PCB Aroclor Concentration in Soil (mg/kg) (See Note 2)
- <1 (Including nondetects)
- ≥1 to <10
- ≥10 to <25
- ≥25 to <50
- ≥50 to <500
- ≥500
- Abandoned Groundwater Monitoring Well
- Active Groundwater Monitoring Well

Total PCB Screening Result (Immunoassay) (ppm) (See Note 2)
- < 1; < 5; < 10
- > 1; > 5
- > 10; > 25
- <50
- >50
- Outlet/Manhole Cover
- Fence
- Creek

- DrainageDitch
- 42" Diameter HDPE Pipe
- Storm Water Piping
- Box Culvert
- Berm
- Concrete Cover
- Emergency Spillway
- Soil-HDPE Geomembrane Liner
- Soil-HDPE Geomembrane Multilayer Cover

- 11th Street/APCO Ditch Cover
- 1997 IM Cover Limits
- Asphalt and HDPE Geomembrane Multilayer Cover
- Asphalt and Nonwoven Geotextile Multilayer Cover; Asphalt Cover Repair Area
- Closed CSSMA Cells
- Concrete Lined APCO Ditch
- Outfall
- Soil-Geotextile Cover

- Solutia-Owned Parcels
- OU-1/OU-2 Residential Property
- Northside/Eastside Area Boundary
- OU-3 Boundary
- Exposure Unit
- OU-1 and OU-2 Downgradient Floodplain

Anniston PCB Site: OU1/OU2
Anniston, Alabama

OU1/OU2 Record of Decision

Northside Area Interim Measures

Solutia

Figure **2-2a**

City: SYR Div/Group: SWG Created By: K.Ives Last Saved By: jbistrovich
Anniston
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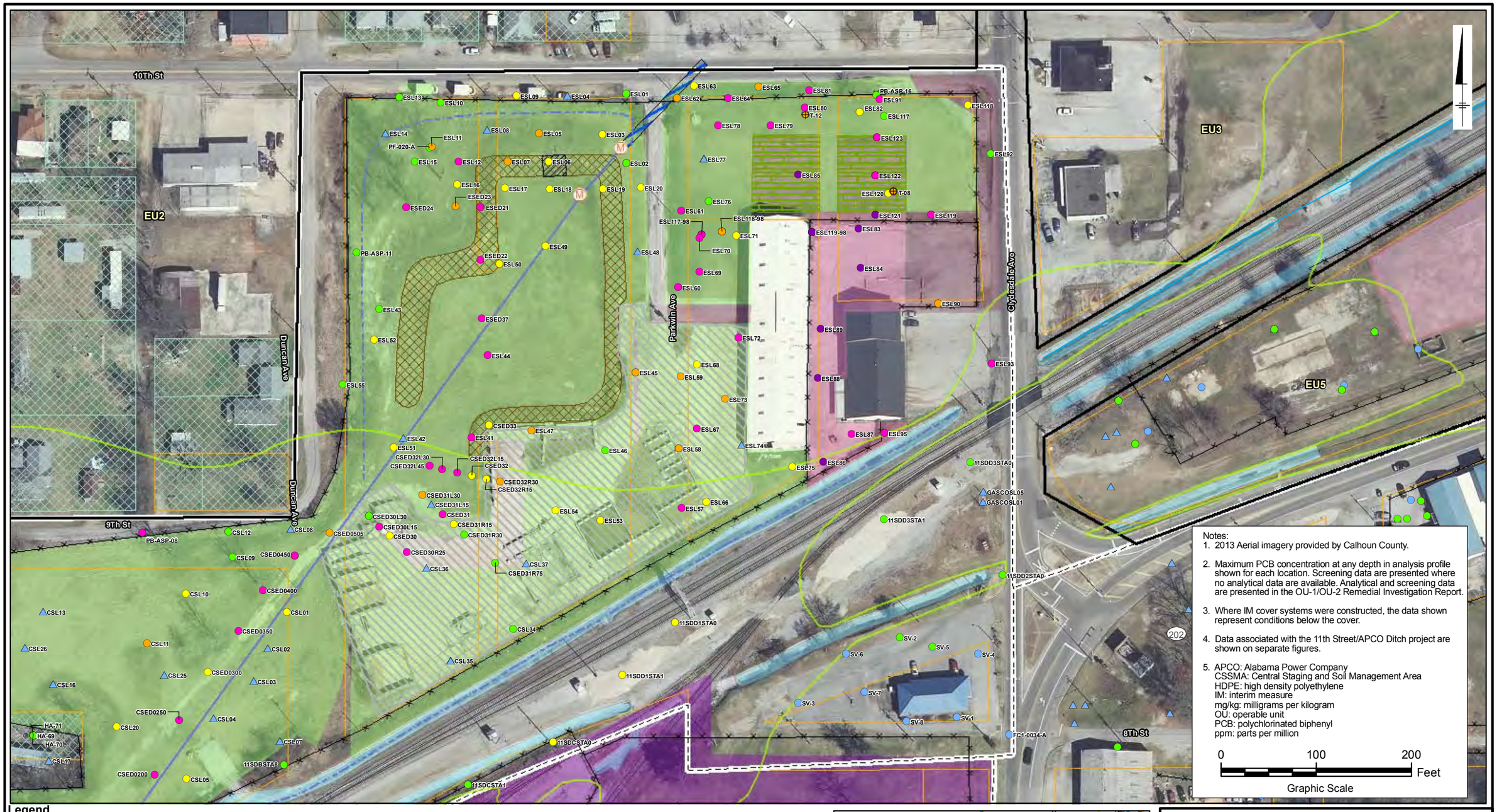


Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Maximum PCB concentration at any depth in analysis profile shown for each location. Screening data are presented where no analytical data are available. Analytical and screening data are presented in the OU-1/OU-2 Remedial Investigation Report.
3. Where IM cover systems were constructed, the data shown represent conditions below the cover.
4. Data associated with the 11th Street/APCO Ditch project are shown on separate figures.
5. APCO: Alabama Power Company
CSSMA: Central Staging and Soil Management Area
HDPE: high density polyethylene
IM: interim measure
mg/kg: milligrams per kilogram
OU: operable unit
PCB: polychlorinated biphenyl
ppm: parts per million

0 100 200 Feet
Graphic Scale

Legend

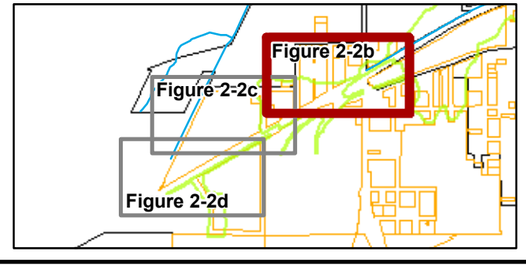
Total PCB Aroclor Concentration in Soil (mg/kg) (See Note 2)
- <1 (Including nondetects)
- ≥1 to <10
- ≥10 to <25
- ≥25 to <50
- ≥50 to <500
- ≥500
- Abandoned Groundwater Monitoring Well
- Active Groundwater Monitoring Well

Total PCB Screening Result (Immunoassay) (ppm) (See Note 2)
- < 1; < 5; < 10
- Outlet/Manhole Cover
- Fence
- Creek

- DrainageDitch
- 42" Diameter HDPE Pipe
- Exposure Unit
- Solutia-Owned Parcels
- Box Culvert
- Berm
- Concrete Cover
- Emergency Spillway
- Soil-HDPE Geomembrane Multilayer Cover

- 11th Street/APCO Ditch Cover
- Asphalt and HDPE Geomembrane Multilayer Cover
- Asphalt and Nonwoven Geotextile Multilayer Cover; Asphalt Cover Repair Area
- Closed CSSMA Cells
- Soil-Geotextile Cover
- Northside Area Boundary
- OU-3 Boundary

- OU-1/OU-2 Residential Property
- OU-1 and OU-2 Downgradient Floodplain



Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Northside Area Interim Measures

Solutia

Figure **2-2b**

City: SYR Div/Group: SWG Created By: K.Ives Last Saved By: jbistrovich
Anniston Q:\Anniston_PCB_site\AnnistonALMXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-3BtoD_InterimMeasures_PCB_Northside_MapBook.mxd 3/7/2016 10:40:03 AM

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Maximum PCB concentration at any depth in analysis profile shown for each location. Screening data are presented where no analytical data are available. Analytical and screening data are presented in the OU-1/OU-2 Remedial Investigation Report.
3. Where IM cover systems were constructed, the data shown represent conditions below the cover.
4. Data associated with the 11th Street/APCO Ditch project are shown on separate figures.
5. APCO: Alabama Power Company
   CSSMA: Central Staging and Soil Management Area
   HDPE: high density polyethylene
   IM: interim measure
   mg/kg: milligrams per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl
   ppm: parts per million

0 100 200 Feet

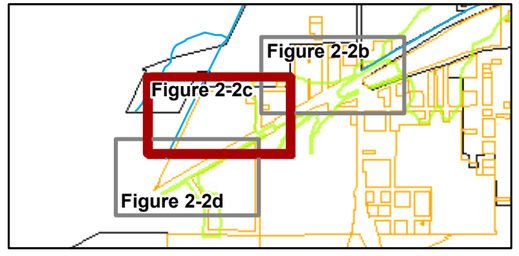
Graphic Scale

Legend

Total PCB Aroclor Concentration in Soil (mg/kg) (See Note 2)
- <1 (Including nondetects)
- ≥1 to <10
- ≥10 to <25
- ≥25 to <50
- ≥50 to <500
- ≥500
- Active Groundwater Monitoring Well

Total PCB Screening Result (Immunoassay) (ppm) (See Note 2)
- < 1; < 5; < 10
- > 10; > 25
- Outlet/Manhole Cover
- Fence
- Creek

- DrainageDitch
- 42" Diameter HDPE Pipe
- Exposure Unit
- Solutia-Owned Parcels
- 11th Street/APCO Ditch Cover
- Soil-Geotextile Cover
- Northside Area Boundary
- OU-3 Boundary
- OU-1/OU-2 Residential Property
- OU-1 and OU-2 Downgradient Floodplain



Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Northside Area Interim Measures

Solutia

Figure **2-2c**

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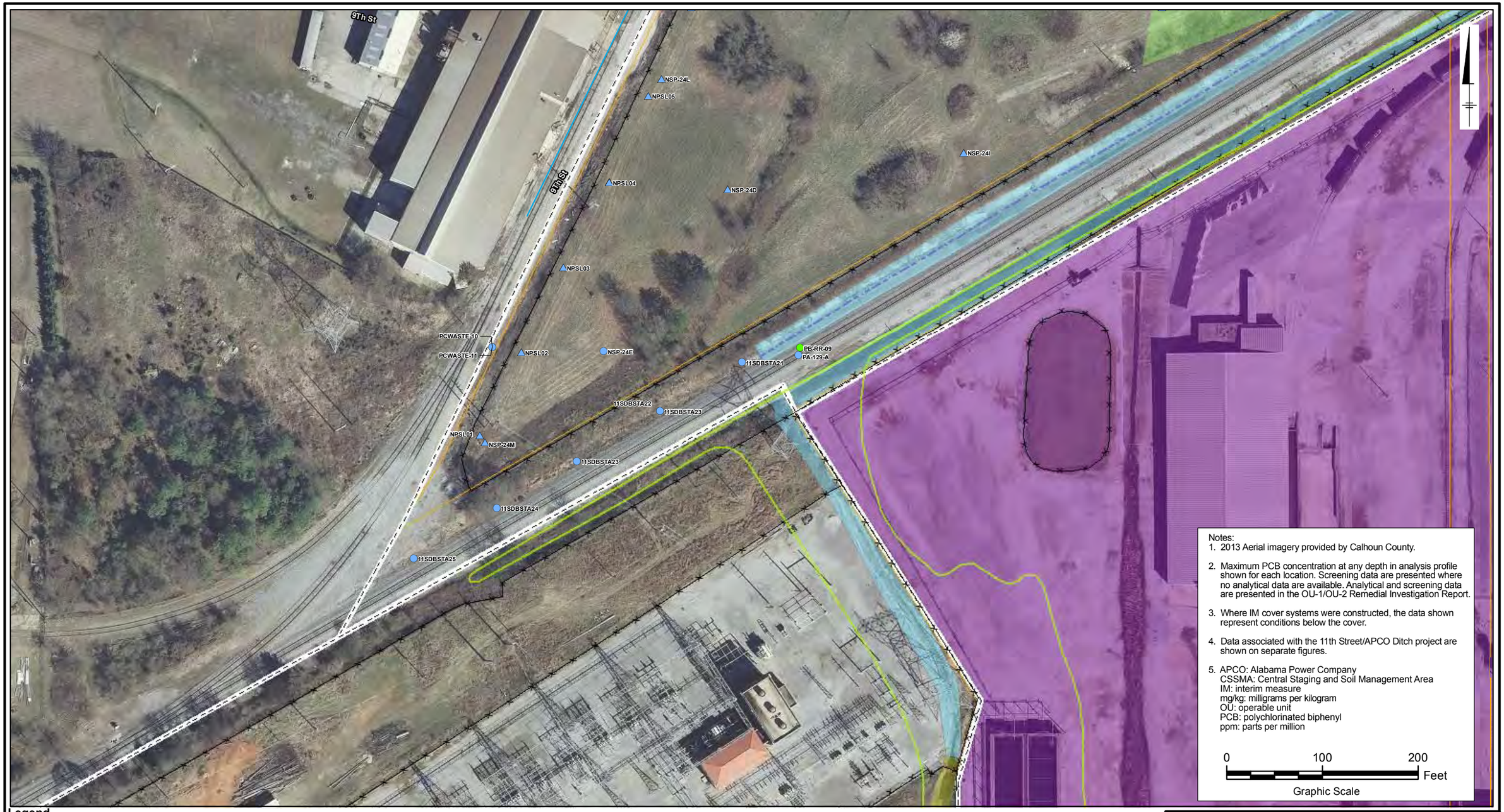


Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Maximum PCB concentration at any depth in analysis profile shown for each location. Screening data are presented where no analytical data are available. Analytical and screening data are presented in the OU-1/OU-2 Remedial Investigation Report.
3. Where IM cover systems were constructed, the data shown represent conditions below the cover.
4. Data associated with the 11th Street/APCO Ditch project are shown on separate figures.
5. APCO: Alabama Power Company
   CSSMA: Central Staging and Soil Management Area
   IM: interim measure
   mg/kg: milligrams per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl
   ppm: parts per million

0 100 200 Feet
Graphic Scale

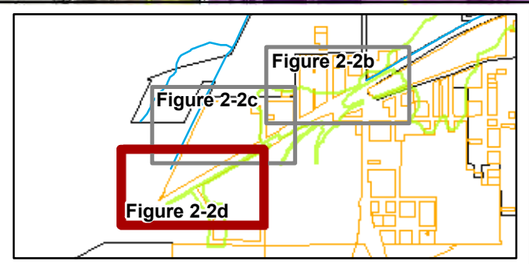
Legend

Total PCB Aroclor Concentration in Soil (mg/kg) (See Note 2)
- <1 (Including nondetects)
- ≥1 to <10

Total PCB Screening Result (Immunoassay) (ppm) (See Note 2)
- < 1; < 5; < 10
- Fence
- Creek

- DrainageDitch
- Exposure Unit
- Solutia-Owned Parcels

- 11th Street/APCO Ditch Cover
- Concrete Lined APCO Ditch
- Soil-Geotextile Cover
- Northside Area Boundary
- OU-3 Boundary
- OU-1 and OU-2 Downgradient Floodplain



Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Northside Area Interim Measures

Solutia

Figure **2-2d**

City: SYR Div/Group: SWG Created By: K.Ives Last Saved By: jbistrovich
Anniston
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Interim Measure	Frequency[1] Detected		Minimum Detected PCB[2] (mg/kg)	Maximum Detected PCB (mg/kg)	Mean PCB[3] (mg/kg)	Median PCB[3] (mg/kg)
Eastside Area	**301/409**	**74%**	**0.037**	**200000 [4]**	**1514.92**	**1.7**
Not Under Cap	*114/177*	*64%*	*0.037*	*261*	*6.67*	*0.32*
Under Cap	*187/232*	*81%*	*0.098*	*200000 [4]*	*2665.61*	*8.25*
Soil and geotextile cover/Soil Berm	*124/165*	*75%*	*0.098*	*430*	*27.77*	*2.8*
Soil HDPE geomembrane multi-layer cover	*63/67*	*94%*	*1.2*	*200000 [4]*	*9161.77*	*350*

[1] Screening data are not summarized in the above table. Includes data from original and duplicate samples.

[2] Does not include nondetect samples

[3] A zero was substituted for nondetect samples

[4] A soil removal action was conducted in this area prior to placing a geomembrane liner.

EU1 EU3 EU5 EU6 EU7 EU9 EU10

Figure 2-3b Figure 2-3c Figure 2-3d

Pipe St Bancroft Ave Duncan Ave Parkwin Ave Clydesdale Ave Ferron Ave Fernon Ave Crawford Ave Boynton Ave Mcdaniel Ave Zinn Dr Wasden Hill Ave 10Th St 9Th St 8Th St 7Th St 6Th St Moses St Brockman St Natalie Ln Edward Ave 202

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Maximum PCB concentration at any depth in analysis profile shown for each location. Screening data are presented where no analytical data are available. Analytical and screening data are presented in the OU-1/OU-2 Remedial Investigation Report.
3. HDPE liner is interpreted to be present based on field observations and discussions with parties involved in the IM construction.
4. Where IM cover systems were constructed, the data shown represent conditions below the cover, except for samples: PC-023-A, PC-023-B, PC-024-B, 2506-3A, CA-06-2136-03, PA-126-A, PA-126-B, and CA-05-1782-03, -04, -05 and -06.
5. Mean and median PCB concentrations were calculated using a replacement value of zero for nondetect samples.
6. APCO: Alabama Power Company
CSSMA: Central Staging and Soil Management Area
HDPE: high density polyethylene
IM: interim measure
mg/kg: milligrams per kilogram
OU: operable unit
PCB: polychlorinated biphenyl
ppm: parts per million

0 400 800 Feet
Graphic Scale

Legend

Total PCB Aroclor Concentration in Soil (mg/kg) (See Note 2)
- <1 (Including nondetects)
- ≥1 to <10
- ≥10 to <25
- ≥25 to <50
- ≥50 to <500
- ≥500
- Abandoned Groundwater Monitoring Well
- Active Groundwater Monitoring Well

Total PCB Screening Result (Immunoassay) (ppm) (See Note 2)
- < 1; < 5; < 10
- > 1; > 5
- > 10; > 25
- <50
- >50
- Outlet/Manhole Cover
- Fence
- Creek

- DrainageDitch
- 42" Diameter HDPE Pipe
- Storm Water Piping
- Box Culvert
- Berm
- Concrete Cover
- Emergency Spillway
- Soil-HDPE Geomembrane Liner
- Soil-HDPE Geomembrane Multilayer Cover

- 11th Street/APCO Ditch Cover
- 1997 IM Cover Limits
- Asphalt and HDPE Geomembrane Multilayer Cover
- Asphalt and Nonwoven Geotextile Multilayer Cover; Asphalt Cover Repair Area
- Closed CSSMA Cells
- Concrete Lined APCO Ditch
- Outfall
- Soil-Geotextile Cover

- Solutia-Owned Parcels
- Northside/Eastside Area Boundary
- OU-3 Boundary
- Exposure Unit
- OU-1 and OU-2 Downgradient Floodplain

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Eastside Area Interim Measures

Solutia

Figure **2-3a**

City: SYR Div/Group: SWG Created By: KIves Last Saved By: jbistrovich
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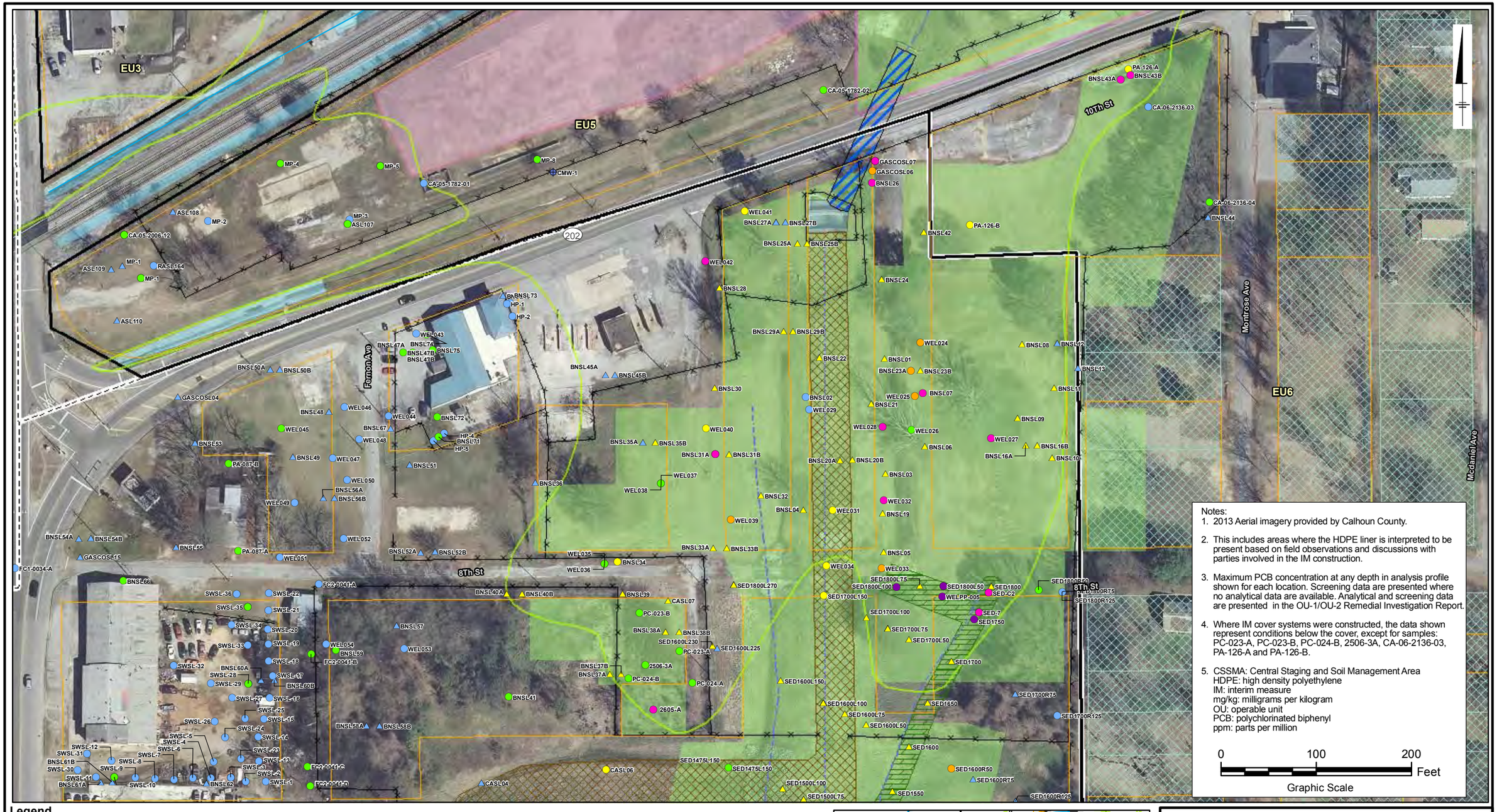


Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. This includes areas where the HDPE liner is interpreted to be present based on field observations and discussions with parties involved in the IM construction.
3. Maximum PCB concentration at any depth in analysis profile shown for each location. Screening data are presented where no analytical data are available. Analytical and screening data are presented in the OU-1/OU-2 Remedial Investigation Report.
4. Where IM cover systems were constructed, the data shown represent conditions below the cover, except for samples: PC-023-A, PC-023-B, PC-024-B, 2506-3A, CA-06-2136-03, PA-126-A and PA-126-B.
5. CSSMA: Central Staging and Soil Management Area
HDPE: high density polyethylene
IM: interim measure
mg/kg: milligrams per kilogram
OU: operable unit
PCB: polychlorinated biphenyl
ppm: parts per million

0 100 200 Feet
Graphic Scale

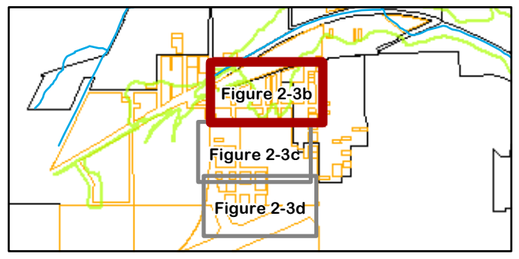
Legend

Total PCB Aroclor Concentration in Soil (mg/kg) (See Note 3)
- <1 (Including nondetects)
- ≥1 to <10
- ≥10 to <25
- ≥25 to <50
- ≥50 to <500
- ≥500
- Active Groundwater Monitoring Well

Total PCB Screening Result (Immunoassay) (ppm) (See Note 3)
- < 1; < 5; < 10
- > 10; > 25
- Fence
- Creek

- DrainageDitch
- Storm Water Piping
- Exposure Unit
- Solutia-Owned Parcels Box
- Culvert
- Berm
- Soil-HDPE Geomembrane Liner (See Note 2)

- 11th Street/APCO Ditch Cover
- 1997 IM Cover Limits
- Closed CSSMA Cells
- Outfall
- Soil-Geotextile Cover
- Northside Area Boundary
- OU-1 and OU-2 Downgradient Floodplain



Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

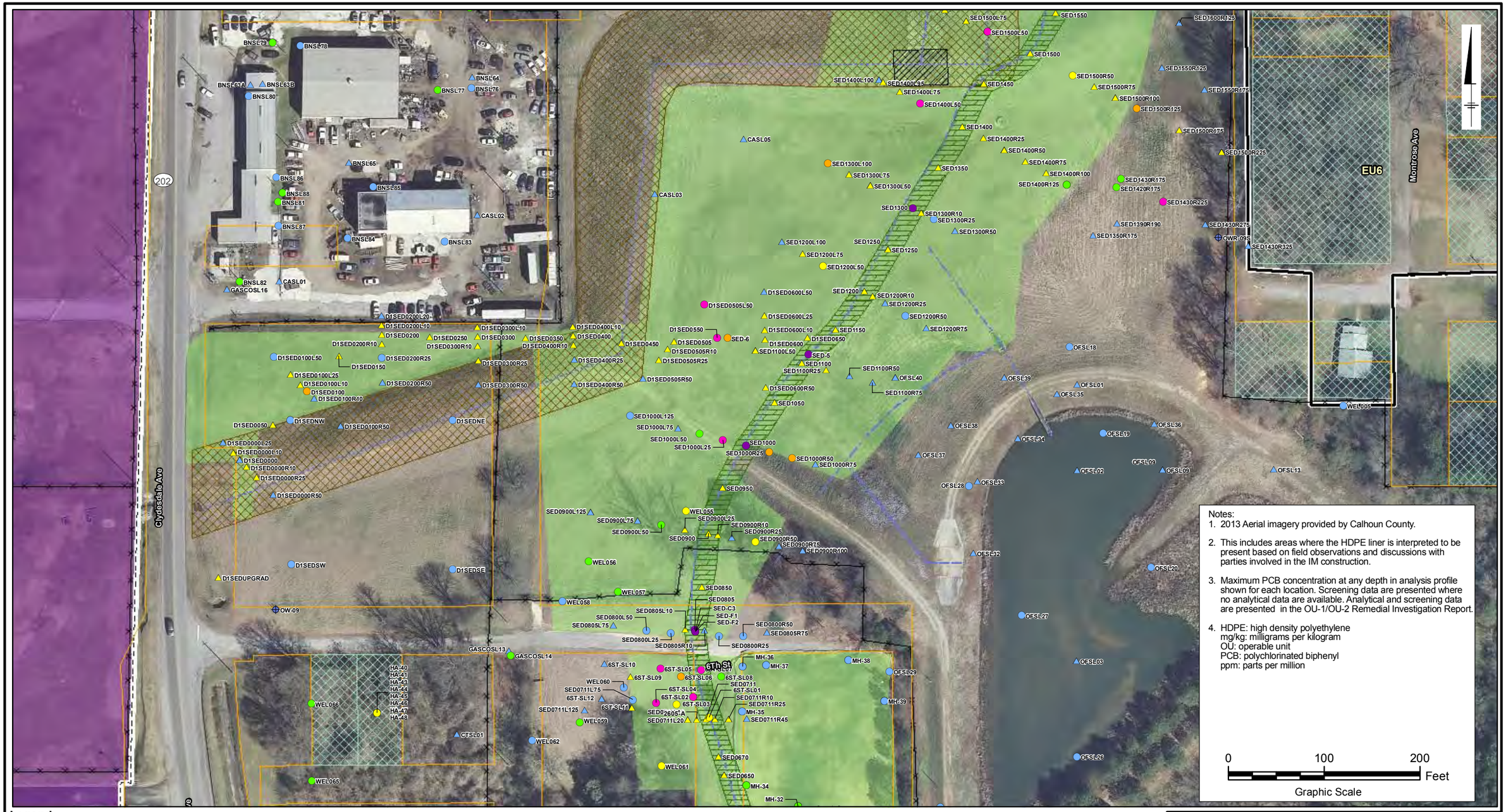
OU-1/OU-2 Record of Decision

Eastside Area Interim Measures

Solutia

Figure **2-3b**

City: SYR Div/Group: SWG Created By: K.Ives Last Saved By: jbistrovich
Anniston Q:\Anniston_PCB_site\AnnistonALM\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-5BtoD_InterimMeasures_PCB_Eastside_MapBook_v2.mxd 3/24/2016 8:55:14 AM



Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. This includes areas where the HDPE liner is interpreted to be present based on field observations and discussions with parties involved in the IM construction.
3. Maximum PCB concentration at any depth in analysis profile shown for each location. Screening data are presented where no analytical data are available. Analytical and screening data are presented in the OU-1/OU-2 Remedial Investigation Report.
4. HDPE: high density polyethylene
   mg/kg: milligrams per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl
   ppm: parts per million

0 100 200 Feet

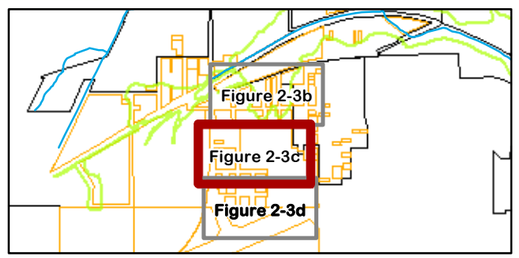
Graphic Scale

Legend

Total PCB Aroclor Concentration in Soil (mg/kg) (See Note 3)
- <1 (Including nondetects)
- ≥1 to <10
- ≥10 to <25
- ≥25 to <50
- ≥50 to <500
- ≥500
- Active Groundwater Monitoring Well

Total PCB Screening Result (Immunoassay) (ppm) (See Note 3)
- < 1; < 5; < 10
- > 10; > 25
- Fence

- DrainageDitch
- Storm Water Piping
- Exposure Unit
- Solutia-Owned Parcels
- Berm
- Emergency Spillway Soil-HDPE Geomembrane Liner (See Note 2)
- OU-3 Boundary
- Soil-Geotextile Cover
- Northside Area Boundary



Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Eastside Area Interim Measures

Solutia

Figure **2-3c**

City: SYR Div/Group: SWG Created By: KIves Last Saved By: jbistrovich
Anniston
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-5BtoD_InterimMeasures_PCB_Eastside_MapBook_v2.mxd 3/24/2016 8:55:14 AM

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. This includes areas where the HDPE liner is interpreted to be present based on field observations and discussions with parties involved in the IM construction.
3. Maximum PCB concentration at any depth in analysis profile shown for each location. Screening data are presented where no analytical data are available. Analytical and screening data are presented in the OU-1/OU-2 Remedial Investigation Report.
4. HDPE: high density polyethylene
mg/kg: milligrams per kilogram
OU: operable unit
PCB: polychlorinated biphenyl
ppm: parts per million

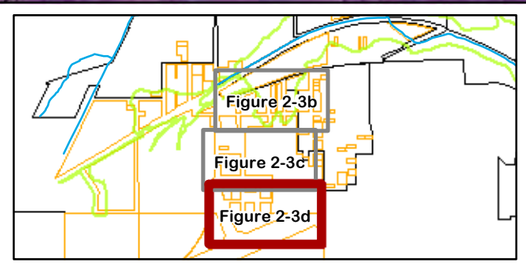
0 100 200 Feet
Graphic Scale

Legend

Total PCB Aroclor Concentration in Soil (mg/kg) (See Note 3)
- <1 (Including nondetects)
- ≥1 to <10
- ≥10 to <25
- ≥25 to <50
- ≥50 to <500
- ≥500
- Active Groundwater Monitoring Well

Total PCB Screening Result (Immunoassay) (ppm) (See Note 3)
- < 1; < 5; < 10
- > 10; > 25
- Fence

- DrainageDitch
- Exposure Unit
- Solutia-Owned Parcels
- Berm
- Soil-HDPE Geomembrane Liner (See Note 2)
- OU-3 Boundary
- Soil-Geotextile Cover
- Northside Area Boundary



Anniston PCB Site: OU1/OU2 Anniston, Alabama
OU1/OU2 Record of Decision

Eastside Area Interim Measures

Solutia

Figure **2-3d**

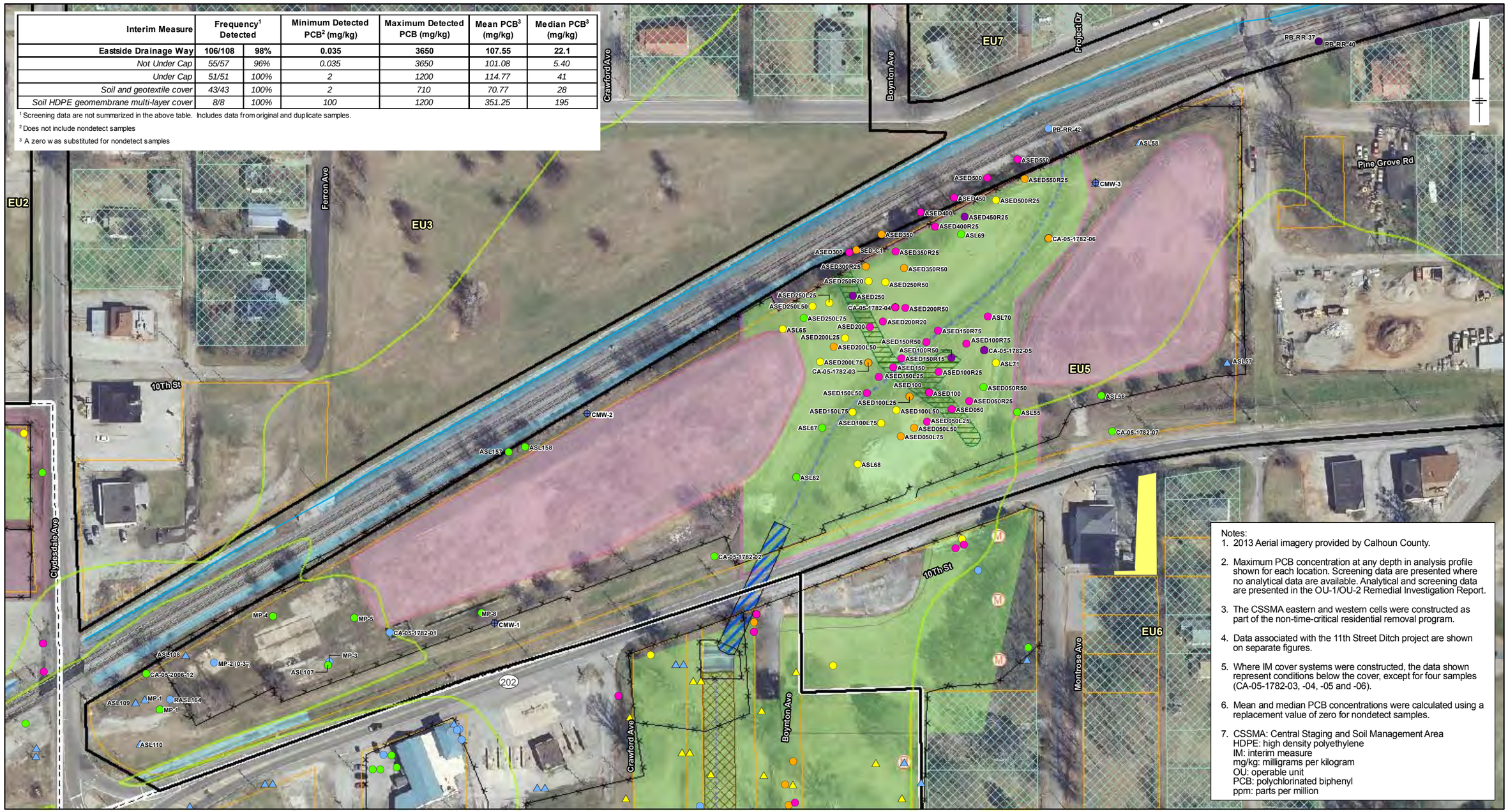
City: SYR Div/Group: SWG Created By: K.Ives Last Saved By: jbistrovich
Anniston Q:\Anniston_PCB_site\AnnistonALMXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-5BtoD_InterimMeasures_PCB_Eastside_MapBook_v2.mxd 3/25/2016 1:39:47 PM

Interim Measure	Frequency[1] Detected		Minimum Detected PCB[2] (mg/kg)	Maximum Detected PCB (mg/kg)	Mean PCB[3] (mg/kg)	Median PCB[3] (mg/kg)
Eastside Drainage Way	**106/108**	**98%**	**0.035**	**3650**	**107.55**	**22.1**
Not Under Cap	*55/57*	*96%*	*0.035*	*3650*	*101.08*	*5.40*
Under Cap	*51/51*	*100%*	*2*	*1200*	*114.77*	*41*
Soil and geotextile cover	*43/43*	*100%*	*2*	*710*	*70.77*	*28*
Soil HDPE geomembrane multi-layer cover	*8/8*	*100%*	*100*	*1200*	*351.25*	*195*

[1] Screening data are not summarized in the above table. Includes data from original and duplicate samples.

[2] Does not include nondetect samples

[3] A zero was substituted for nondetect samples



Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Maximum PCB concentration at any depth in analysis profile shown for each location. Screening data are presented where no analytical data are available. Analytical and screening data are presented in the OU-1/OU-2 Remedial Investigation Report.
3. The CSSMA eastern and western cells were constructed as part of the non-time-critical residential removal program.
4. Data associated with the 11th Street Ditch project are shown on separate figures.
5. Where IM cover systems were constructed, the data shown represent conditions below the cover, except for four samples (CA-05-1782-03, -04, -05 and -06).
6. Mean and median PCB concentrations were calculated using a replacement value of zero for nondetect samples.
7. CSSMA: Central Staging and Soil Management Area
   HDPE: high density polyethylene
   IM: interim measure
   mg/kg: milligrams per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl
   ppm: parts per million

Legend

Total PCB Aroclor Concentration in Soil (mg/kg) (See Note 2)
- <1 (Including nondetects)
- ≥1 to <10
- ≥10 to <25
- ≥25 to <50
- ≥50 to <500
- ≥500
- Active Groundwater Monitoring Well

Total PCB Screening Result (Immunoassay) (ppm) (See Note 2)
- < 1; < 5; < 10
- > 10; > 25
- Outlet/Manhole Cover
- Fence
- Creek
- DrainageDitch
- Storm Water Piping

- Solutia-Owned Parcels
- Box Culvert
- Berm
- Soil-HDPE Geomembrane Liner
- 11th Street Ditch Cover
- 1997 IM Cover Limits
- Asphalt and Nonwoven Geotextile Multilayer Cover; Asphalt Cover Repair Area
- Closed CSSMA Cells
- Outfall
- Soil-Geotextile Cover
- Special Use: Low Activity Area ≥ 1 mg/kg
- OU-1/OU-2 Residential Property
- Northside/Eastside Area Boundary
- Exposure Unit
- OU-1 and OU-2 Downgradient Floodplain

0 125 250 Feet
Graphic Scale

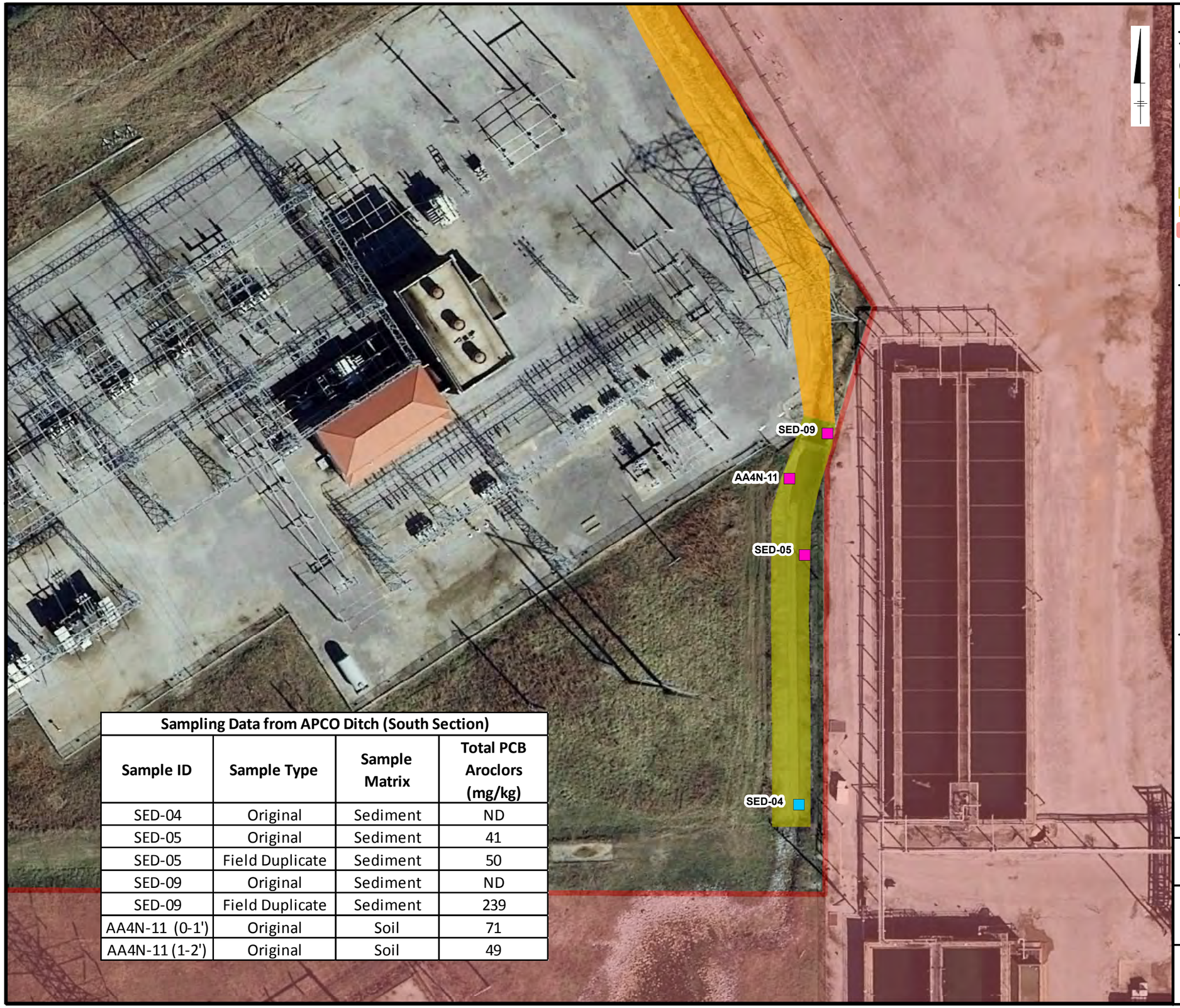
Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Eastside Drainageway Interim Measures

Solutia

Figure 2-4

City: SYR Div/Group: SWG Created By: KIves Last Saved By: jbistrovich
Anniston Q:\Anniston_PCB_site\AnnistonALI\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-7_EastsideDrainageWay_InterimMeasures_MillerProperty.mxd 3/25/2016 2:23:42 PM



Sampling Data from APCO Ditch (South Section)			
Sample ID	**Sample Type**	**Sample Matrix**	**Total PCB Aroclors (mg/kg)**
SED-04	Original	Sediment	ND
SED-05	Original	Sediment	41
SED-05	Field Duplicate	Sediment	50
SED-09	Original	Sediment	ND
SED-09	Field Duplicate	Sediment	239
AA4N-11 (0-1')	Original	Soil	71
AA4N-11 (1-2')	Original	Soil	49

Legend

Total PCB Aroclor Concentration in Soil
(mg/kg) (See Note 1)

- <1 (Including nondetects)
- ≥1 to <10
- ≥10 to <25
- ≥25 to <50
- ≥50 to <500
- ≥500
- Concrete Lined APCO Ditch, See Note 3
- 11th Street Ditch IM (See Figure Series 3-8)
- OU-3 Boundary

Notes

1. Figure presents available analytical PCB data in the IM area. Maximum PCB concentration at any depth in analysis profile shown for each location.

2. Where IM cover systems were constructed, the data shown represent conditions below the cover. Data associated with soil samples collected outside of the APCO Ditch (south section) IM cover, including the 11th Street Ditch project are shown on separate figures.

3. APCO Ditch (south section) IM cover was constructed during the adjacent West End Landfill closure construction in 1996.

4. The OU-3 boundary shown has been modified since issuance of the OU-3 IROD. P/S are currently working with USEPA to formally revise the boundary.

APCO: Alabama Power Company
IM: interim measure
IROD: Interim Record of Decision
mg/kg: milligrams per kilogram
ND: nondetect
OU: operable unit
PCB: polychlorinated biphenyl
P/S: Pharmacia LLC and Solutia Inc.
USEPA: United States Environmental Protection Agency

References

1. Aerial provided by Calhoun County, date of aerial 2011.

2. Geraghty & Miller, Inc., Anniston West End Landfill Site Investigation, August 1994.

3. Golder Associates Inc., Detailed Design – West End Landfill – Cover Revisions, Anniston, Alabama Facility, May 1995.

0 50 100 Feet

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

APCO Ditch (South Section)
Interim Measures

Solutia

Figure 2-5

Quintard Mall Soil Sampling Data

Sample ID	Minimum Depth (inches)	Maximum Depth (inches)	Total PCB Aroclors (mg/kg)
QMBS-1	0	6	2.0
QMBS-2	0	6	1.4
QMBS-3	0	6	1.2
QMBS-4	0	6	0.61
QMBS-5	0	6	0.67

Test method for total PCB Aroclors: USEPA Method 8082

Legend:

- Interim Measure Isolation Covers
- <1, ≥1 - <10: Total PCB Aroclor concentrations in soil (mg/kg) (see Note 1)
- Asphalt
- Concrete
- Crushed Stone
- Geotextile
- Excavated Soil Consolidated Under Covers - <50 mg/kg PCBs
- Clean Fill
- Native Material

Notes:

1. The soils under isolation covers were consolidated from various excavations at the property and contain <50 mg/kg (or ppm) PCBs based on laboratory analytical data and/or field screening.
2. Temporary channel was backfilled with stockpiled soils originally excavated from Snow Creek and temporary channel, then covered with either the foundation for the mall expansion or with asphalt as part of the parking lot.
3. Soil samples shown were prior to installation of the isolation covers.
4. Cap details are drawn not to scale.

OU: operable unit
PCB: polychlorinated biphenyl
ppm: parts per million
mg/kg: milligrams per kilogram

References:

1. Base drawing and sample locations provided by Genesis Project, Inc., June 23, 2003.
2. Roux Associates, Inc., (June 14, 2013), Interim Measures Report.
3. Aerial imagery provided by Calhoun County, 2011.

0 100 200 300 400
Scale Feet

Anniston PCB Site: OU1/OU2
Anniston, Alabama

OU1/OU2 Record of Decision

Quintard Mall Interim Measures
Total PCB Concentrations in Soil under Cover

Solutia

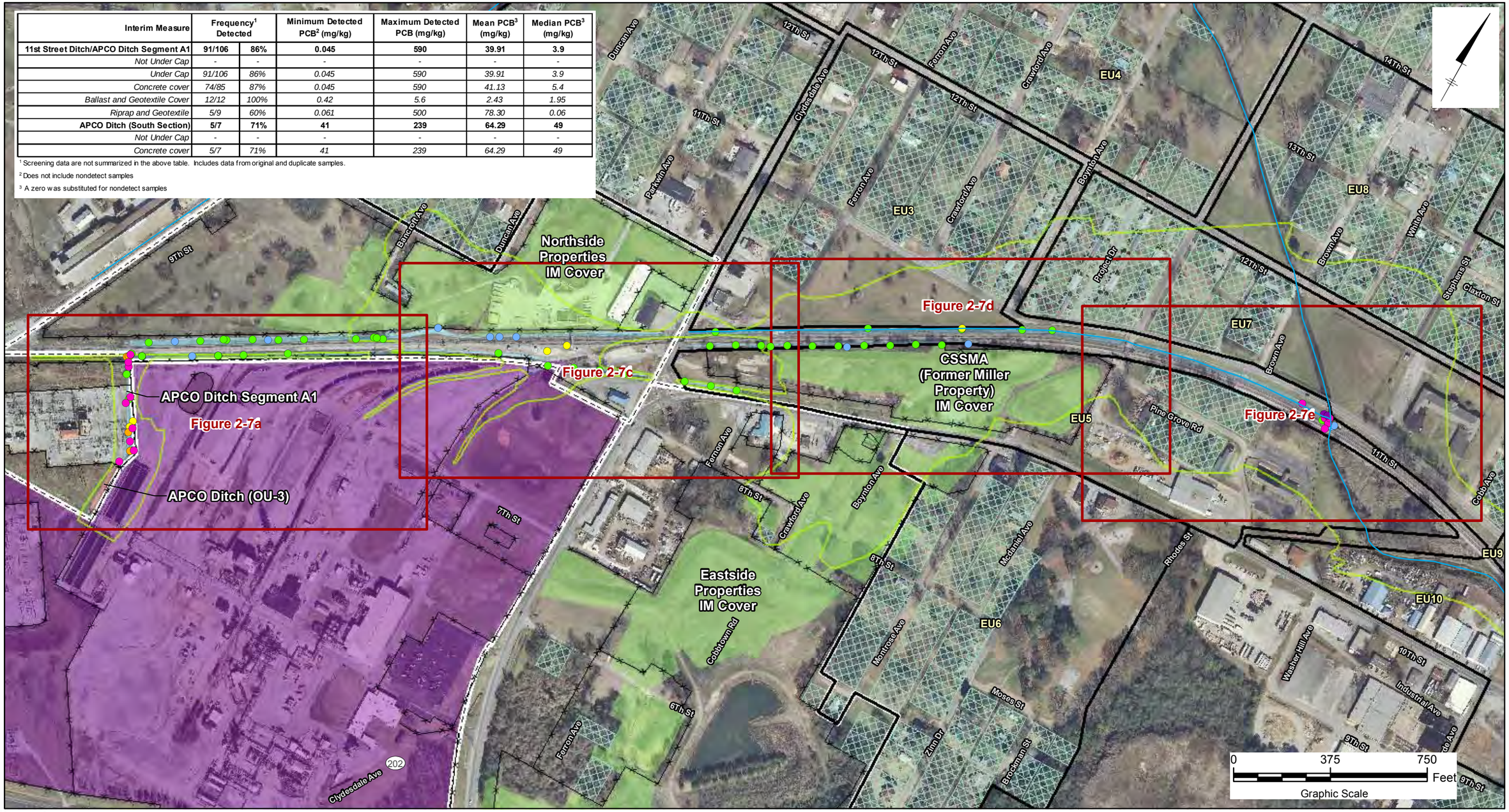
Figure
2-6

Interim Measure	Frequency[1] Detected		Minimum Detected PCB[2] (mg/kg)	Maximum Detected PCB (mg/kg)	Mean PCB[3] (mg/kg)	Median PCB[3] (mg/kg)
11st Street Ditch/APCO Ditch Segment A1	**91/106**	**86%**	**0.045**	**590**	**39.91**	**3.9**
Not Under Cap	-	-	-	-	-	-
Under Cap	*91/106*	*86%*	*0.045*	*590*	*39.91*	*3.9*
Concrete cover	*74/85*	*87%*	*0.045*	*590*	*41.13*	*5.4*
Ballast and Geotextile Cover	*12/12*	*100%*	*0.42*	*5.6*	*2.43*	*1.95*
Riprap and Geotextile	*5/9*	*60%*	*0.061*	*500*	*78.30*	*0.06*
APCO Ditch (South Section))	**5/7**	**71%**	**41**	**239**	**64.29**	**49**
Not Under Cap	-	-	-	-	-	-
Concrete cover	*5/7*	*71%*	*41*	*239*	*64.29*	*49*

[1] Screening data are not summarized in the above table. Includes data from original and duplicate samples.

[2] Does not include nondetect samples

[3] A zero was substituted for nondetect samples



Legend

Total PCB Aroclor Concentration in Soil (mg/kg)
- <1 (Including nondetects)
- ≥1 to <10
- ≥10 to <25
- ≥25 to <50
- ≥50 to <500
- ≥500

- Creek
- OU-1 / OU-2 Interim Measures Isolation Covers
- APCO Ditch Concrete Cover (OU-3)
- 11th Street/APCO Ditch Cover
- OU-1/OU-2 Residential Property
- Northside/Eastside Area Boundary
- OU-3 Boundary
- Exposure Unit
- OU-1 and OU-2 Downgradient Floodplain

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Maximum PCB concentration at any depth in analysis profile shown for each location.
3. Data represent conditions below the cover limits, where constructed.
4. PCB data associated with soil excavated as part of the 11th Street Ditch are not shown on this figure.
5. The APCO Ditch Segment A1 cover system was constructed as part of the 11th Street Ditch Project.
6. The APCO Ditch South Section cover system was constructed as part of the OU-3 West End Landfill construction work in 1996.
7. APCO: Alabama Power Company
   CSSMA: Central Staging and Soil Management Area
   IM: interim measure
   mg/kg: milligrams per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

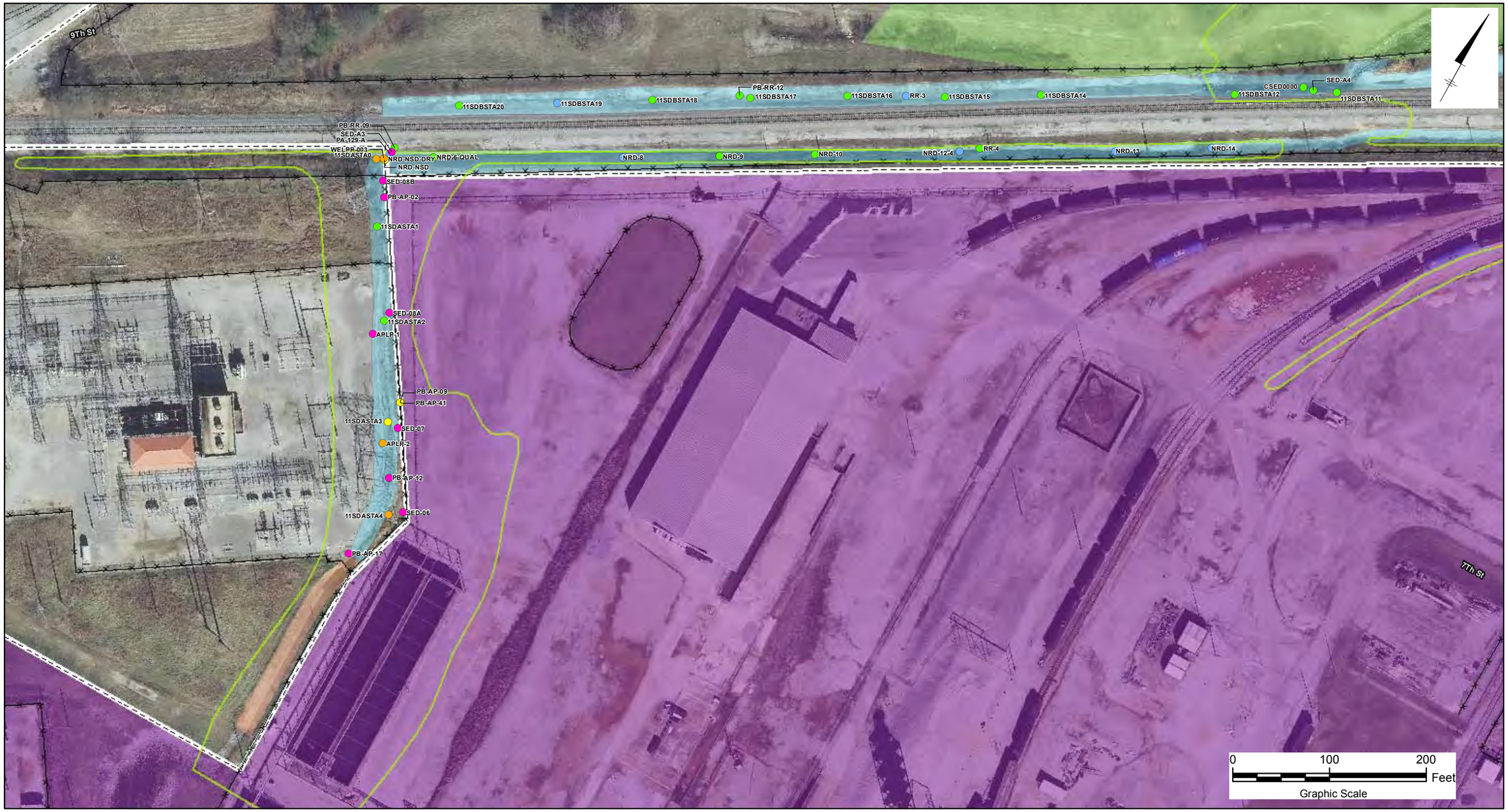
11th Street Ditch Removal Action

Solutia

Figure **2-7a**

City: SYR Div/Group: SWG Created By: K.Ives Last Saved By: jbistrovich
Anniston Q:\Anniston_PCB_site\AnnistonALM\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-11A_InterimMeasures_PCB_11thSt_KeyMap.mxd 3/25/2016 2:44:17 PM

City: SYR Div/Group: SWG Created By: K.Ives Last Saved By: jbistrovich
Anniston Q:\Anniston_PCB_site\AnnistonALLMXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-11BtoE_InterimMeasures_PCB_11thSt_MapBook1.mxd 3/25/2016 2:45:48 PM



Legend

Total PCB Aroclor

Concentration in Soil (mg/kg)

- <1
- ≥1 to <10
- ≥10 to <25
- ≥25 to <50
- ≥50 to <500

- Creek
- OU-1 / OU-2 Interim Measures Isolation Covers
- APCO Ditch Concrete Cover (OU-3)
- 11th Street/APCO Ditch Cover
- Northside/Eastside Area Boundary
- OU-3 Boundary
- OU-1 and OU-2 Downgradient Floodplain

Notes:

1. 2013 Aerial imagery provided by Calhoun County.
2. Maximum PCB concentration at any depth in analysis profile shown for each location. Screening data are presented where no analytical data are available.
3. Data represent conditions below the cover limits, where constructed.
4. PCB data associated with soil excavated as part of the 11th Street Ditch are not shown on this figure.
5. The APCO Ditch Segment A1 cover system was constructed as part of the 11th Street Ditch Project.
6. The APCO Ditch South Section cover system was constructed as part of the OU-3 West End Landfill construction work in 1996.
7. APCO: Alabama Power Company
   mg/kg: milligrams per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

11th Street Ditch Removal Action

Solutia

Figure
2-7b

Legend

Total PCB Aroclor

Concentration in Soil (mg/kg)

- <1
- ≥1 to <10
- ≥10 to <25

- Creek
- OU-1 / OU-2 Interim Measures Isolation Covers
- 11th Street/APCO Ditch Cover
- OU-1/OU-2 Residential Property
- Northside/Eastside Area Boundary
- OU-3 Boundary
- Exposure Unit
- OU-1 and OU-2 Downgradient Floodplain

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Maximum PCB concentration at any depth in analysis profile shown for each location. Screening data are presented where no analytical data are available.
3. Data represent conditions below the cover limits, where constructed.
4. PCB data associated with soil excavated as part of the 11th Street Ditch are not shown on this figure.
5. The APCO Ditch Segment A1 cover system was constructed as part of the 11th Street Ditch Project.
6. The APCO Ditch South Section cover system was constructed as part of the OU-3 West End Landfill construction work in 1996.
7. APCO: Alabama Power Company
   mg/kg: milligrams per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

11th Street Ditch Removal Action

Solutia

Figure
2-7c

City: SYR Div/Group: SWG Created By: K.Ives Last Saved By: jbistrovich
Anniston Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-11BtoE_InterimMeasures_PCB_11thSt_MapBook1.mxd 3/25/2016 2:45:48 PM

Legend

Total PCB Aroclor

Concentration in Soil (mg/kg)

- <1
- ≥1 to <10
- ≥10 to <25

- Creek
- OU-1 / OU-2 Interim Measures Isolation Covers
- 11th Street/APCO Ditch Cover
- OU-1/OU-2 Residential Property
- Northside/Eastside Area Boundary
- Exposure Unit
- OU-1 and OU-2 Downgradient Floodplain

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Maximum PCB concentration at any depth in analysis profile shown for each location. Screening data are presented where no analytical data are available.
3. Data represent conditions below the cover limits, where constructed.
4. PCB data associated with soil excavated as part of the 11th Street Ditch are not shown on this figure.
5. The APCO Ditch Segment A1 cover system was constructed as part of the 11th Street Ditch Project.
6. The APCO Ditch South Section cover system was constructed as part of the OU-3 West End Landfill construction work in 1996.
7. APCO: Alabama Power Company
   mg/kg: milligrams per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

11th Street Ditch Removal Action

Solutia

Figure
2-7d

City: SYR Div/Group: SWG Created By: K.Ives Last Saved By: jbistrovich
Anniston
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-11BtoE_InterimMeasures_PCB_11thSt_MapBook1.mxd 3/25/2016 2:45:48 PM

Legend

Total PCB Aroclor

Concentration in Soil (mg/kg)

- <1
- ≥1 to <10
- ≥10 to <25
- ≥50 to <500
- ≥500

- Creek
- OU-1 / OU-2 Interim Measures Isolation Covers
- 11th Street/APCO Ditch Cover
- OU-1/OU-2 Residential Property
- Exposure Unit
- OU-1 and OU-2 Downgradient Floodplain

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Maximum PCB concentration at any depth in analysis profile shown for each location. Screening data are presented where no analytical data are available.
3. Data represent conditions below the cover limits, where constructed.
4. PCB data associated with soil excavated as part of the 11th Street Ditch are not shown on this figure.
5. The APCO Ditch Segment A1 cover system was constructed as part of the 11th Street Ditch Project.
6. The APCO Ditch South Section cover system was constructed as part of the OU-3 West End Landfill construction work in 1996.
7. APCO: Alabama Power Company
   mg/kg: milligrams per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

11th Street Ditch Removal Action

Solutia

Figure
2-7e

City: SYR Div/Group: SWG Created By: K.Ives Last Saved By: jbistrovich
Anniston
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-11BtoE_InterimMeasures_PCB_11thSt_MapBook1.mxd 3/25/2016 2:45:48 PM

Interim Measure	Frequency[1] Detected		Minimum Detected PCB[2] (mg/kg)	Maximum Detected PCB (mg/kg)	Mean PCB[3] (mg/kg)	Median PCB[3] (mg/kg)
Hall Street Properties	**30/31**	**97%**	**0.056**	**84**	**16.33**	**11.7**
Not Under Cap	-	-	-	-	-	-
Under Cap - Soil and geotextile cover	*30/31*	*97%*	*0.056*	*84*	*16.33*	*11.7*

[1] Screening data are not summarized in the above table. Includes data from original and duplicate samples.

[2] Does not include nondetect samples

[3] A zero w as substituted for nondetect samples

Legend

Total PCB Aroclor Concentration in Soil (mg/kg)
- <1 (Including nondetects)
- ≥1 to <10
- ≥10 to <25
- ≥25 to <50
- ≥50 to <500
- ≥500

- Creek
- Drainage Outlet
- Gravel Road
- Cover Limits
- Parcel Boundary
- OU-1/OU-2 Residential Property
- Exposure Unit
- OU-1 and OU-2 Downgradient Floodplain

Notes:
1. 2013 Aerial imagery and parcels provided by Calhoun County.
2. IM cover construction occurred between 2004 and 2006. The cover consists of a nominal 12-inch vegetated soil cover that comprises approximately 1.34 acres.
3. Figure presents analytical PCB data for the Hall Street properties. Maximum PCB concentration at any depth in analysis profile shown for each location. Analytical data are presented in the OU-1/OU-2 Remedial Investigation Report.
4. Mean and median PCB concentrations were calculated using a replacement value of zero for nondetect samples.
5. Where IM cover systems were constructed, the data shown represent conditions below the cover.
6. IM: interim measure
   mg/kg: milligrams per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Hall Street: Interim Measures

Solutia

Figure **2-8**

City: SYR Div/Group: SWG Created By: K.Ives Last Saved By: jbistrovich
Anniston Q:\Anniston_PCB_site\AnnistonALMXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-9_InterimMeasures_PCB_HallSt.mxd 3/25/2016 2:40:38 PM

City: SYR Div/Group: SWG Created By: K.IVES Last Saved By: jbistrovich
ANNISTON
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-12a_DredgeSpoilPiles_North.mxd 3/25/2016 2:55:17 PM

EU10
EU11
EU15
EU12
EU13
EU14 North

Dredge Spoil Pile SC-1
SC-1
Dredge Spoil Pile SC-2
Dredge Spoil Pile SC-3
Dredge Spoil Pile SC-4
Dredge Spoil Pile SC-5
Dredge Spoil Pile SC-6

Location	Top Depth (ft)	Bottom Depth (ft)	Analyte	Result (mg/kg)
SC-1	0.83	3.00	Total PCBs	20
SC-1	0.83	3.00	Mercury	0.25

Note:
1. 2013 Aerial imagery provided by Calhoun County.
2. No sampling was conducted in pile SC-2.
3. ft: feet
mg/kg: milligrams per kilogram
ND: nondetect
OU: operable unit
PCB: polychlorinated biphenyl

0 100 200 Feet
Graphic Scale

Legend

Surface Soil Sample Location
Maximum PCB (mg/kg)
- ND to < 1
- ≥ 1 to < 5
- ≥ 5 to < 10
- ≥ 10 to < 50

Subsurface Soil Sample Location
Maximum PCB (mg/kg)
- ≥ 5 to < 10
- ≥ 10 to < 50

- Dredge Spoil Pile In-Place
- Dredge Spoil Pile Previously Removed
- 100-Year Floodplain and Drainage Areas
- Exposure Unit
- Snow Creek
- Parcel Boundary

Residential Parcels Sampled
- Residential > 1 mg/kg
- Removal Conducted
- Residential < 1 mg/kg

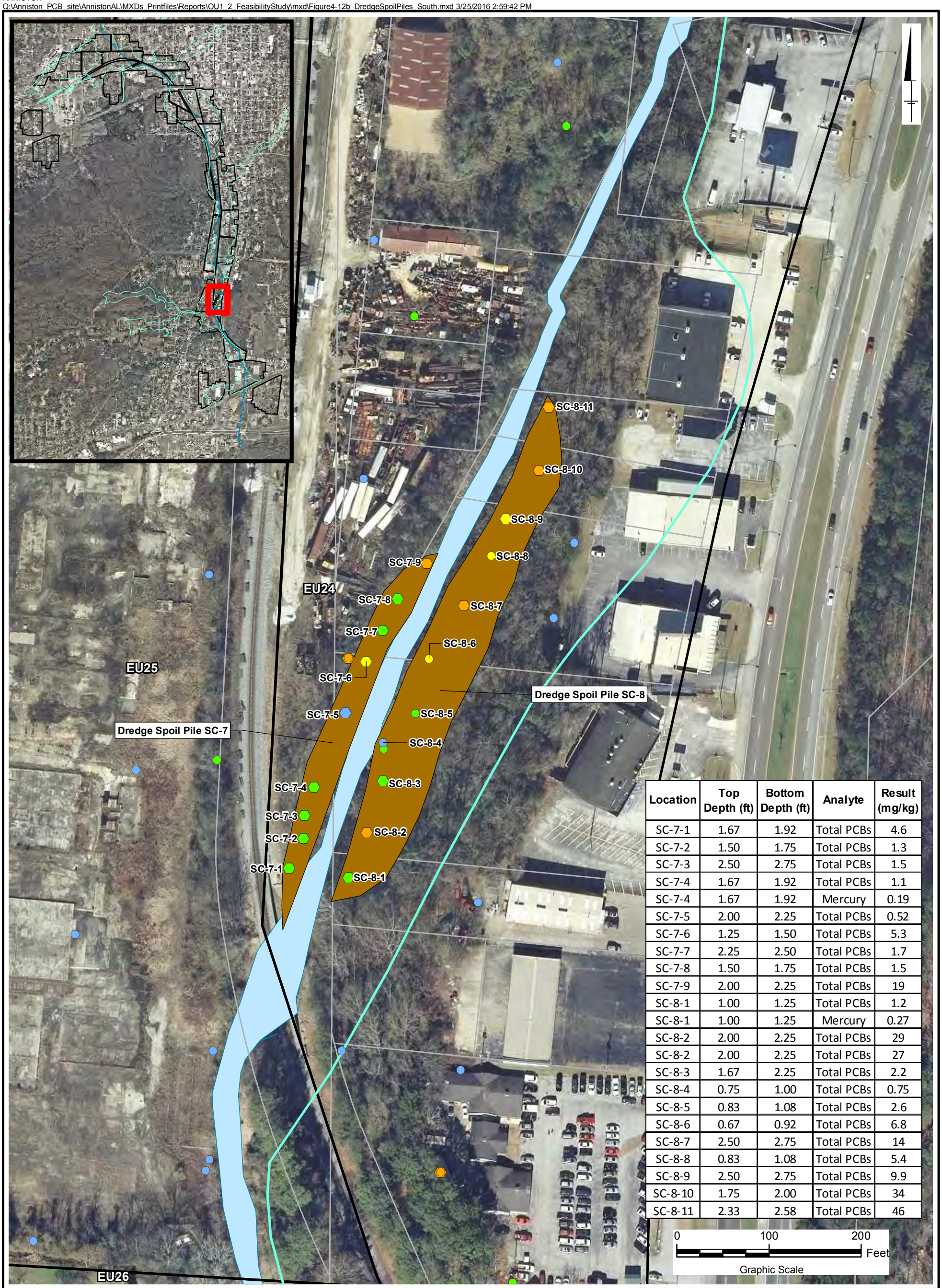
Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Dredge Spoil Piles 1 and 2

Solutia

Figure
2-9a

City: SYR Div/Group: SWG Created By: K.IVES Last Saved By: jbistrovich
ANNISTON
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-12b_DredgeSpoilPiles_South.mxd 3/25/2016 2:59:42 PM



Location	Top Depth (ft)	Bottom Depth (ft)	Analyte	Result (mg/kg)
SC-7-1	1.67	1.92	Total PCBs	4.6
SC-7-2	1.50	1.75	Total PCBs	1.3
SC-7-3	2.50	2.75	Total PCBs	1.5
SC-7-4	1.67	1.92	Total PCBs	1.1
SC-7-4	1.67	1.92	Mercury	0.19
SC-7-5	2.00	2.25	Total PCBs	0.52
SC-7-6	1.25	1.50	Total PCBs	5.3
SC-7-7	2.25	2.50	Total PCBs	1.7
SC-7-8	1.50	1.75	Total PCBs	1.5
SC-7-9	2.00	2.25	Total PCBs	19
SC-8-1	1.00	1.25	Total PCBs	1.2
SC-8-1	1.00	1.25	Mercury	0.27
SC-8-2	2.00	2.25	Total PCBs	29
SC-8-2	2.00	2.25	Total PCBs	27
SC-8-3	1.67	2.25	Total PCBs	2.2
SC-8-4	0.75	1.00	Total PCBs	0.75
SC-8-5	0.83	1.08	Total PCBs	2.6
SC-8-6	0.67	0.92	Total PCBs	6.8
SC-8-7	2.50	2.75	Total PCBs	14
SC-8-8	0.83	1.08	Total PCBs	5.4
SC-8-9	2.50	2.75	Total PCBs	9.9
SC-8-10	1.75	2.00	Total PCBs	34
SC-8-11	2.33	2.58	Total PCBs	46

Legend

Surface Soil Sample Location
Maximum PCB (mg/kg)
- ND to < 1
- ≥ 1 to < 5
- ≥ 10 to < 50

Subsurface Soil Sample Location
Maximum PCB (mg/kg)
- ≥ 10 to < 50

- Dredge Spoil Pile In-Place
- 100-Year Floodplain and Drainage Areas
- Exposure Unit
- Snow Creek
- Parcel Boundary

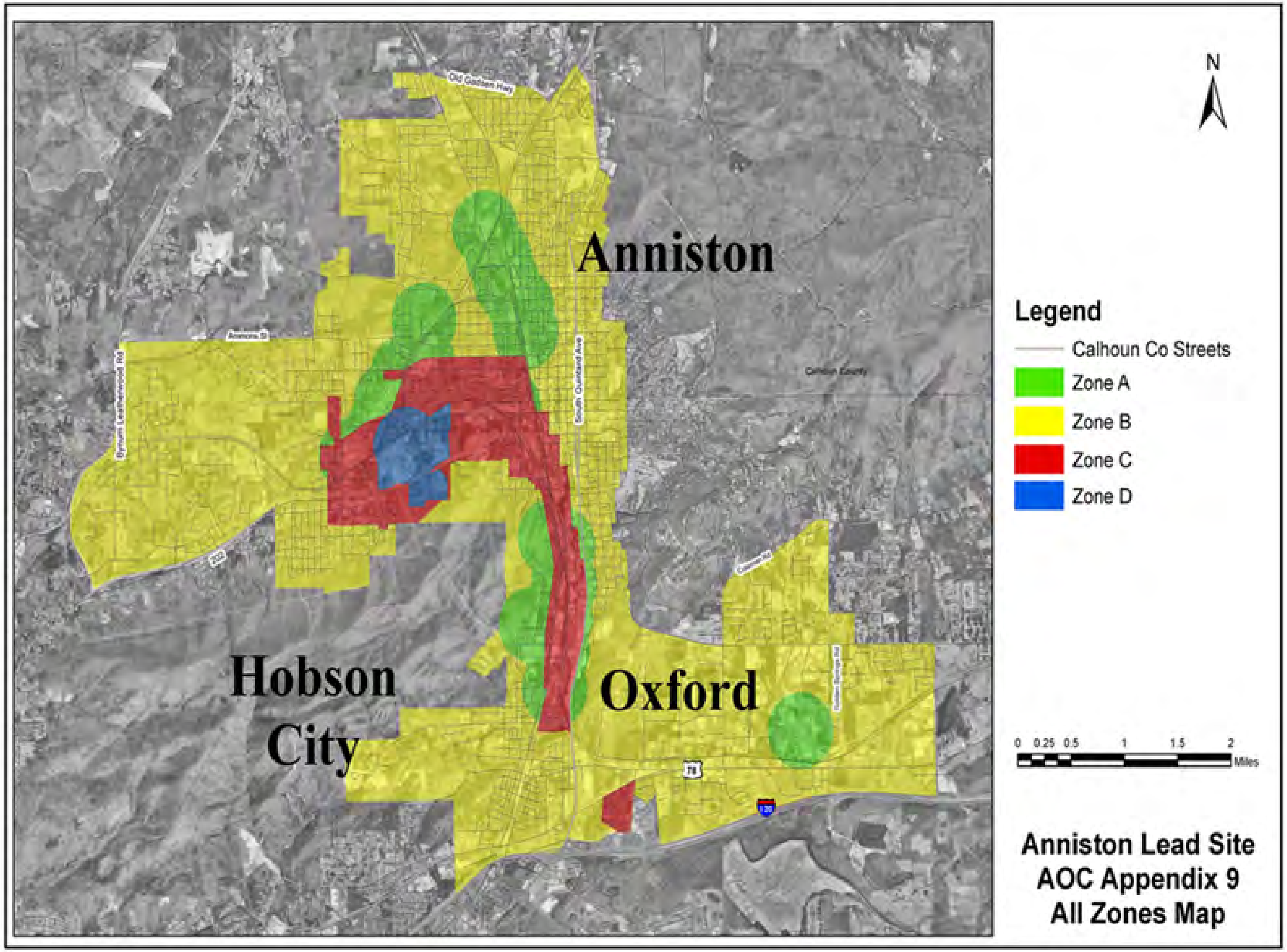
Note:
1. 2013 Aerial imagery provided by Calhoun County.
2. ft: feet
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Anniston PCB Site: OU1/OU2 Anniston, Alabama
OU1/OU2 Record of Decision

Dredge Spoil Piles 7 and 8

Solutia

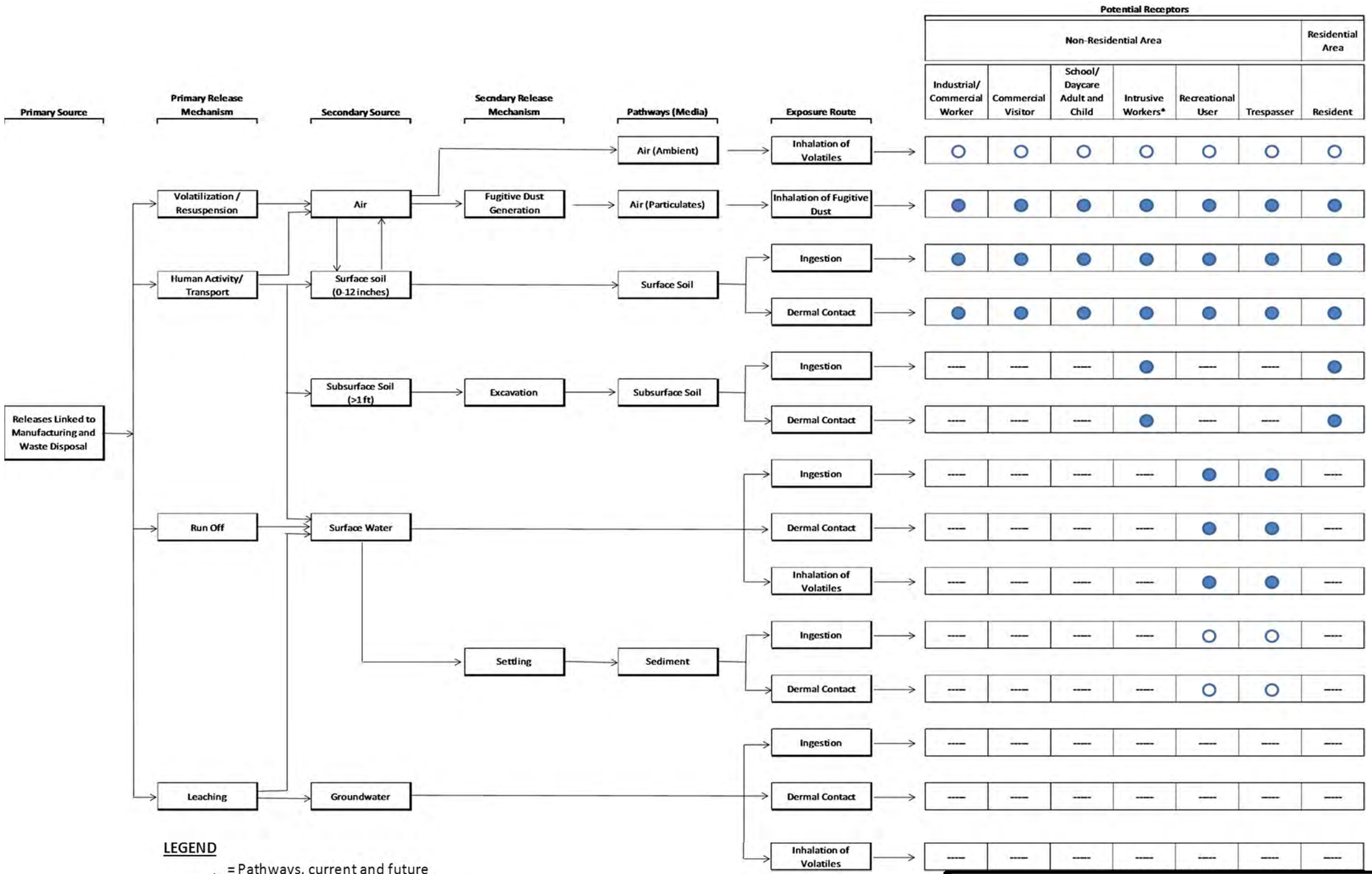
Figure
2-9b



Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Anniston Lead Site
Zone Map

Figure
2-10



Reproduced from HHRA Figure 4-1 (CDM 2010a)

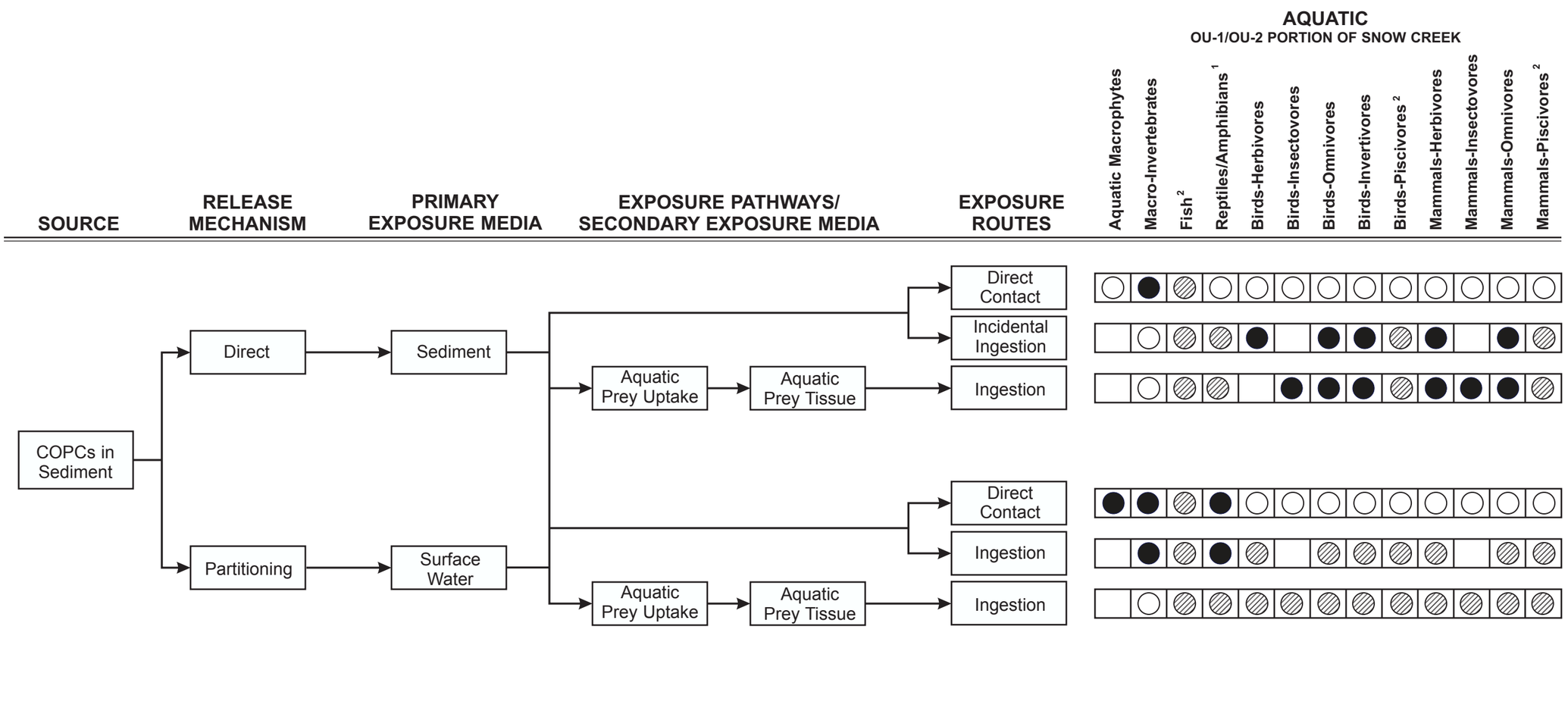
Anniston PCB Site: OU1/OU2
OU1/OU2 Record of Decision

CONCEPTUAL SITE MODEL FOR HUMAN HEALTH RISK ASSESSMENT

Solutia

Figure **5-1**

AQUATIC
OU-1/OU-2 PORTION OF SNOW CREEK



- ● High potential for complete exposure pathway. Primary Pathway quantitatively evaluated.
- ◎ Exposure pathway considered de minimus. Not quantitatively evaluated.
- ▨ Secondary pathway complete but expected to be minimal relative to the identified Primary complete pathways. Not quantitatively evaluated.
- □ incomplete exposure pathway.

1 = Pathway may be complete but insufficient toxicity data available. Not quantitatively evaluated.

2 = Pathways are considered secondary because minimal fish community present.

COPCs : constituents of potential concern

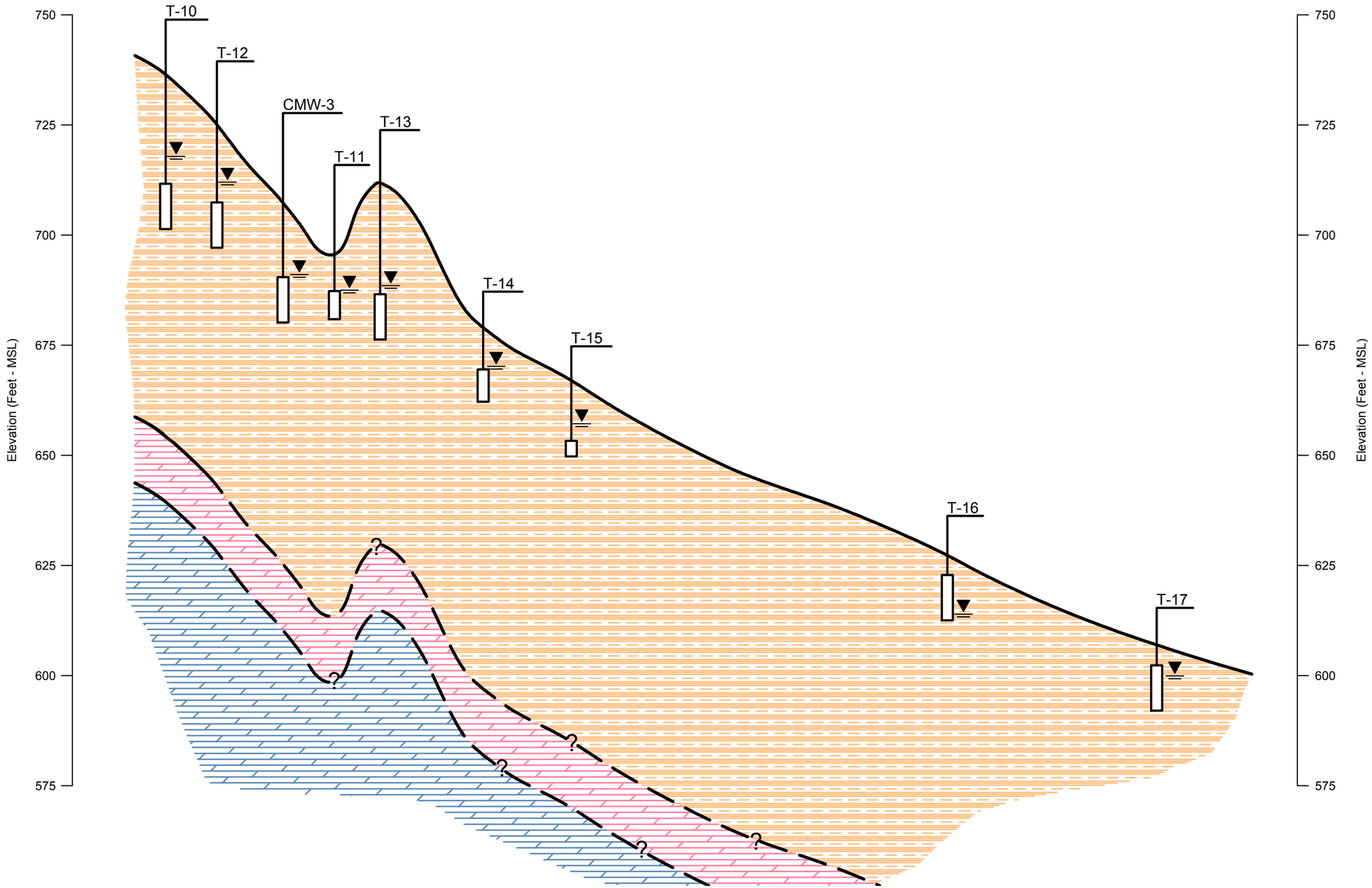
OU : operable unit

Anniston PCB Site: OU1/OU2 A
nniston, Alabama
OU1/OU2 Record of Decision

Ecological Conceptual Site Model

Solutia

FIGURE
5-2



Legend

- Interpreted Boundary
- Residual Clayey/Silty Soil
- Weathered Dolostone
- Dolostone
- T-14 — Well Designation
- Water Level
- Screened Interval

Notes

1.) Groundwater elevations measured in August 2010 for T-13, T-14, T-15, October 2011 for T-10, T-11, T-12, CMW-3, and February 2012 for T-16 and T-17.

2.) Shady dolomite depth is estimated from Operable Unit 3 and regional information.

0.5 0 0.5
Horizontal Scale Miles

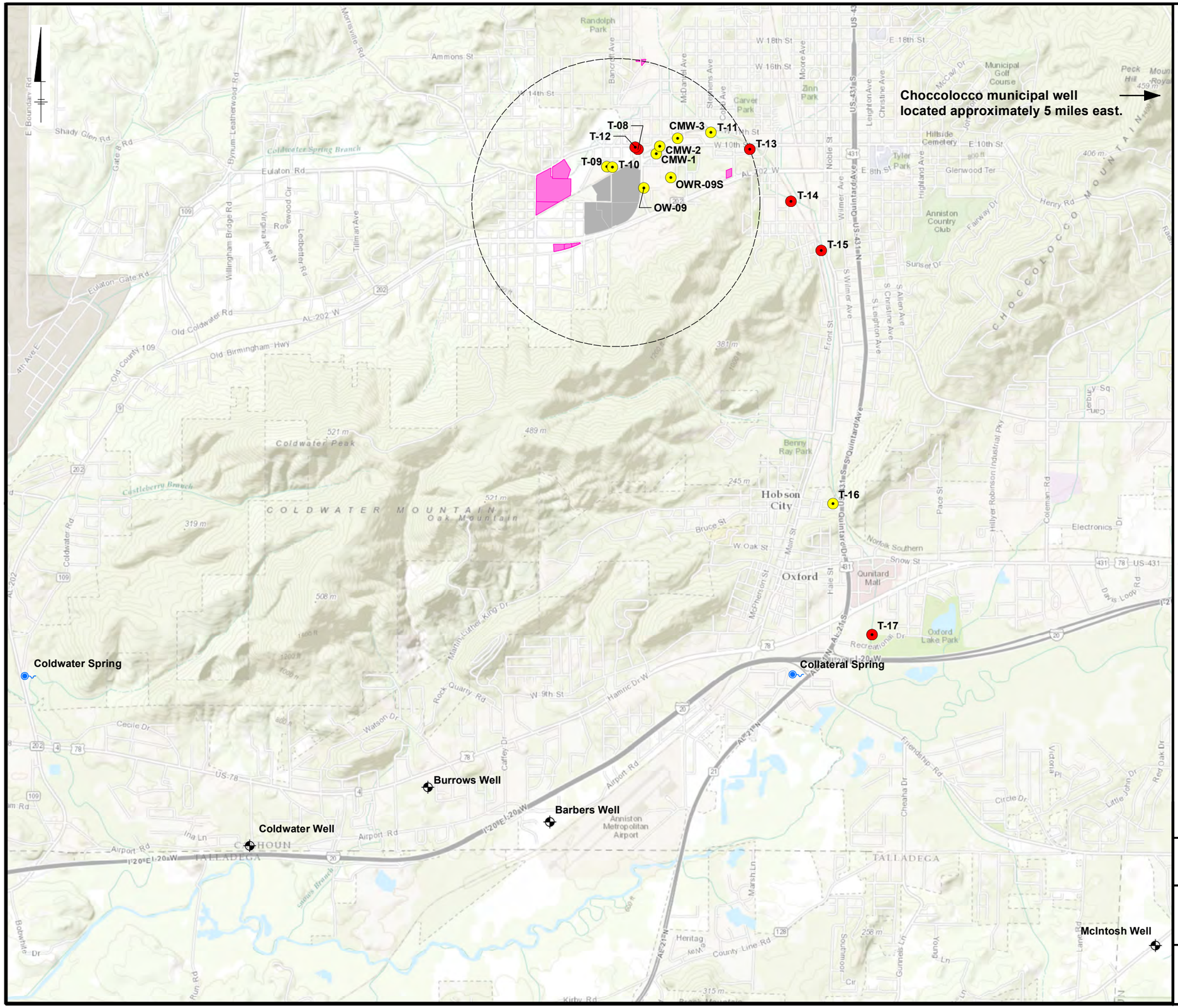
25 0 25
Vertical Scale Feet

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama
OU1/OU2 Record of Decision

Geologic Cross Section
OU1/OU2 / Snow Creek

Solutia

Figure 5-3



Legend

- Abandoned OU-1/OU-2 Monitoring Well
- OU-1/OU-2 Monitoring Well
- Spring
- Municipal Well
- Well Search Area (1-Mile Radius Around Plant Site)
- Plant Site
- Parcel with Potable Well within Well Search

References

1. Monitoring Well Locations - Golder, 2013
2. Spring Locations - USGS National Water Information System
3. Municipal Well Locations - City of Oxford, 2013
4. Basemap - Sources: Esri, DeLorme, HERE, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community

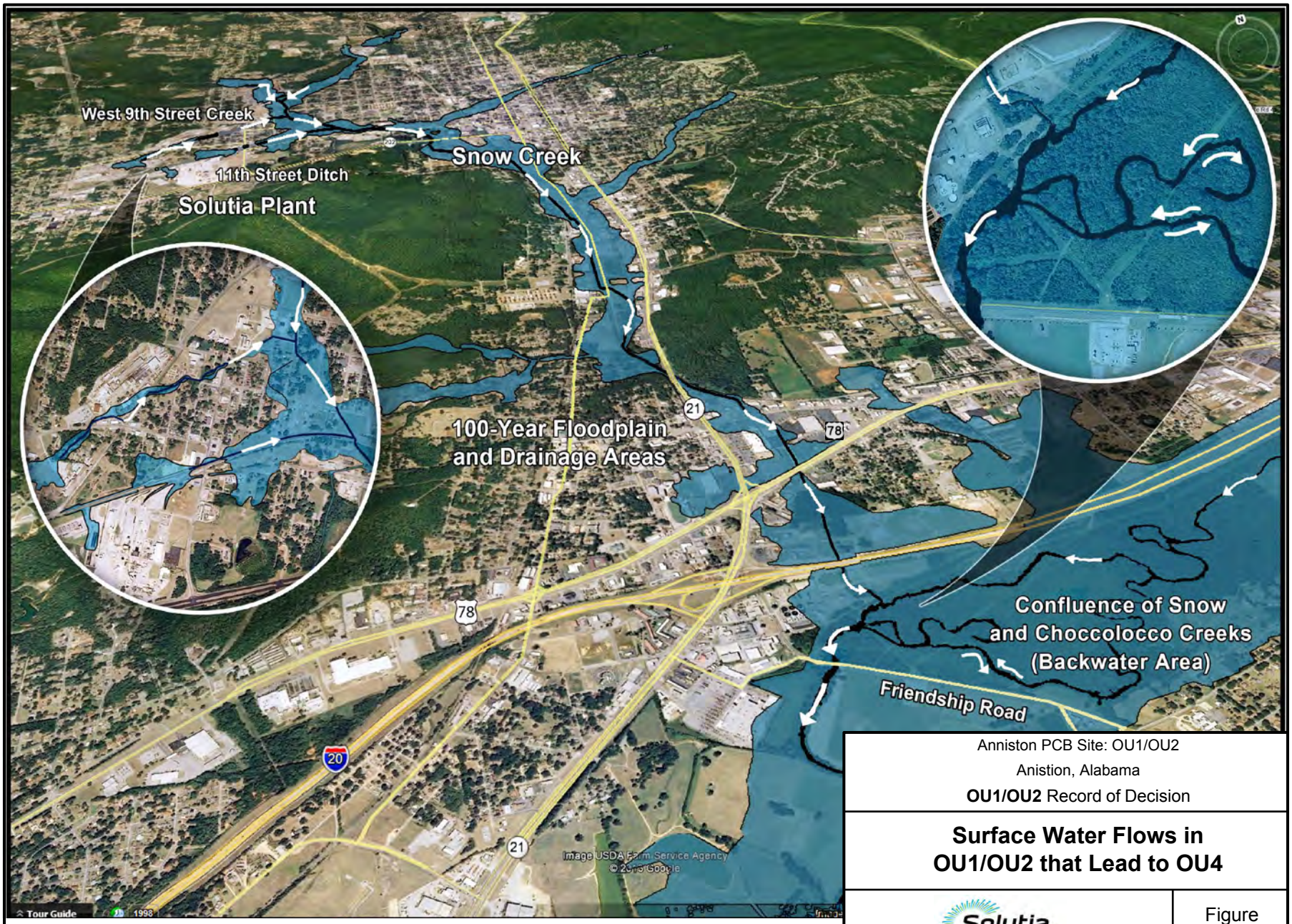
0 3,500 7,000 Feet

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU-1/OU-2 Record of Decision

Well Radius, Municipal Well, and Spring Locations

Solutia

Figure 5-4



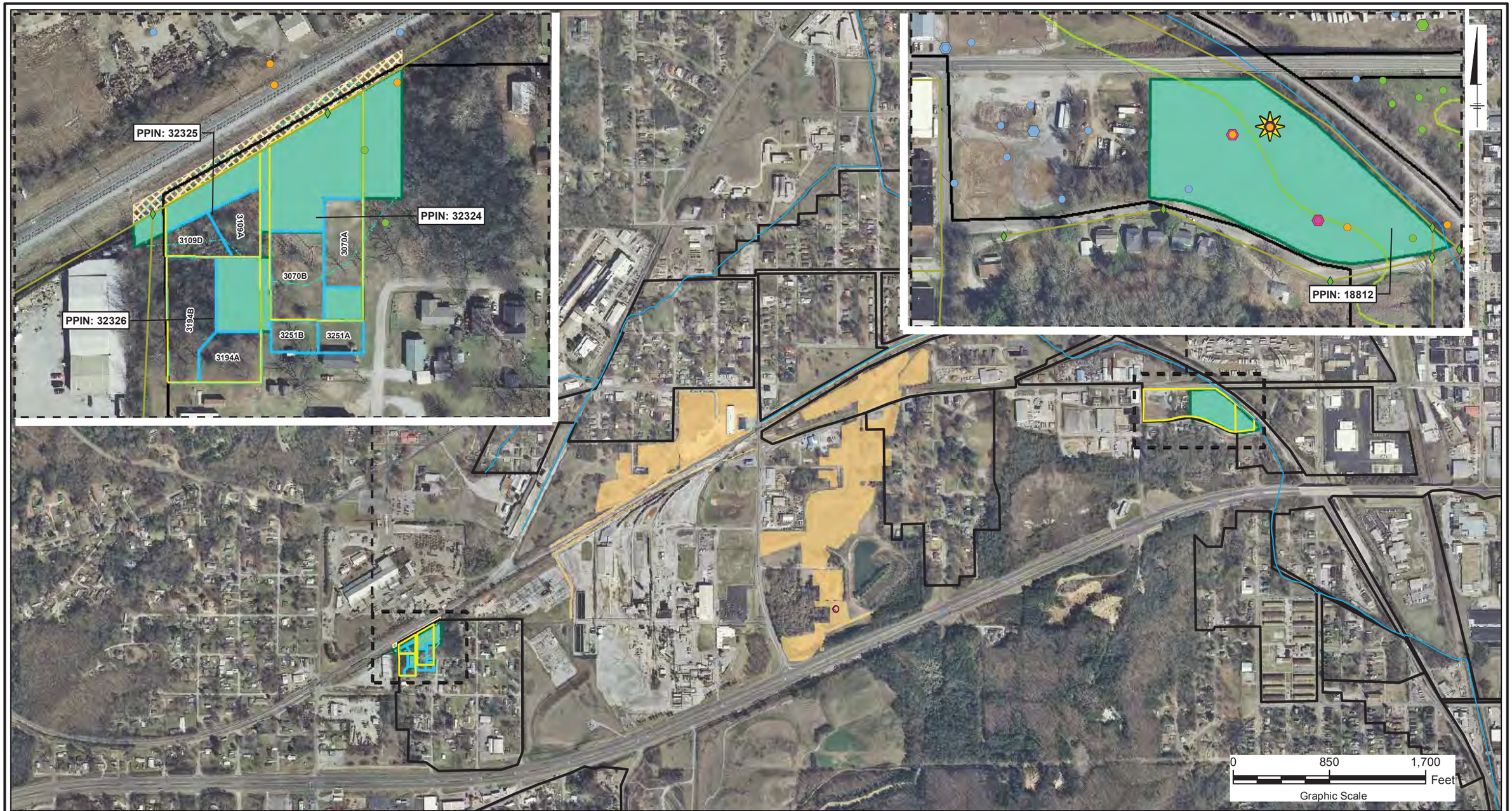
Imagery Source: Google Earth
Imagery Date: 7/31/2011

Anniston PCB Site: OU1/OU2
Anistion, Alabama
OU1/OU2 Record of Decision

Surface Water Flows in OU1/OU2 that Lead to OU4

Solutia

Figure
5-5



Legend

Surface Soil Sample Location
Maximum PCB (mg/kg)
- ND or < 1
- ≥ 1 or < 5
- ≥ 5 to < 10
- ≥ 10 to < 50
- ≥ 50 to < 500
- ≥ 500

Subsurface Soil Sample Location
Maximum PCB (mg/kg)
- ND or < 1
- ≥ 1 or < 5
- ≥ 5 to < 10
- ≥ 10 to < 50
- ≥ 50 to < 500
- ≥ 500

- Locations with Maximum PCB Results ≥ 500 mg/kg
- Anniston Sewer Manhole/Lift Station/Clean Out/Junction Box
- Anniston Sewer Line
- Creek
- Principle Threat Waste Area
- OU-3 Boundary
- Exposure Unit
- OU-1 and OU-2 Downgradient Floodplain
- Residential Areas Not Targeted
- Railroad Right-of-Way Not Targeted
- Interim Measure Location
- Estimated Landfill Limits
- Unapproved Waste Disposal Area Parcel Boundaries
- Unapproved Waste Disposal Area

Notes:
1. Aerial imagery provided by Calhoun County.
2. The landfill limits were estimated based on the existing topography at the site, sample borings, and hand augers.
3. Delineation of impacted areas follows the Stipulation and Agreement of the parties clarifying the PCD between the USEPA and P/S for the Anniston PCB Site.
4. Conditions in Parcels 3070F and 3070G represent post-demolition sampling areas.
5. Removal in Caldwell Ave. ROW north of properties not proposed due to conflicts with a water main, sanitary sewer line, and encroachment on the southern railroad ROW.
6. mg/kg: milligrams per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl
   PCD: Partial Consent Decree
   PPIN: Property Parcel Identification Number
   P/S: Pharmacia LLC and Solutia Inc.
   ROW: right-of-way
   USEPA: United States Environmental Protection Agency

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Unapproved Waste Disposal Areas

Solutia

Figure 5-6

City: SYR Div/Group: SWG Created By: K.Ives Last Saved By: jbistrovich
Anniston
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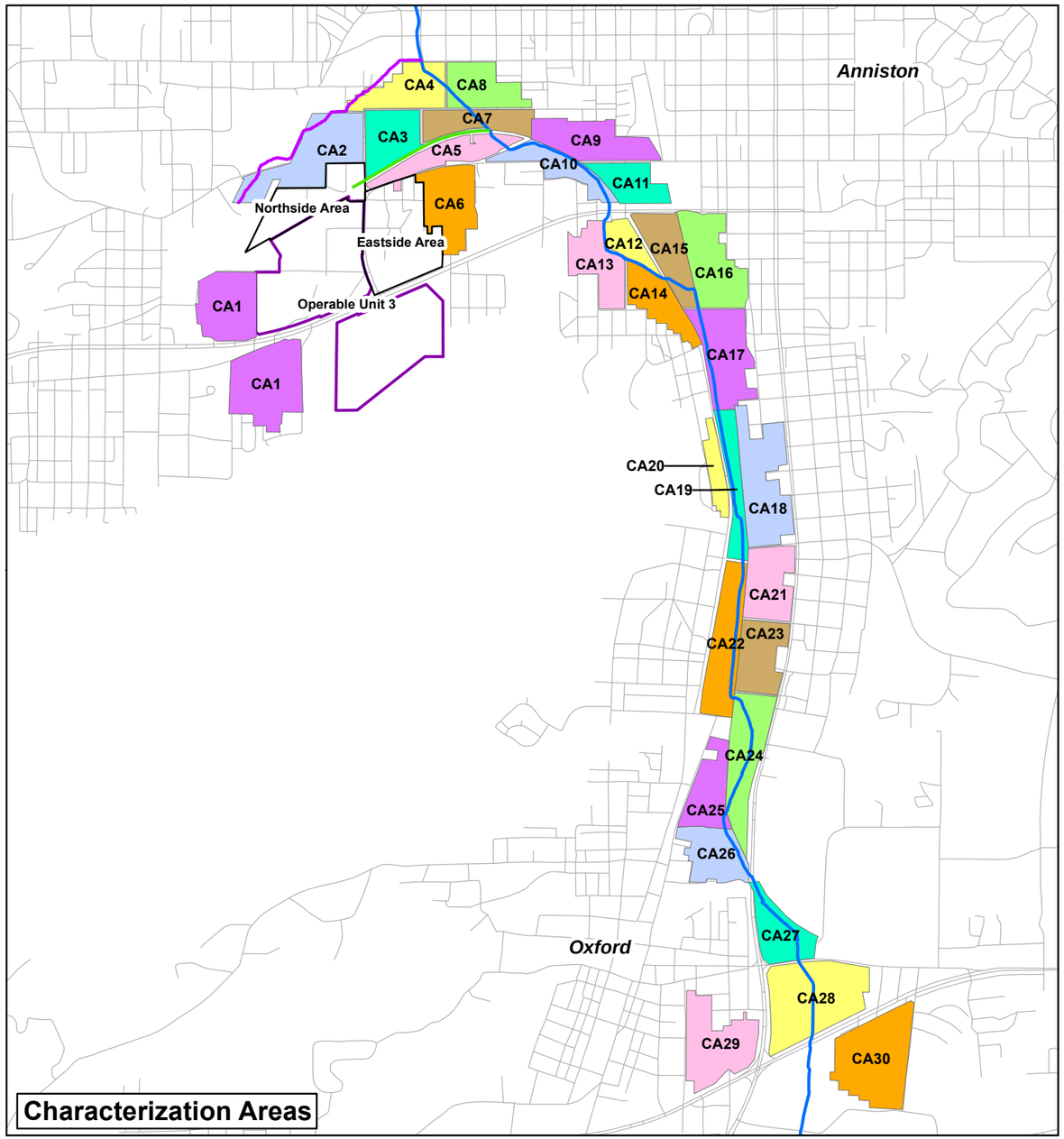

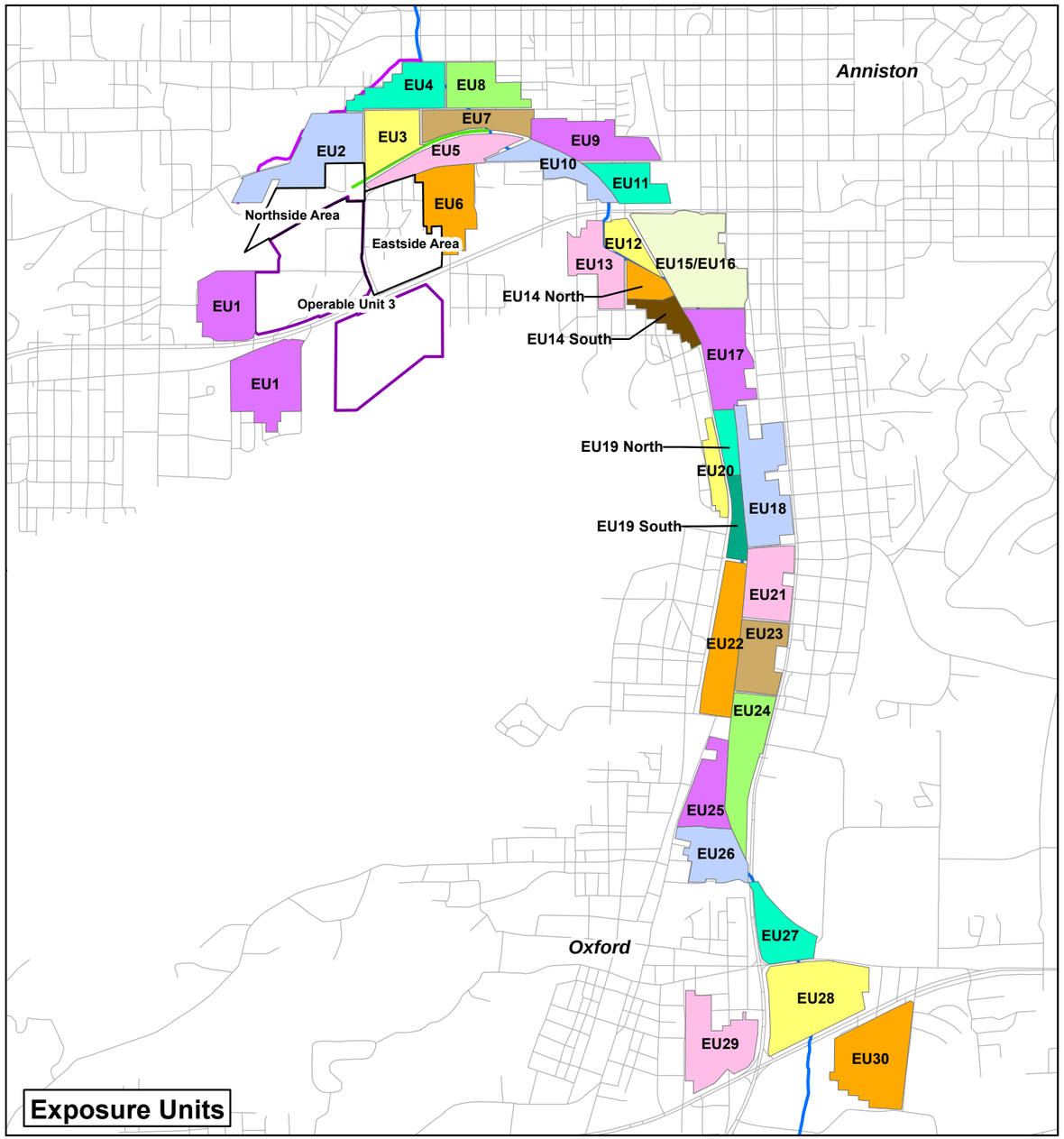

0 2,600 5,200 Feet

Graphic Scale

Note:
CA: characterization area
EU: exposure unit
OU: operable unit

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record Of Decision

Characterization Areas and Exposure Units

Solutia

Figure
5-7

Notes:
1. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyls

2. Aerial imagery provided by Calhoun and Talladega Counties.

3. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.

4. OU1/OU2 EU Area includes EU1-30, northside properties, and eastside properties.

0 4,400 8,800 Feet

Graphic Scale

Legend

- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Inside OU1/OU2 EU Area (mg/kg)
- ND or < 1
- ≥ 1 or <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- ≥ 500

Soil Sample Location
Surface PCB Outside OU1/OU2 EU Area (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
- Northside and Eastside Areas
- Zone B Boundary
- Operable Unit 3
- 100-Year Floodplain and Drainage Areas
- Choccoloco Creek
- Exposure Unit

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Nonresidential Surface Soil PCB Results

Solutia

Figure
5-8

Notes:
1. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyls

2. Aerial imagery provided by Calhoun and Talladega Counties.

3. Subsurface concentrations depicted represent the average of data from the 0- to 4-feet interval

4. OU1/OU2 EU Area includes EU1-30, northside properties, and eastside properties.

0 4,400 8,800 Feet

Graphic Scale

Legend

Soil Sample Location
Subsurface PCB Inside
OU1/OU2 EU Area (mg/kg)
- ND or < 1
- ≥ 1 or <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- ≥ 500

Soil Sample Location
Subsurface PCB Outside
OU1/OU2 EU Area (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
- Operable Unit 3
- 100-Year Floodplain and Drainage Areas
- Exposure Unit
- Zone B Boundary
- Choccoloco Creek
- Northside and Eastside Areas

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Nonresidential Subsurface Soil PCB Results

Solutia

Figure
5-9

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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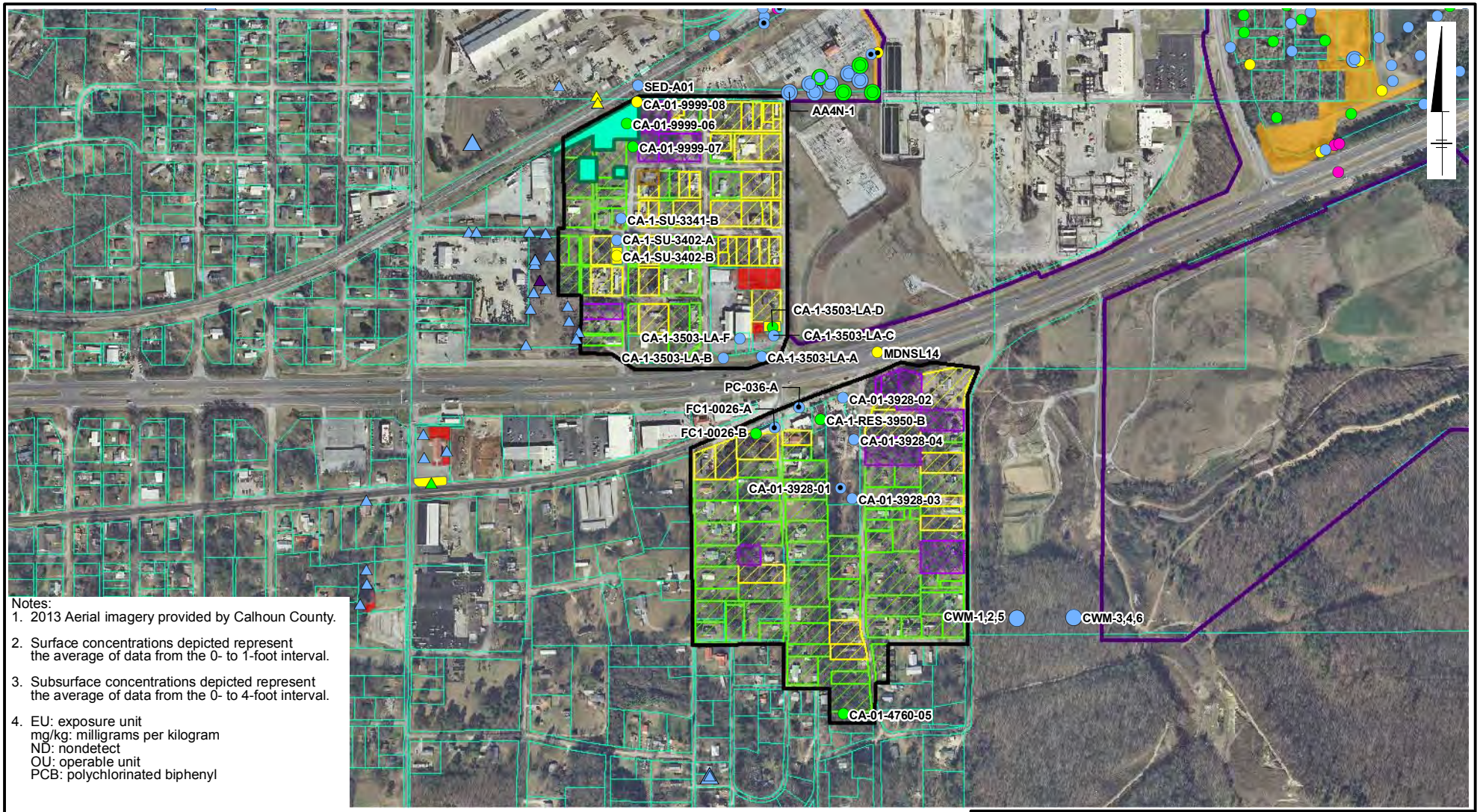


Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- ≥ 500

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6
- Residential > 1 (mg/kg) (Removal Pending)
- Residential > 1 (mg/kg) (Unsuitable for Removal)

- Special Use: High Activity Area
- Special Use: Low Activity Area ≥ 1 mg/kg
- Unapproved Waste Disposal Area
- Interim Measure and Other Early Actions
- Exposure Unit
- Operable Unit 3
- All Parcels

Inner and outer shapes reflect surface and subsurface PCB concentrations, respectively.

0 700 1,400
Feet
Graphic Scale

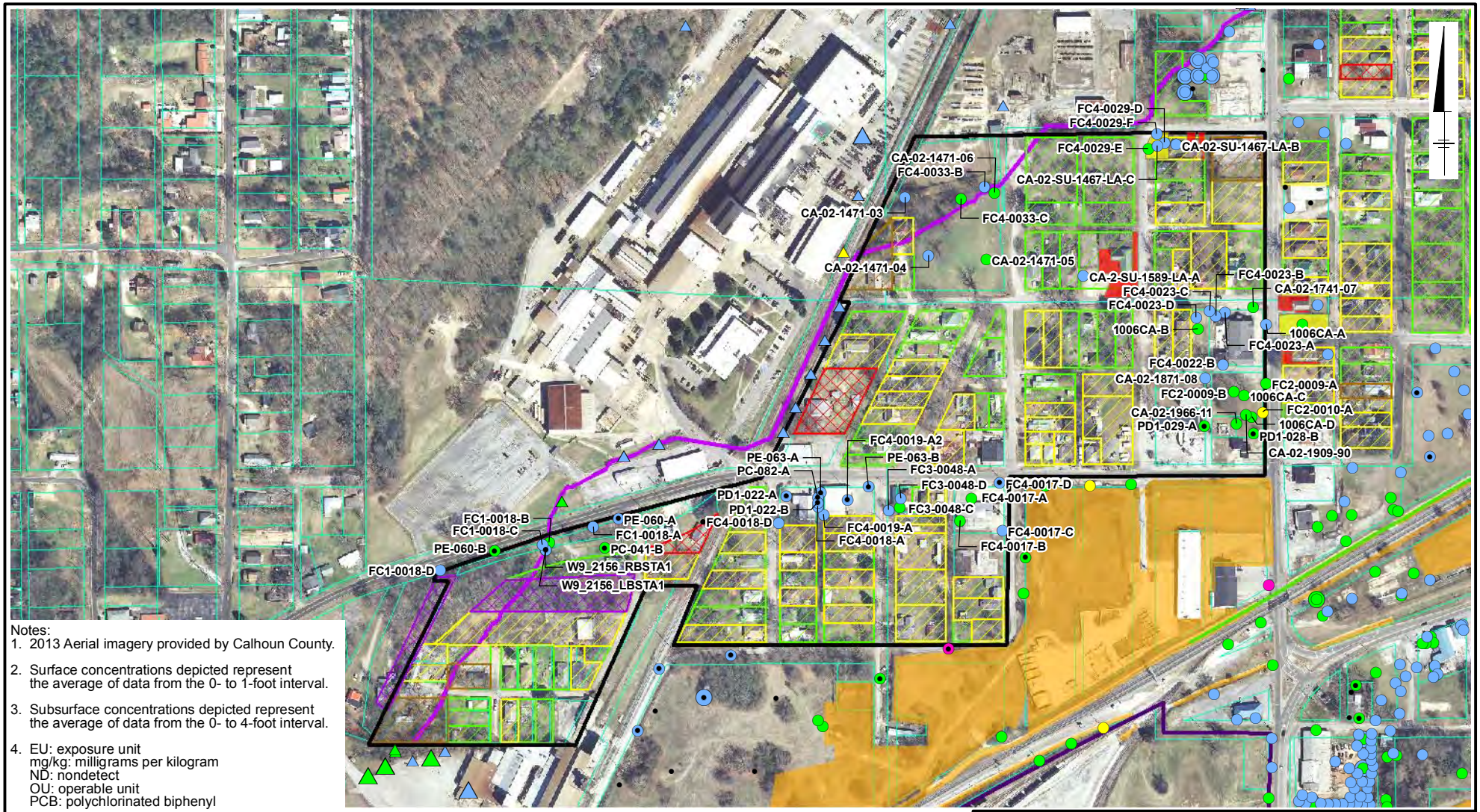
Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 1

Solutia
Ingenuity Productivity Performance

Figure
5-10

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure2-9_PCB_EU2_Labels.mxd 3/25/2016 11:58:44 AM



Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500

- 11th Street Ditch
- West 9th Street Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6
- Residential > 1 (mg/kg) (Removal Pending)
- Residential > 1 (mg/kg) (Unsuitable for Removal)

- Special Use: High Activity Area
- Special Use: Low Activity Area ≥1 mg/kg
- Interim Measure and Other Early Actions
- Exposure Unit
- Operable Unit 3
- All Parcels

Inner and outer shapes reflect surface and subsurface PCB concentrations, respectively.

0 400 800 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 2

Solutia
Ingenuity Productivity Performance

Figure
5-11

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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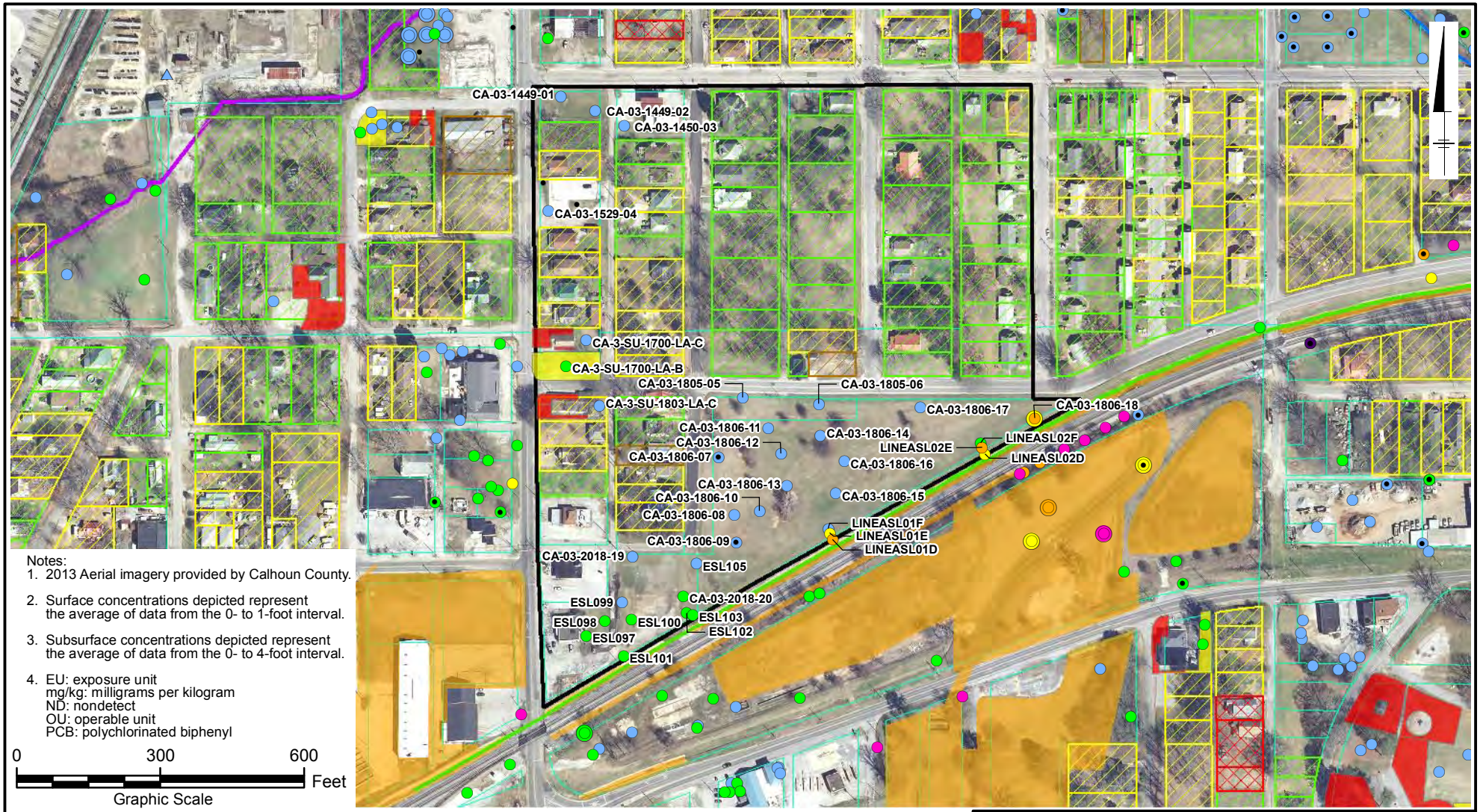

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

0 300 600 Feet
Graphic Scale

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1

- Snow Creek
- 11th Street Ditch
- West 9th Street Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6
- Residential > 1 (mg/kg) (Removal Pending)

- Exposure Unit
- Interim Measure and Other Early Actions
- All Parcels
- Special Use: High Activity Area
- Special Use: Low Activity Area ≥1 mg/kg

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 3

Solutia
Ingenuity Productivity Performance

Figure
5-12

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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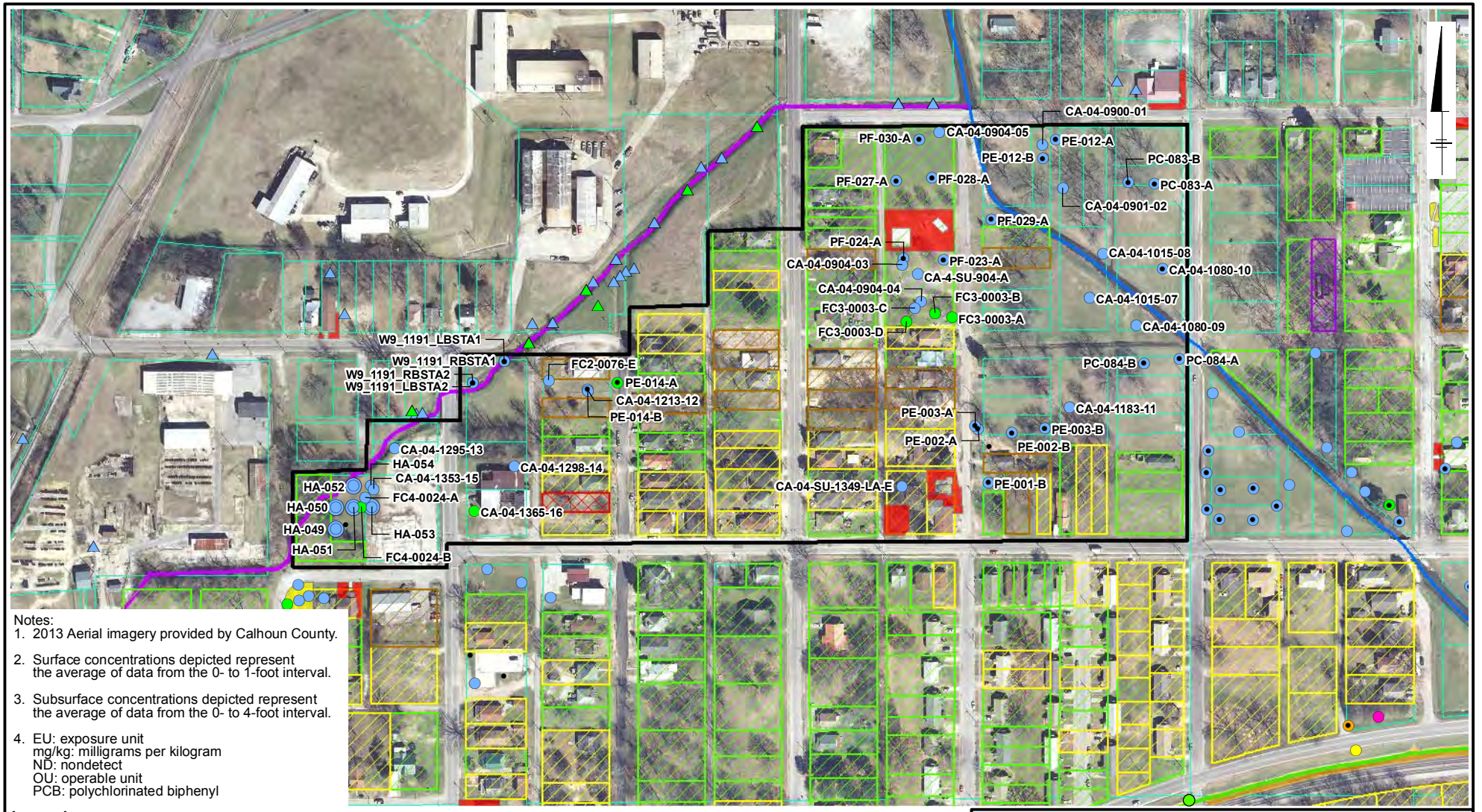

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- Snow Creek
- 11th Street Ditch
- West 9th Street Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6
- Residential > 1 (mg/kg) (Removal Pending)
- Residential > 1 (mg/kg) (Unsuitable for Removal)

- Exposure Unit
- Interim Measure and Other Early Actions
- All Parcels
- Special Use: High Activity Area
- Special Use: Low Activity Area ≥ 1 mg/kg
- Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 300 600 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 4

Solutia
Ingenuity Productivity Performance

Figure
5-13

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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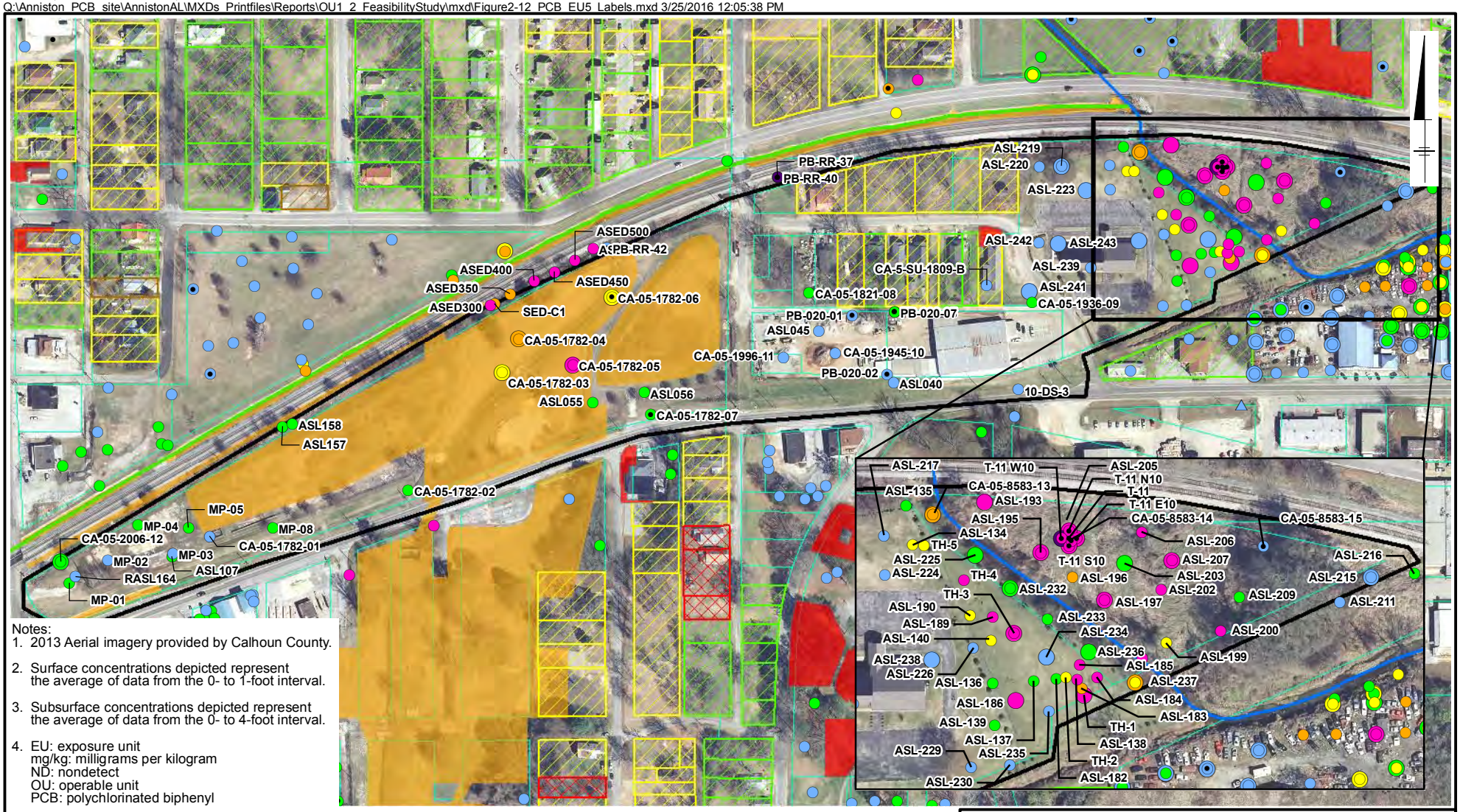

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
mg/kg: milligrams per kilogram
ND: nondetect
OU: operable unit
PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- ≥ 500
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1

- Snow Creek
- 11th Street Ditch

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6
- Residential > 1 (mg/kg) (Removal Pending)

- Special Use: High Activity Area
- Interim Measure and Other Early Actions
- Exposure Unit
- All Parcels

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 300 600 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 5

Solutia
Ingenuity Productivity Performance

Figure
5-14

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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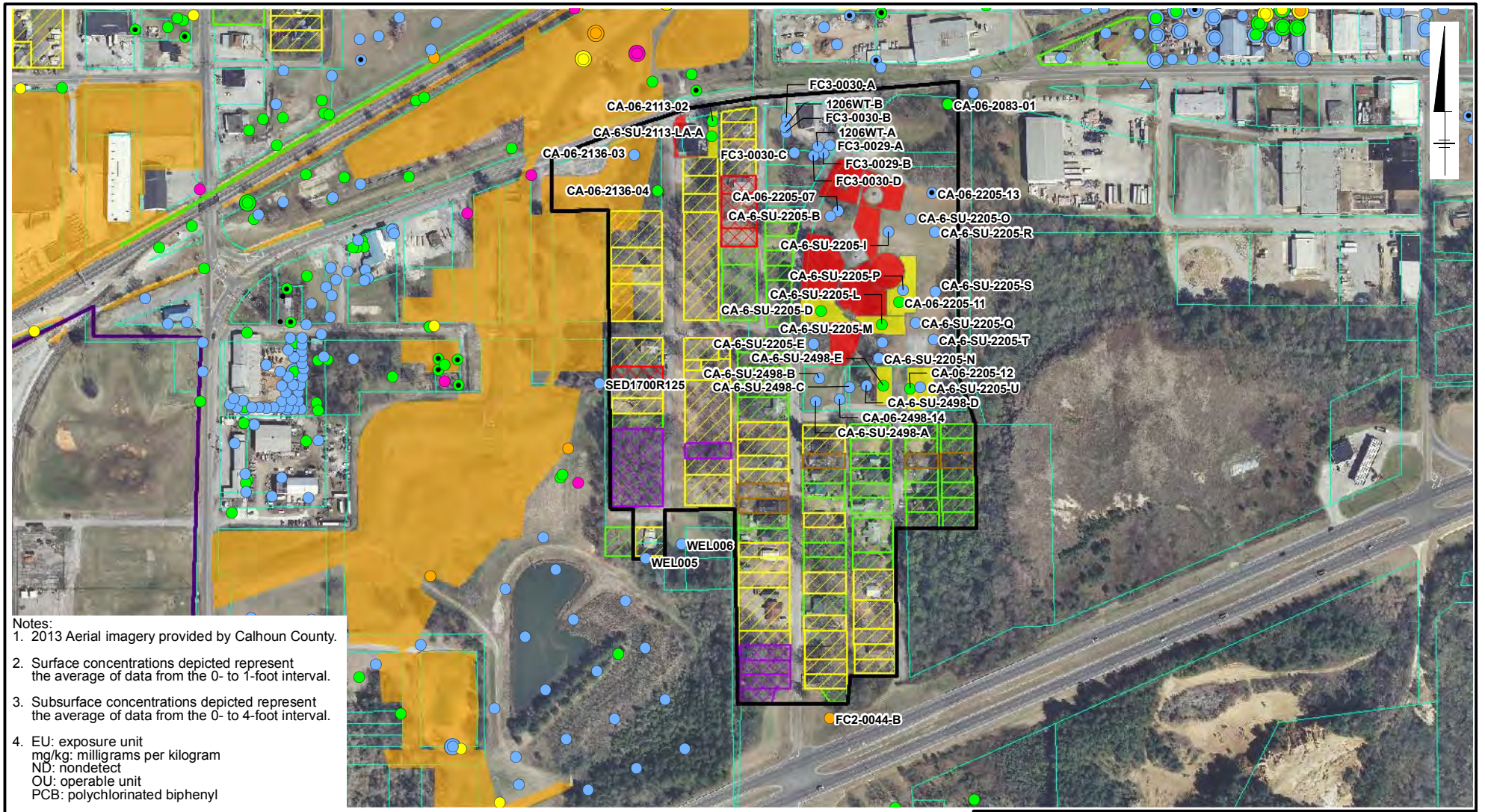

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1

11th Street Ditch

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6
- Residential > 1 (mg/kg) (Removal Pending)
- Residential > 1 (mg/kg) (Unsuitable for Removal)

- Interim Measure and Other Early Actions
- Exposure Unit
- Operable Unit 3
- All Parcels
- Special Use: High Activity Area
- Special Use: Low Activity Area ≥ 1 mg/kg

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 400 800 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 6

Solutia
Ingenuity Productivity Performance

Figure
5-15

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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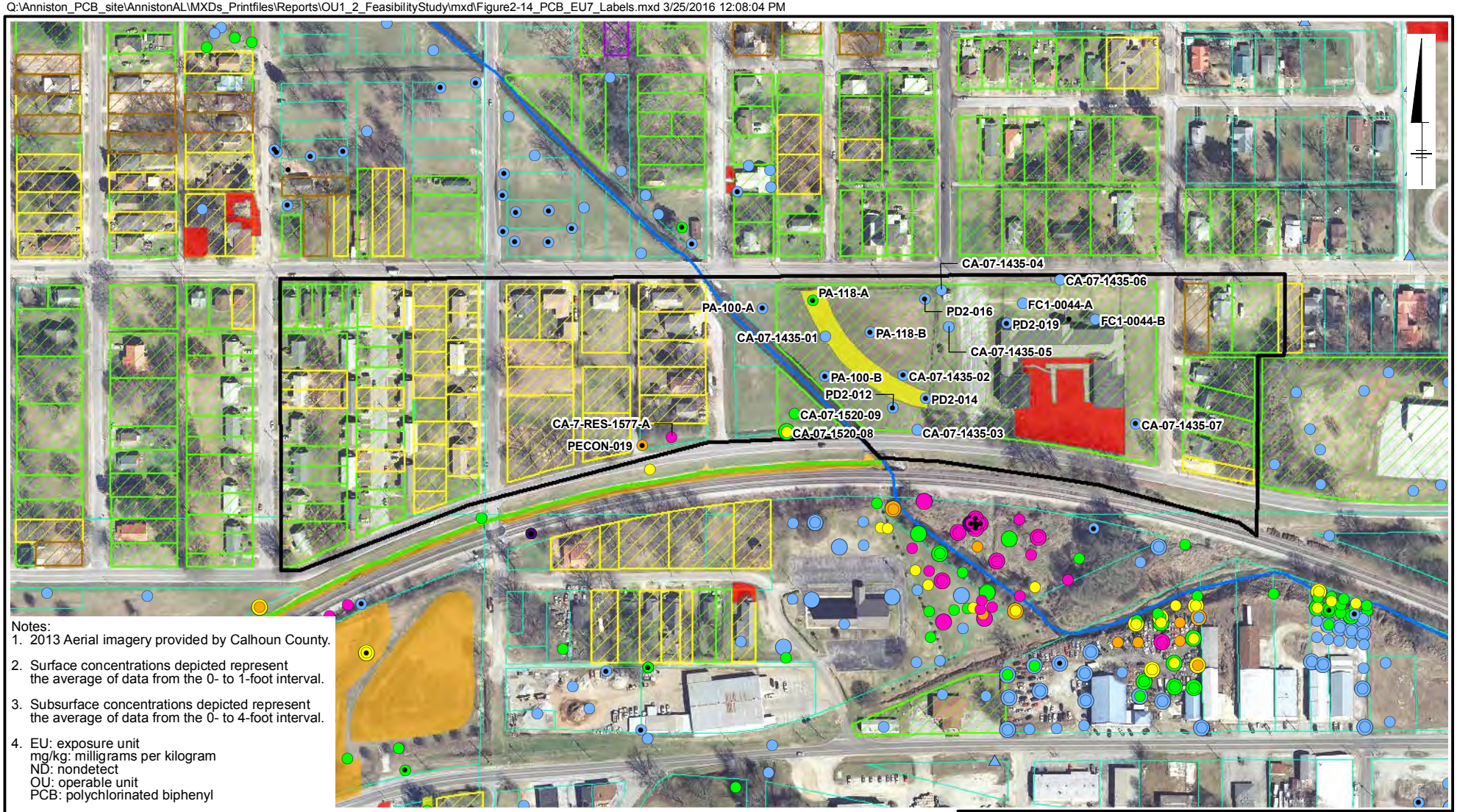

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- ≥ 500
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1

- Snow Creek
- 11th Street Ditch

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6
- Residential > 1 (mg/kg) (Unsuitable for Removal)

- Exposure Unit
- Interim Measure and Other Early Actions
- All Parcels
- Special Use: High Activity Area
- Special Use: Low Activity Area ≥ 1 mg/kg

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 300 600 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 7

Solutia
Ingenuity Productivity Performance

Figure
5-16

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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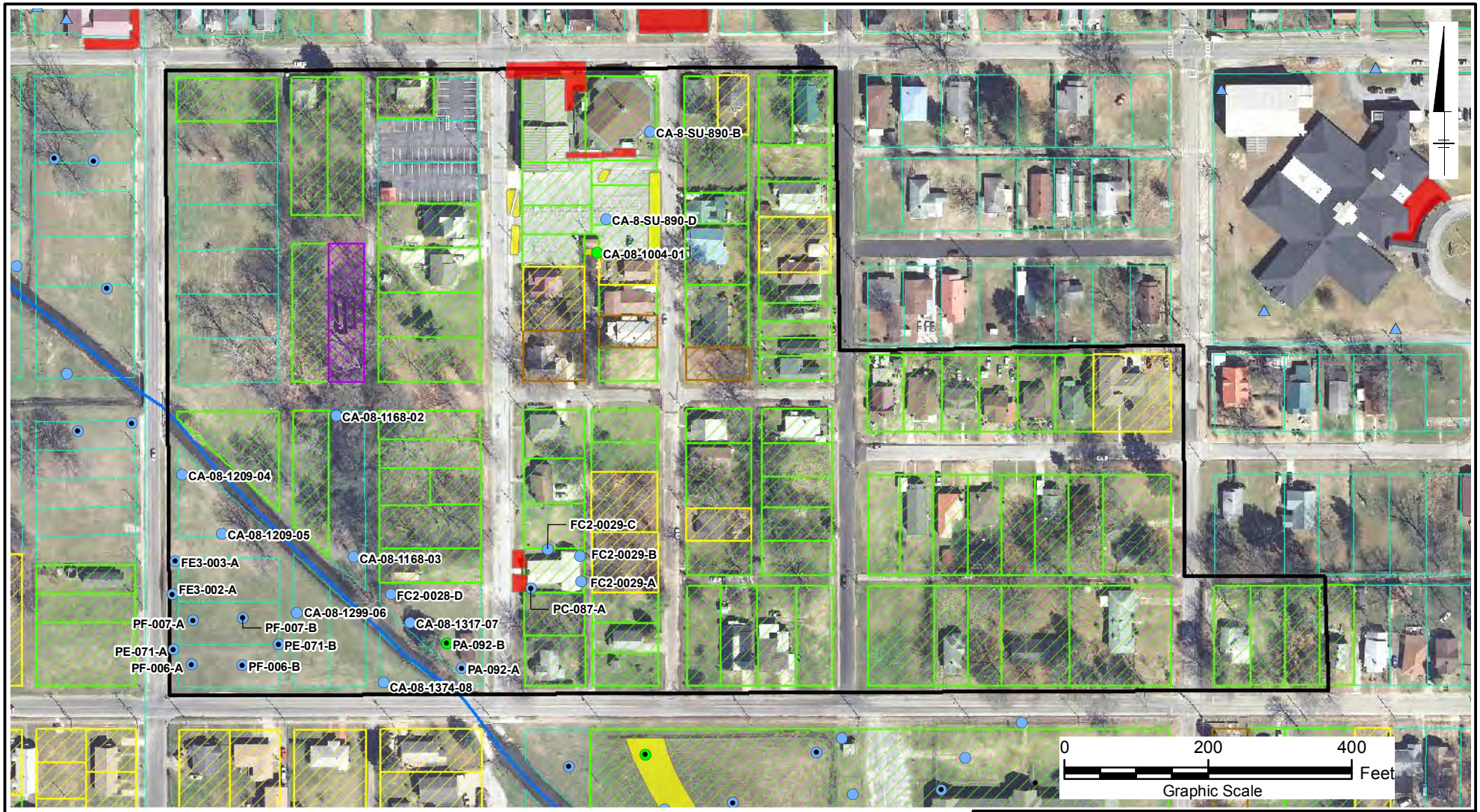

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1

- Snow Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6
- Residential > 1 (mg/kg) (Unsuitable for Removal)
- All Parcels
- Exposure Unit
- Special Use: High Activity Area
- Special Use: Low Activity Area ≥ 1 mg/kg

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 8

Solutia
Ingenuity Productivity Performance

Figure
5-17

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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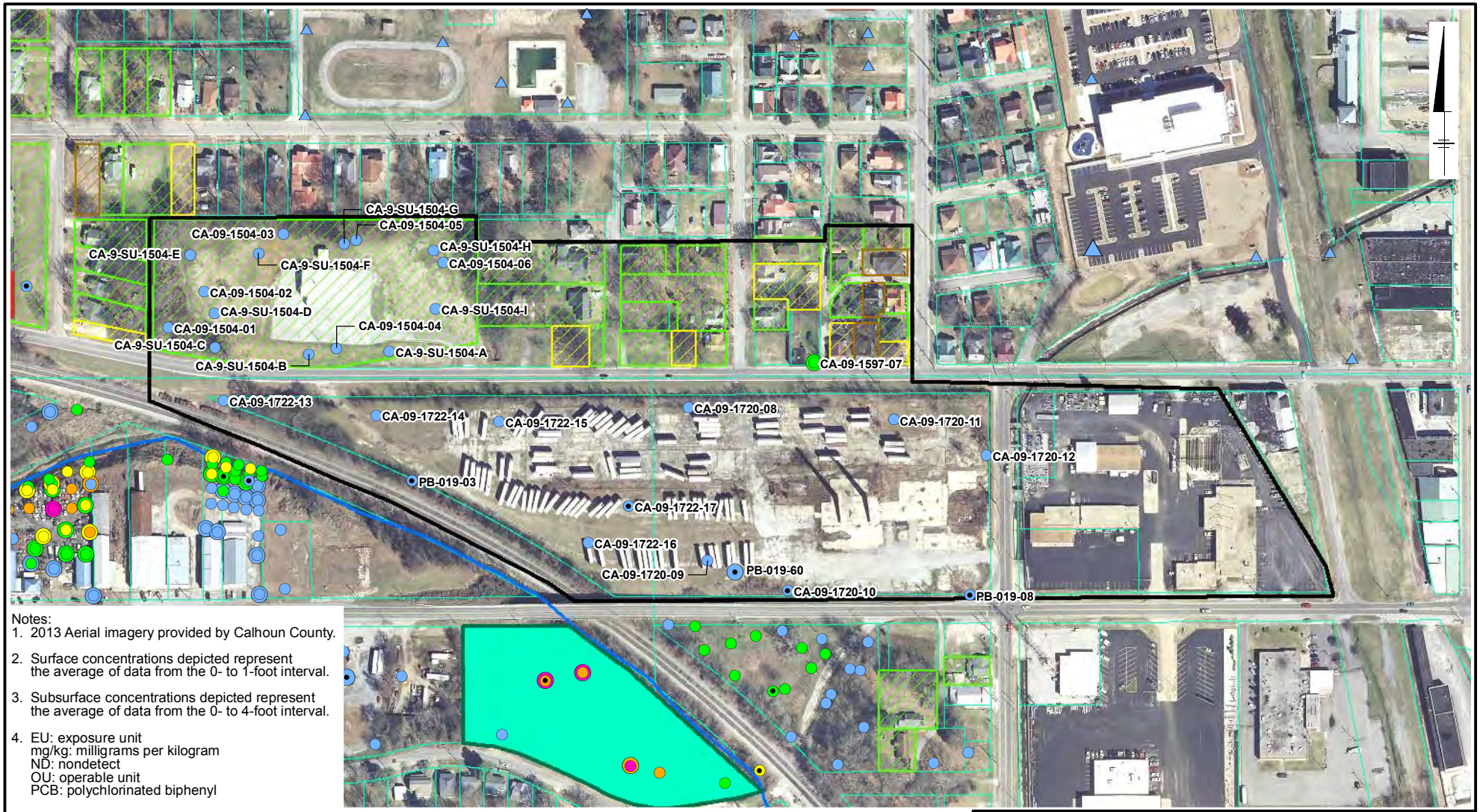

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1

Snow Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6

- Special Use: High Activity Area
- Unapproved Waste Disposal Area
- Exposure Unit
- All Parcels

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 300 600 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 9

Solutia
Ingenuity Protection Performance

Figure
5-18

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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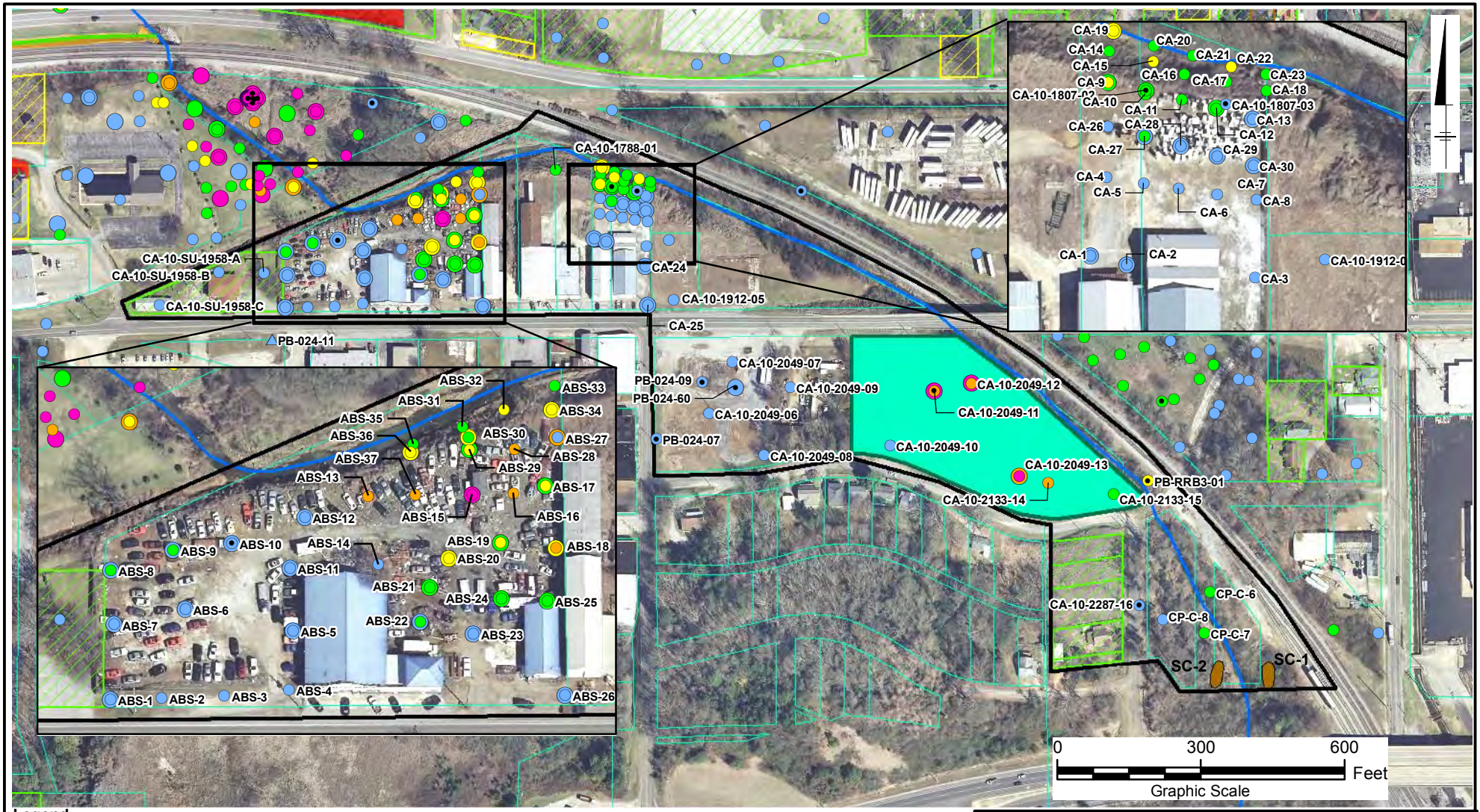

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- ≥ 500
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1

- Snow Creek
- 11th Street Ditch
- Dredge Spoil Pile In-Place

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6

- Special Use: High Activity Area
- Unapproved Waste Disposal Area
- Exposure Unit
- Interim Measure and Other Early Actions
- All Parcels

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
mg/kg: milligrams per kilogram
ND: nondetect
OU: operable unit
PCB: polychlorinated bipheny

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 10

Solutia
Ingenuity Productivity Performance

Figure
5-19

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)

- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- Analytes other than PCB and Lead Analyzed

Snow Creek

Residential Parcels Sampled

- Residential < 1 (mg/kg)
- Unapproved Waste Disposal Area
- Exposure Unit
- All Parcels

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

0 200 400 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 11

Solutia
Ingenuity Productivity Performance

Figure
5-20

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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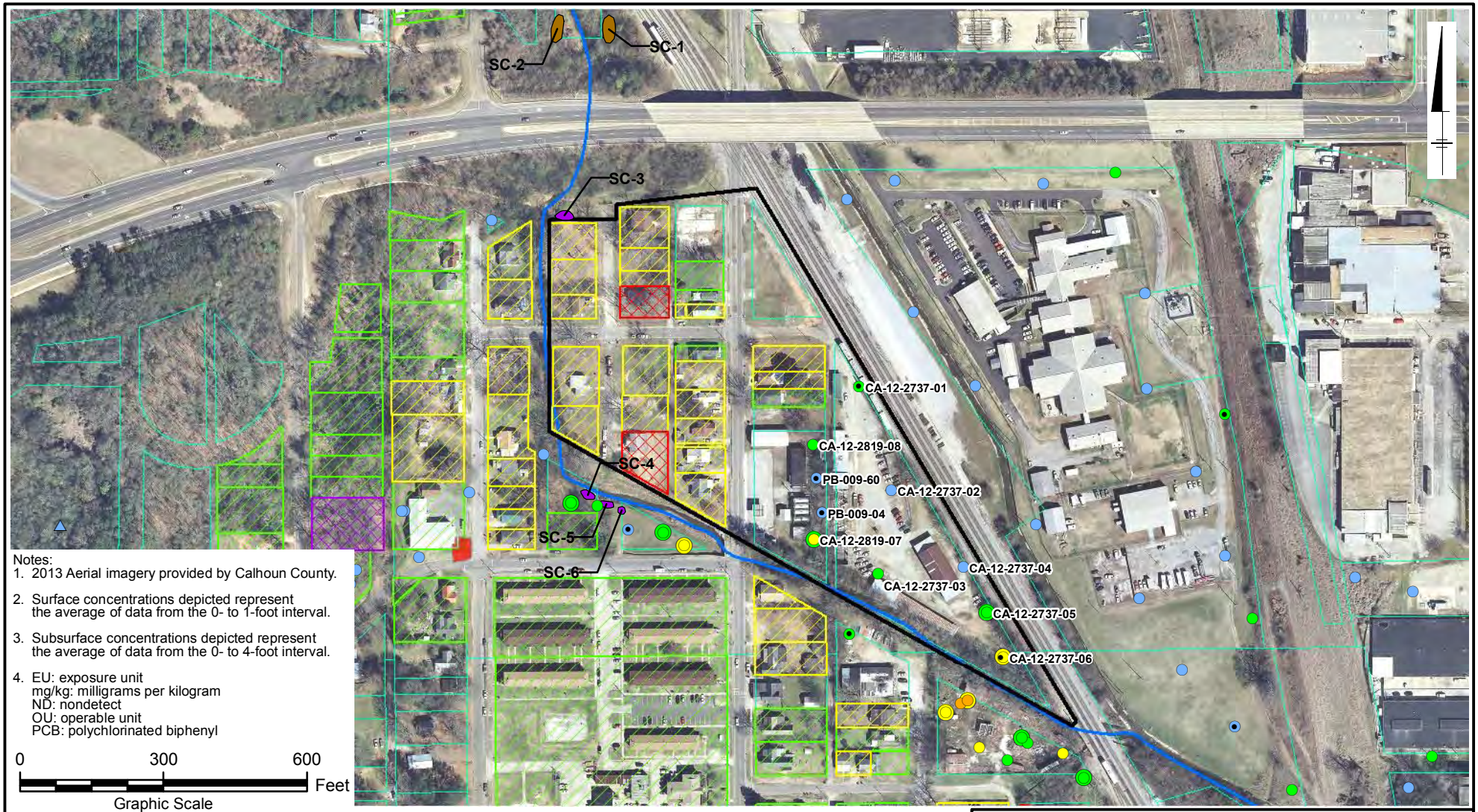

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

0 300 600 Feet
Graphic Scale

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1

Snow Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential > 1 (mg/kg) (Removal Pending)
- Residential > 1 (mg/kg) (Unsuitable for Removal)

- Dredge Spoil Pile In-Place
- Dredge Spoil Pile Removed
- Special Use: High Activity Area
- Exposure Unit
- All Parcels

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 12

Solutia
Ingenuity Productivity Performance

Figure
5-21

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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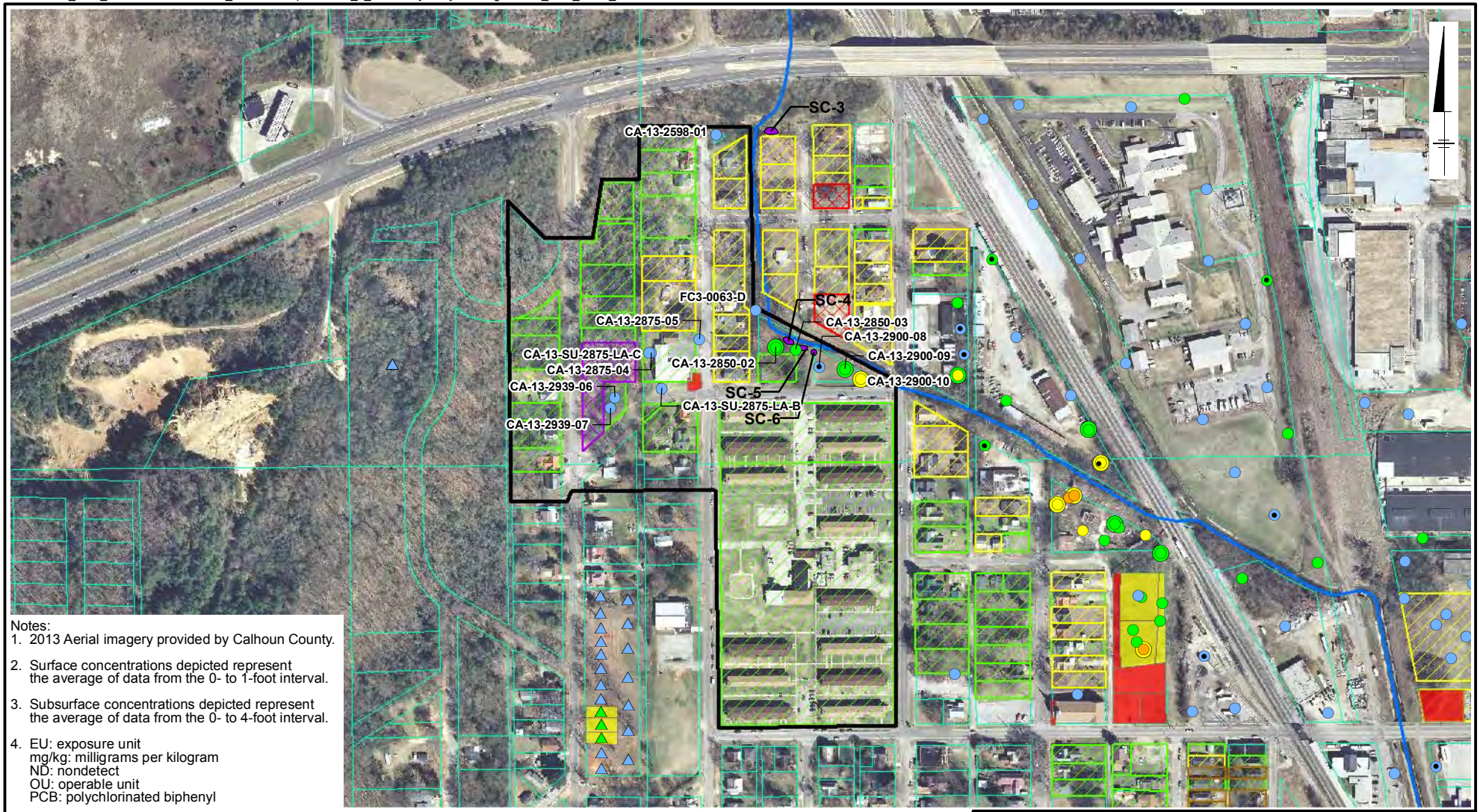

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10

- Snow Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6
- Residential > 1 (mg/kg) (Removal Pending)
- Residential > 1 (mg/kg) (Unsuitable for Removal)

- Dredge Spoil Pile Removed
- Exposure Unit
- All Parcels
- Special Use: High Activity Area
- Special Use: Low Activity Area ≥1 mg/kg
- Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 400 800 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 13

Solutia
Ingenuity Productivity Performance

Figure
5-22

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- Analytes other than PCB and Lead Analyzed

Snow Creek
Dredge Spoil Pile Removed
Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential > 1 (mg/kg) (Removal Pending)
- Exposure Unit
- All Parcels

Special Use: Low Activity Area ≥1 mg/kg
Special Use: High Activity Area

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 200 400 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 14 North

Solutia
Ingenuity Productivity Performance

Figure
5-23

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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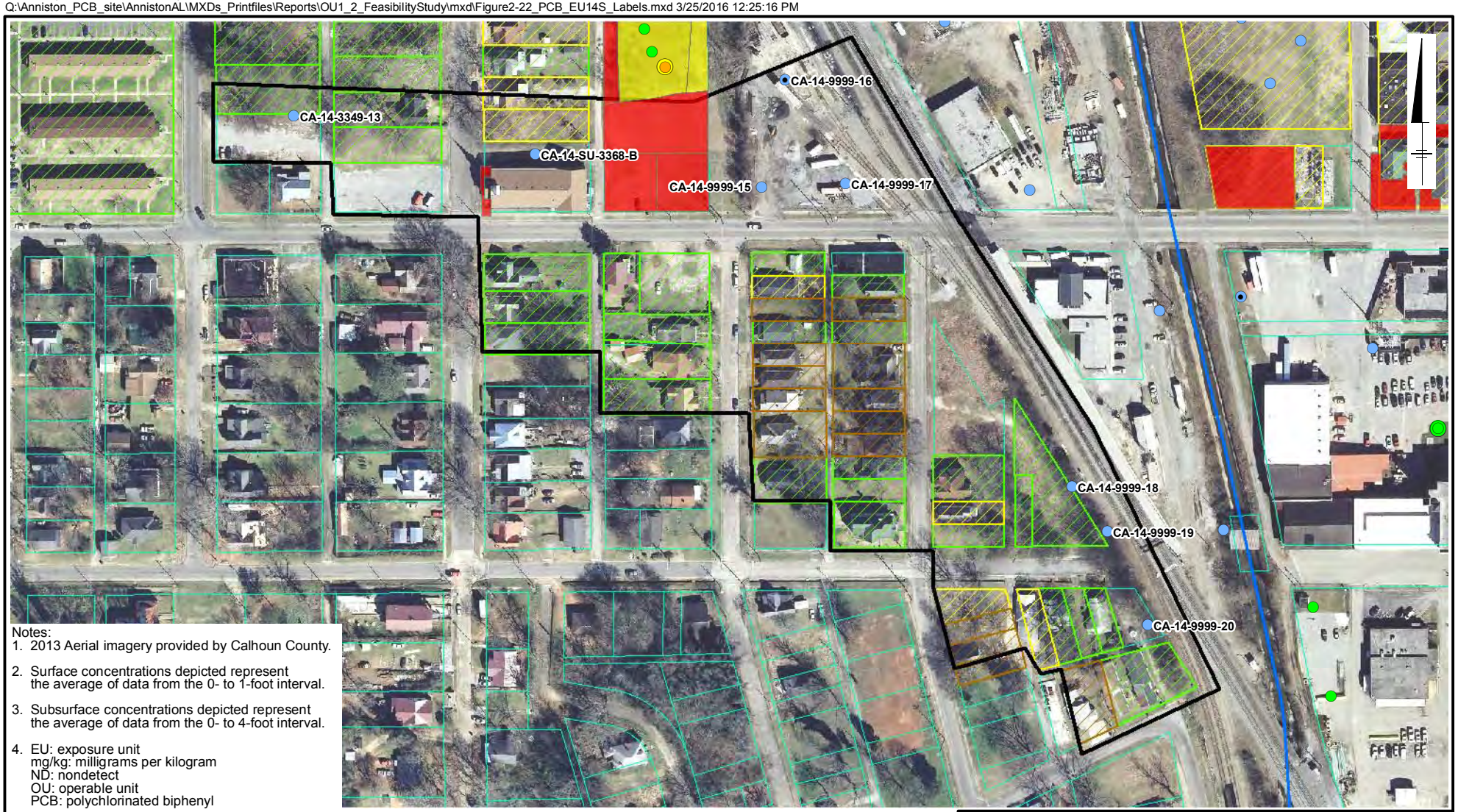

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- Analytes other than PCB and Lead Analyzed

Snow Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6

Exposure Unit
All Parcels
Special Use: High Activity Area
Special Use: Low Activity Area ≥1 mg/kg

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 200 400 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 14 South

Solutia
Ingenuity Productivity Performance

Figure
5-24

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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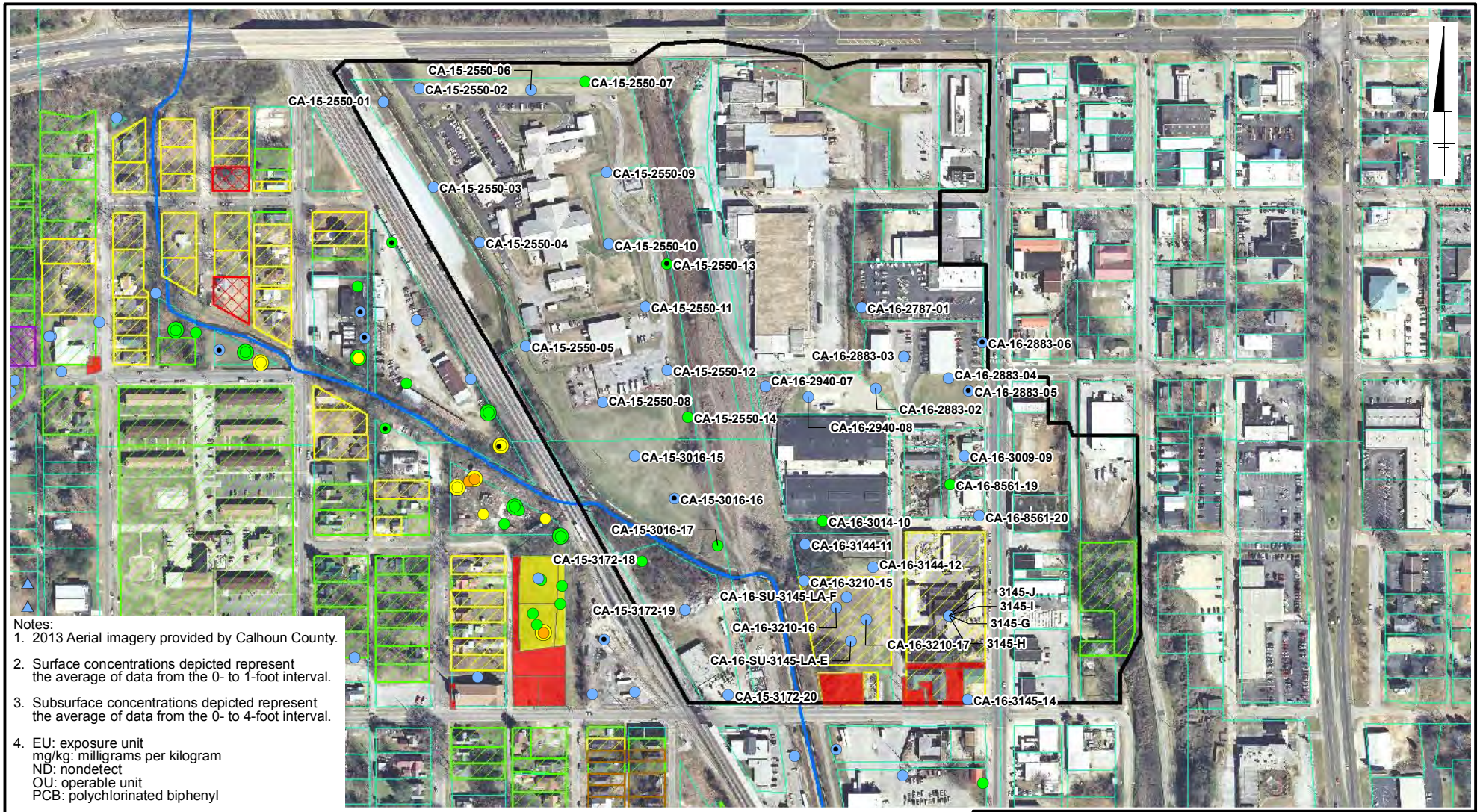

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1

Snow Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6
- Residential > 1 (mg/kg) (Removal Pending)
- Residential > 1 (mg/kg) (Unsuitable for Removal)

Exposure Unit
- All Parcels
- Special Use: High Activity Area
- Special Use: Low Activity Area ≥1 mg/kg

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 400 800 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 15/16

Solutia
Ingenuity Productivity Performance

Figure
5-25

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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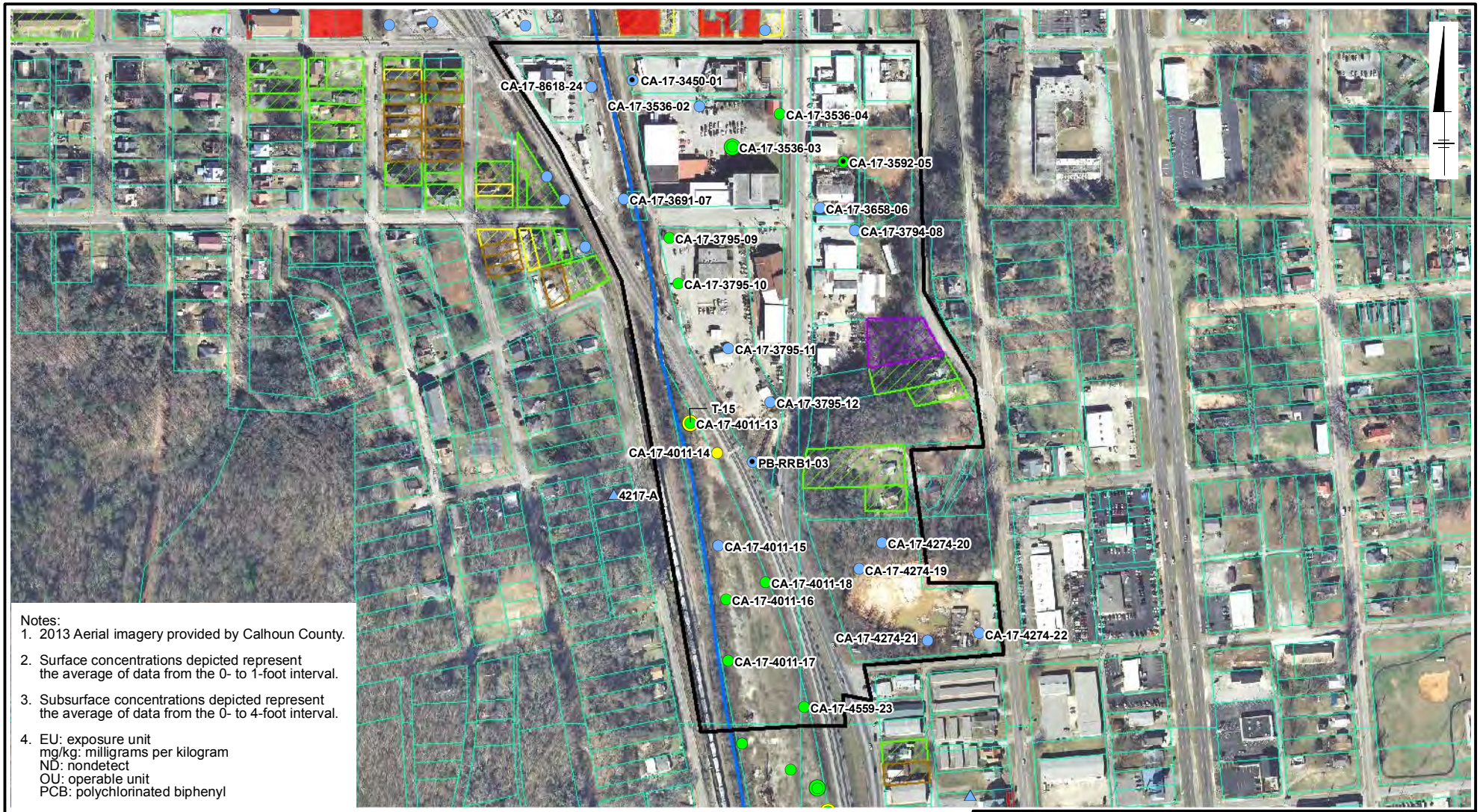

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1

Snow Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6
- Residential > 1 (mg/kg) (Unsuitable for Removal)

Special Use: High Activity Area

Exposure Unit

All Parcels

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 400 800 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 17

Solutia

Figure
5-26

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- ≥ 500
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1

Snow Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6

Special Use: High Activity Area

Exposure Unit

All Parcels

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 500 1,000 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 18

Solutia

Figure
5-27

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
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Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- ≥ 500
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1

Snow Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6

Special Use: High Activity Area

Exposure Unit

All Parcels

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 300 600 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 19 North

Solutia
Ingenuity Productivity Performance

Figure
5-28

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure2-27_PCB_EU19S_Labels.mxd 3/25/2016 12:31:59 PM

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1

Snow Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6

Special Use: High Activity Area
Exposure Unit
All Parcels

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 300 600 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 19 South

Solutia

Figure
5-29

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- ≥ 500
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1

- Snow Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6

- Special Use: High Activity Area
- Exposure Unit
- All Parcels

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 400 800 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 20

Solutia
Ingenuity Productivity Performance

Figure
5-30

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure2-29_PCB_EU21_Labels.mxd 3/25/2016 12:34:33 PM

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1

- Snow Creek
- Special Use: High Activity Area
- Exposure Unit
- All Parcels

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

0 400 800 Feet
Graphic Scale

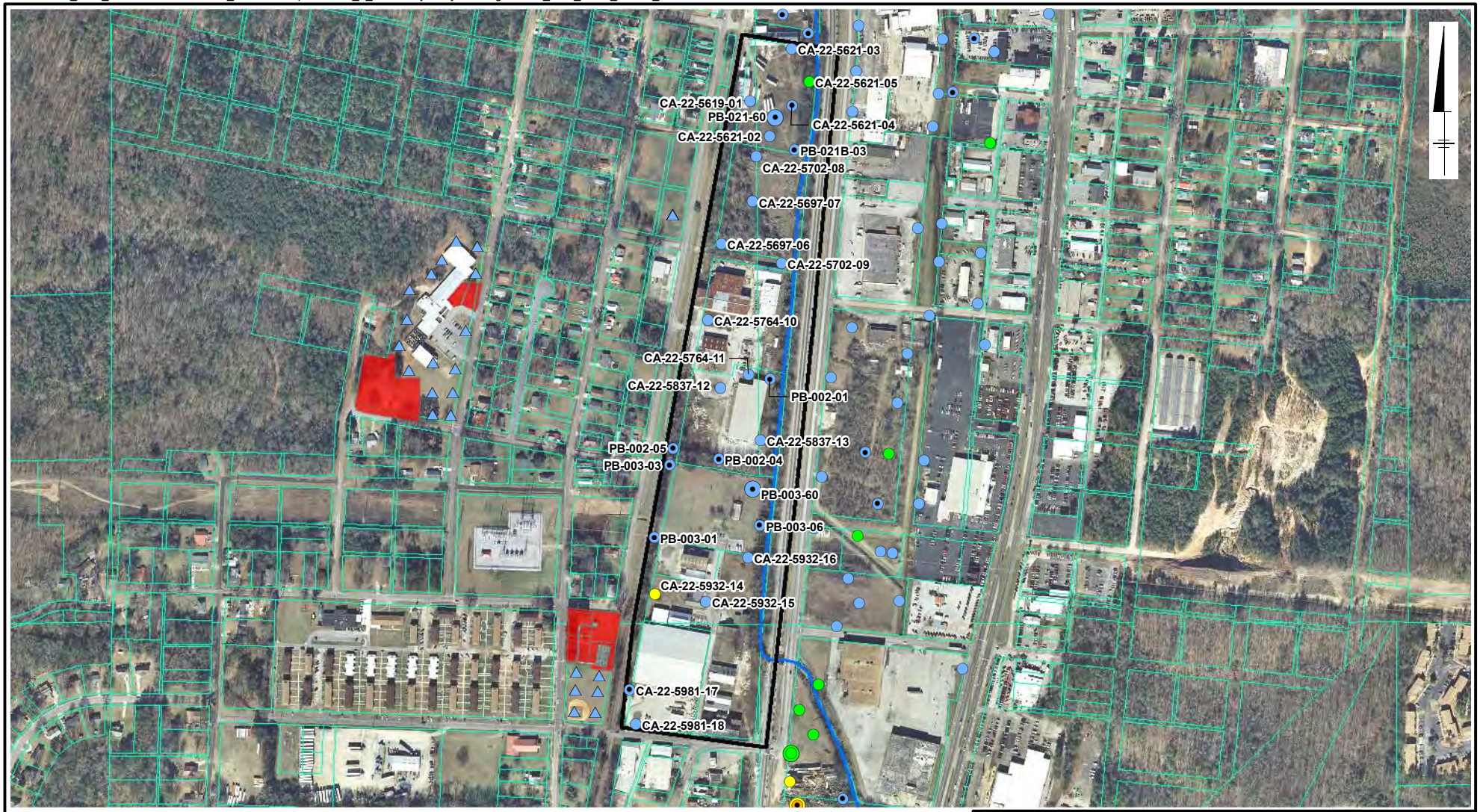
Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 21

Solutia
Ingenuity Productivity Performance

Figure
5-31

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure2-30_PCB_EU22_Labels_v2.mxd 3/25/2016 12:37:01 PM



Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1

- Snow Creek
- Special Use: High Activity Area
- Exposure Unit
- All Parcels

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

0 600 1,200 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 22

Solutia
Ingenuity Productivity Performance

Figure
5-32

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure2-31_PCB_EU23_Labels.mxd 3/25/2016 12:38:12 PM

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1

- Snow Creek
- Special Use: High Activity Area
- Exposure Unit
- All Parcels

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

0 400 800 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 23

Solutia

Figure
5-33

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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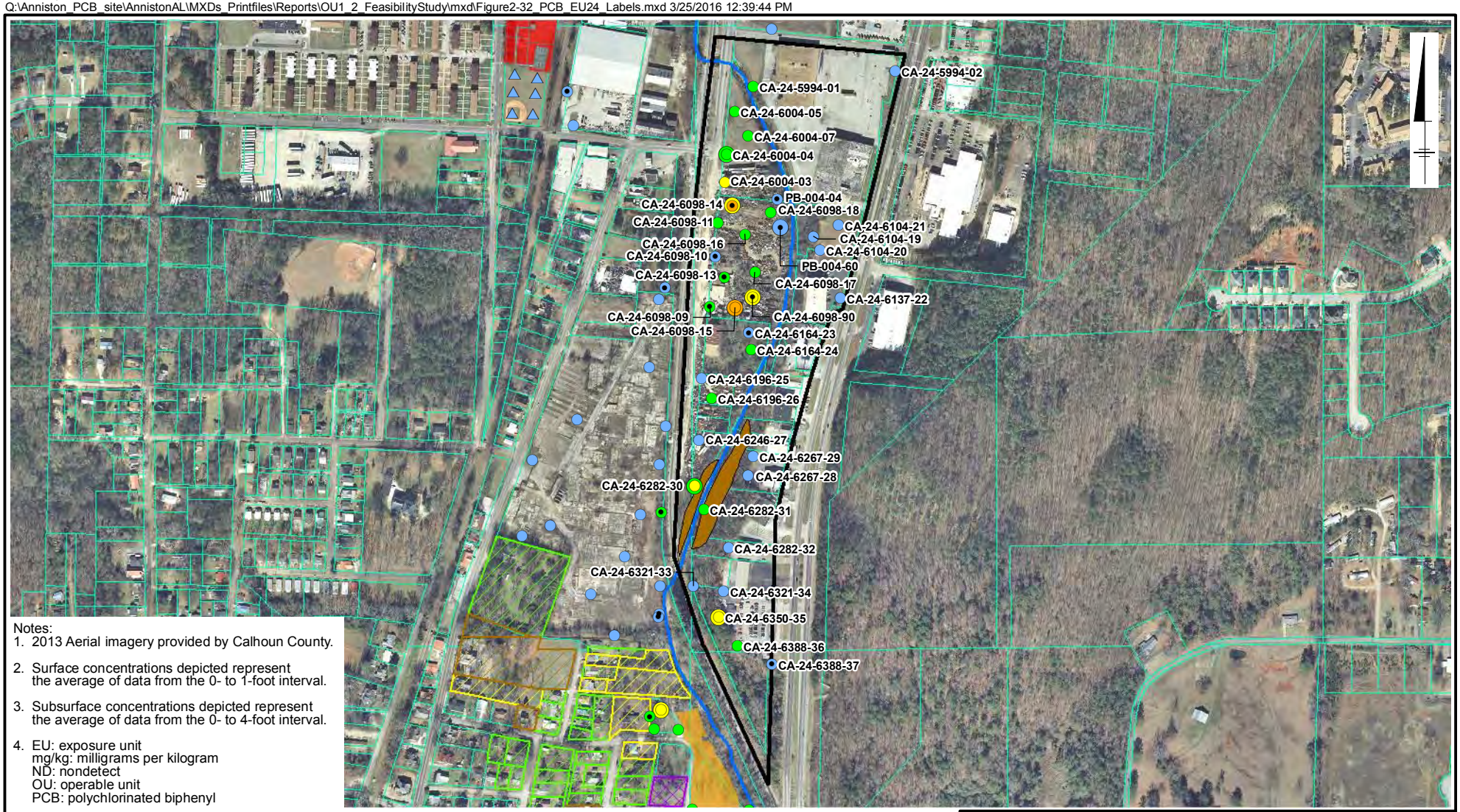

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- Analytes other than PCB and Lead Analyzed

Soil Sample Location
Surface PCB Outside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1

Snow Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6
- Residential > 1 (mg/kg) (Unsuitable for Removal)

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

- Special Use: High Activity Area
- Exposure Unit
- Interim Measure and Other Early Actions
- All Parcels
- Dredge Spoil Pile In-Place

0 600 1,200 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 24

Solutia

Figure
5-34

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- Analytes other than PCB and Lead Analyzed

Snow Creek
Dredge Spoil Pile In-Place
Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6

Exposure Unit
Interim Measure and Other Early Actions
All Parcels

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

0 400 800 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 25

Solutia

Figure
5-35

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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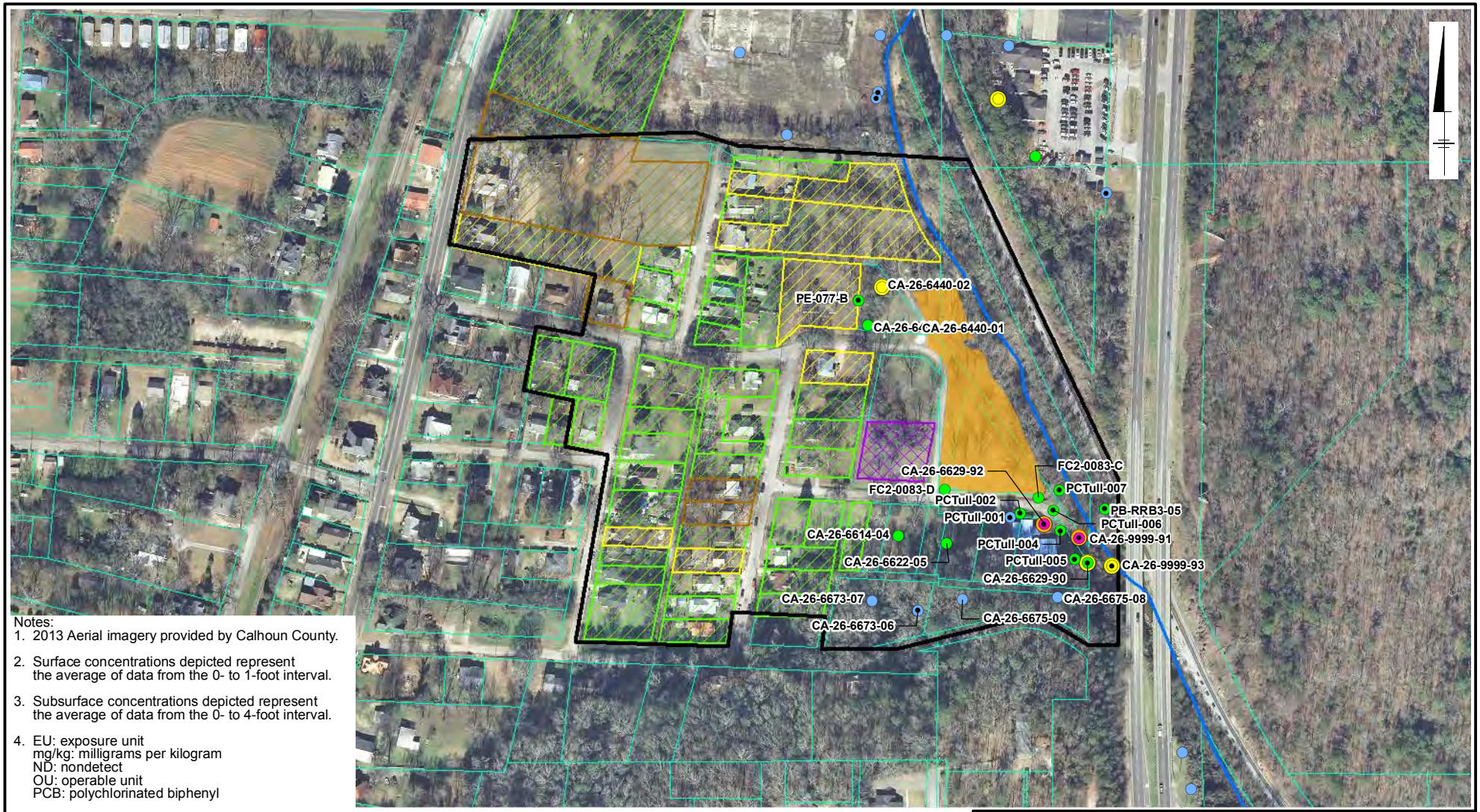


Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- Analytes other than PCB and Lead Analyzed

Snow Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6
- Residential > 1 (mg/kg) (Unsuitable for Removal)

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Exposure Unit

Interim Measure and Other Early Actions

All Parcels

0 300 600 Feet
Graphic Scale

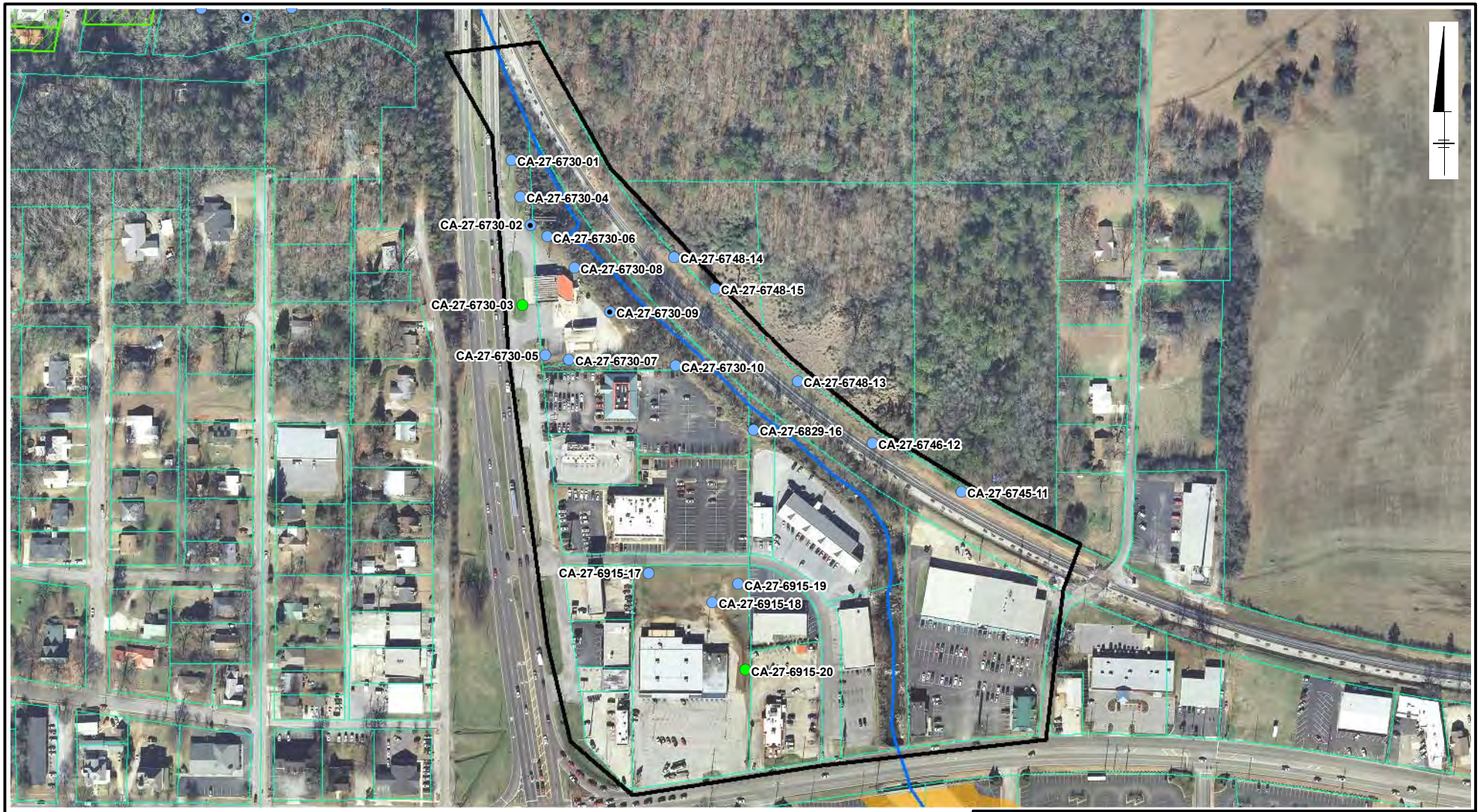
Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 26

Solutia

Figure
5-36

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure2-35_PCB_EU27_Labels.mxd 3/25/2016 12:44:29 PM



Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- Analytes other than PCB and Lead Analyzed

Snow Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Exposure Unit
- Interim Measure and Other Early Actions
- All Parcels

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

0 300 600 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 27

Solutia
Ingenuity Productivity Performance

Figure
5-37

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure2-36_PCB_EU28_Labels.mxd 3/25/2016 12:46:09 PM

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- ≥ 1 to <10
- Analytes other than PCB and Lead Analyzed

Snow Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6

Exposure Unit

Interim Measure and Other Early Actions

All Parcels

0 400 800 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 28

Solutia
Ingenuity Productivity Performance

Figure
5-38

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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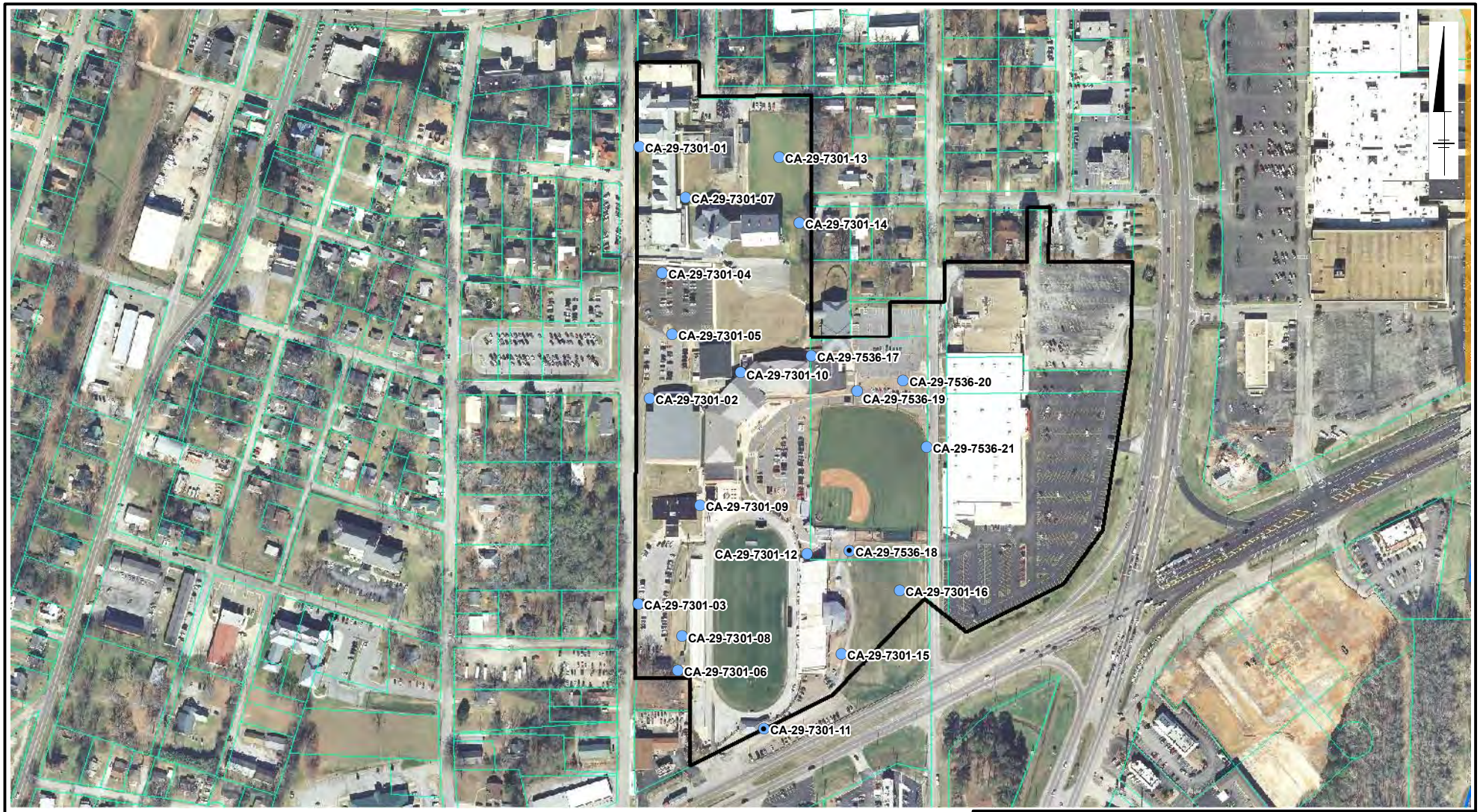

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- Analytes other than PCB and Lead Analyzed

- Snow Creek
- Exposure Unit
- Interim Measure and Other Early Actions
- All Parcels

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

0 400 800 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 29

Solutia
Ingenuity Productivity Performance

Figure
5-39

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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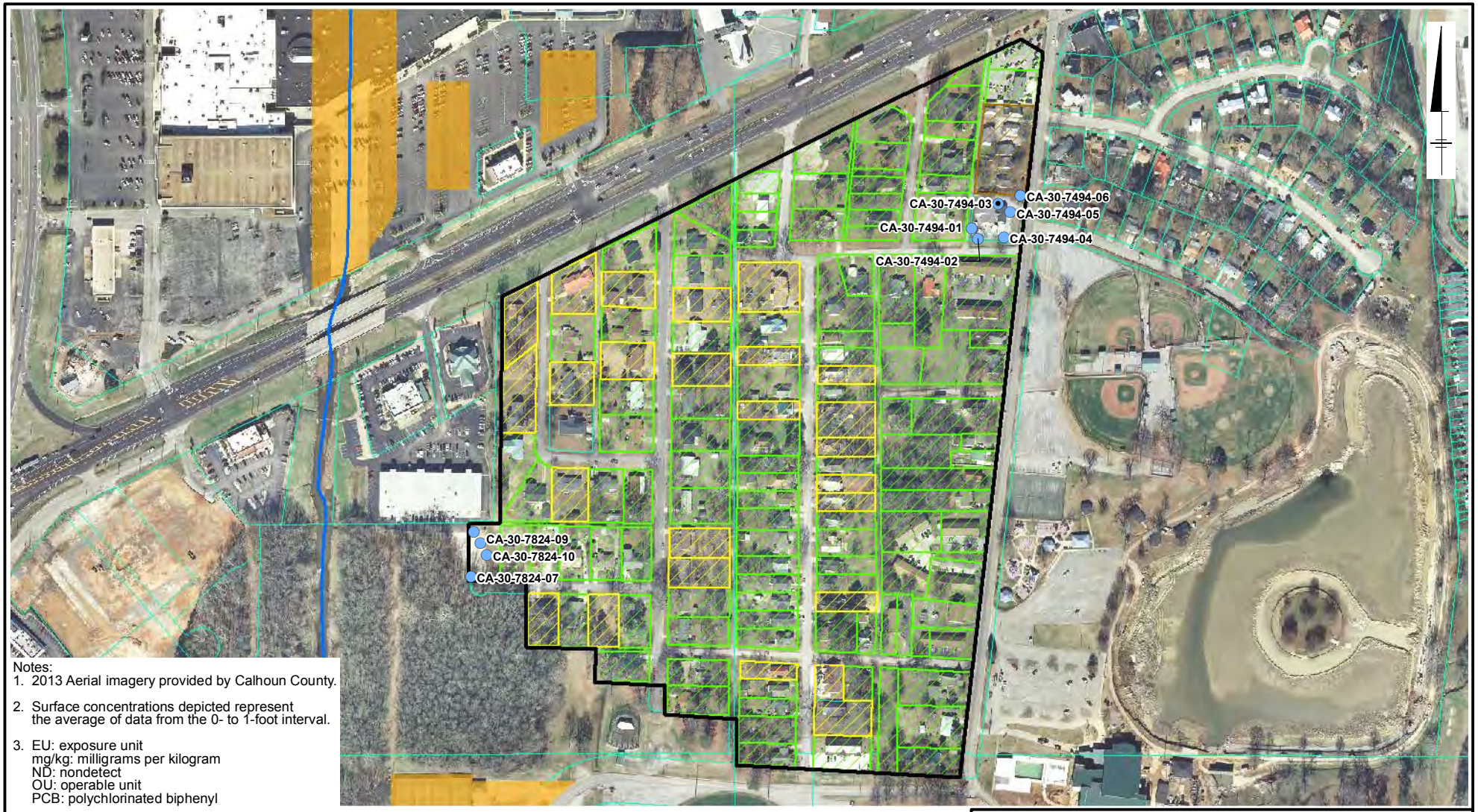


Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. EU: exposure unit
mg/kg: milligrams per kilogram
ND: nondetect
OU: operable unit
PCB: polychlorinated biphenyl

Legend

Soil Sample Location
Surface PCB Inside
OU-1/OU-2 EU Area (mg/kg)
- ND to < 1
- Analytes other than PCB and Lead Analyzed

Snow Creek

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6
- Exposure Unit
- Interim Measure and Other Early Actions
- All Parcels

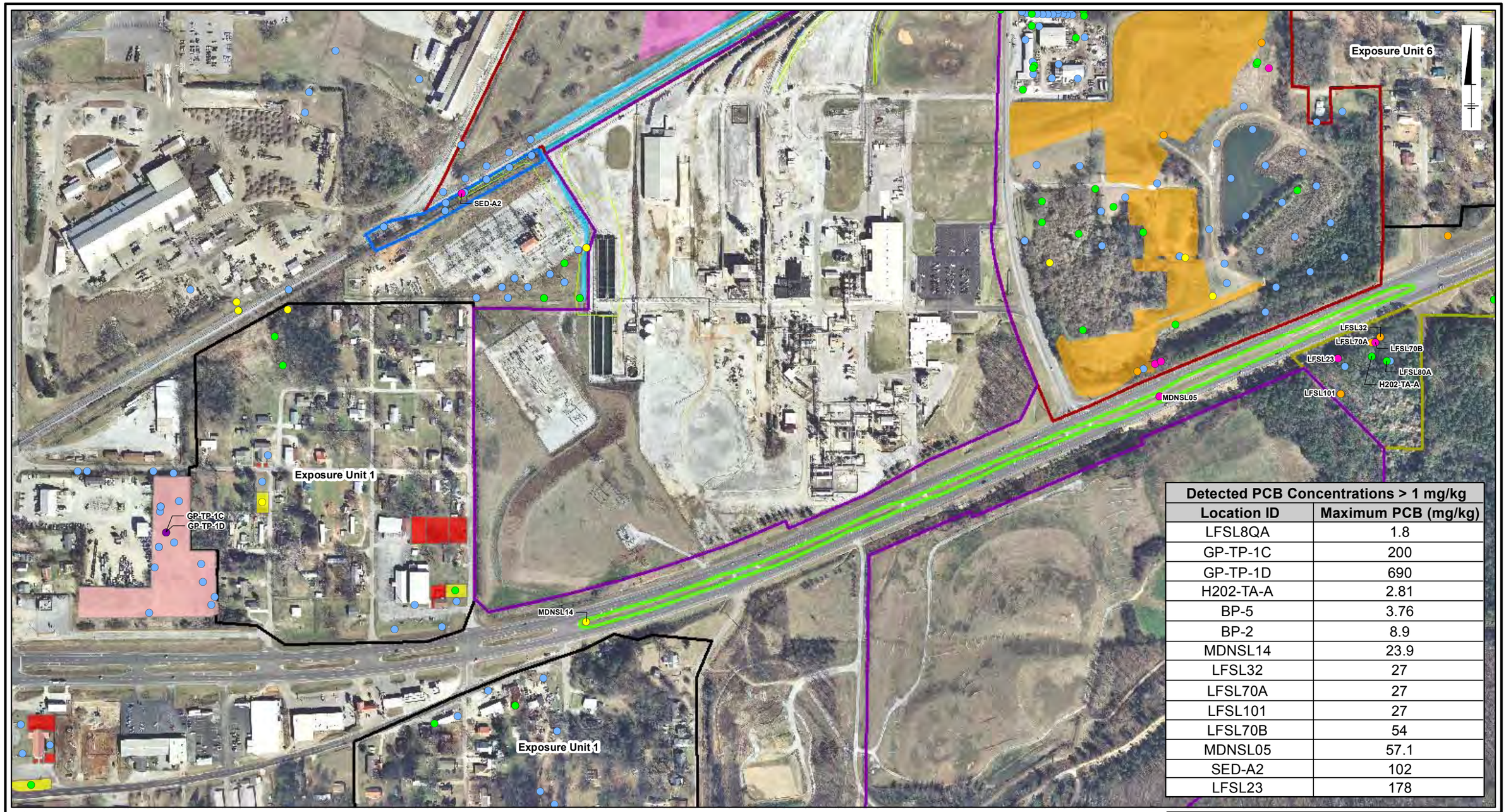
0 400 800 Feet
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Soil PCB Concentrations Exposure Unit 30

Solutia
Ingenuity Productivity Performance

Figure
5-40



Detected PCB Concentrations > 1 mg/kg	
Location ID	**Maximum PCB (mg/kg)**
LFSL8QA	1.8
GP-TP-1C	200
GP-TP-1D	690
H202-TA-A	2.81
BP-5	3.76
BP-2	8.9
MDNSL14	23.9
LFSL32	27
LFSL70A	27
LFSL101	27
LFSL70B	54
MDNSL05	57.1
SED-A2	102
LFSL23	178

Legend

Surface Sample Location

Maximum PCB Concentration (mg/kg)
- ND or < 1
- ≥ 1 or <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- ≥ 500
- Area West of EU-1

- 11th Street Ditch Removal Action
- Eastside Area Interim Measures
- Northside Area Interim Measures
- OU-1/OU-2 Downgradient Floodplain
- Exposure Unit

- Northside/Eastside Area
- Operable Unit 3
- South of Highway 202 Area
- Highway 202 Median Area
- North of APCO Area
- Area West of EU-1
- Special Use: Low Activity Area ≥1 mg/kg
- Special Use: High Activity Area

0 350 700 Feet

Graphic Scale

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface samples represent samples collected from depths 0 to 12 inches below the surface.
3. PCB concentrations are based on the maximum value from the 0 to 12-inch interval.
4. APCO: Alabama Power Company
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

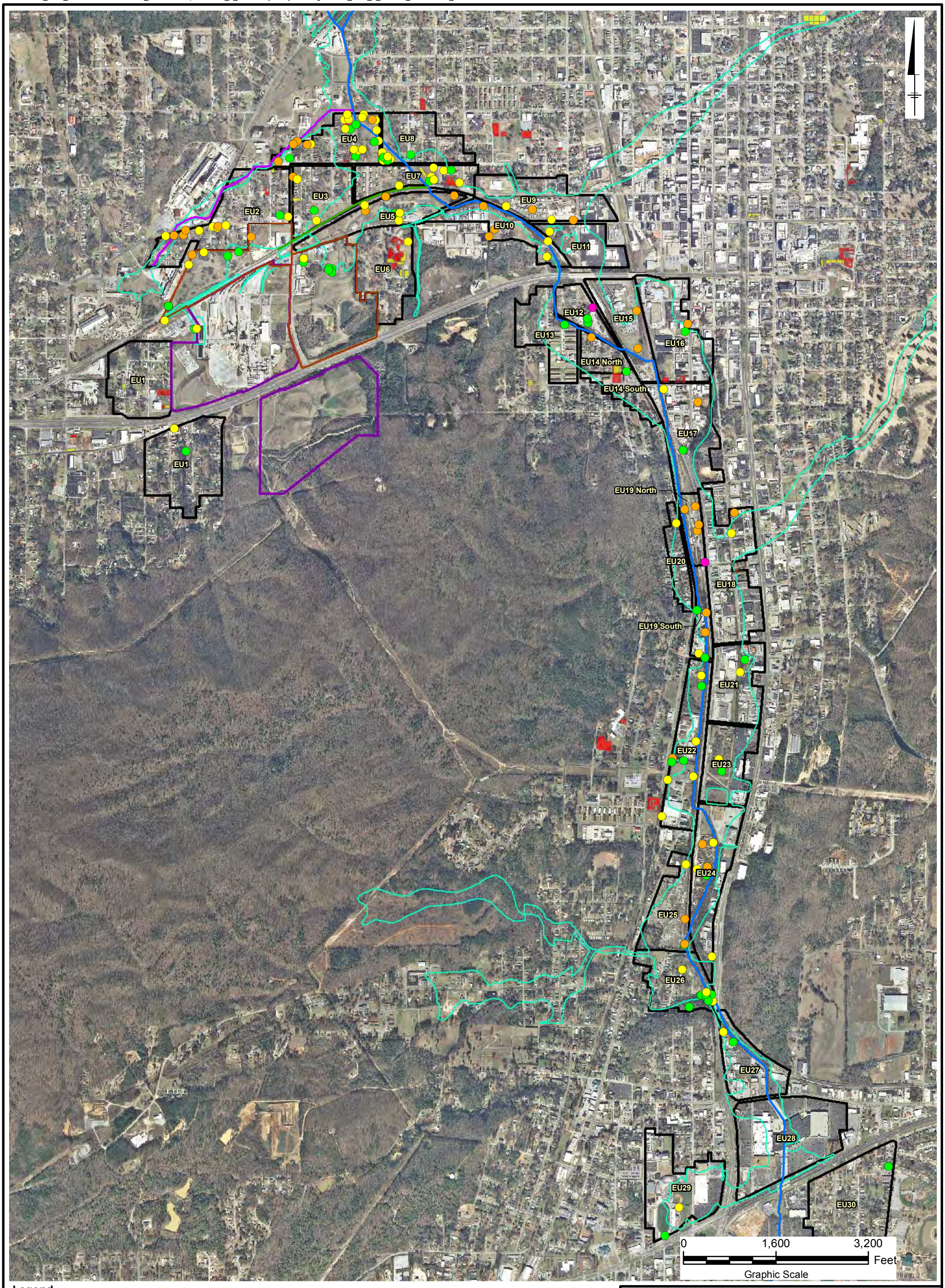
Surface Soil PCB Results for North of APCO, Highway 202 Median, South of Highway 202 and West of EU1

Solutia

Figure
5-41

City: SYR Div/Group: SWG Created By: K.Ives Last Saved By: jbistrovich
Anniston
Q:\Anniston_PCB_site\AnnistonALM\XDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure2-40_OU1_2_PCB_OutsideData.mxd 3/30/2016 8:13:47 AM

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure2-41_OU1_2_Arsenic_SurfaceSoil_HHRA.mxd 3/30/2016 8:15:33 AM



Legend

Soil Sample Location
Arsenic Concentration (mg/kg)
- ND to <1
- 1 to 5
- 5 to 10
- 10 to 50
- > 50

- Snow Creek
- 11th Street Ditch
- West 9th Street Creek
- 100-Year Floodplain and Drainage Areas
- Northside and Eastside Areas
- Operable Unit 3
- Exposure Unit
- Special Use: Low Activity Area ≥1 mg/kg
- Special Use: High Activity Area

Note:
1. 2013 Aerial imagery provided by Calhoun County.
2. No surface soil sample results exceeded PRG for arsenic (382 mg/kg).
3. EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   PRG: preliminary remediation goal

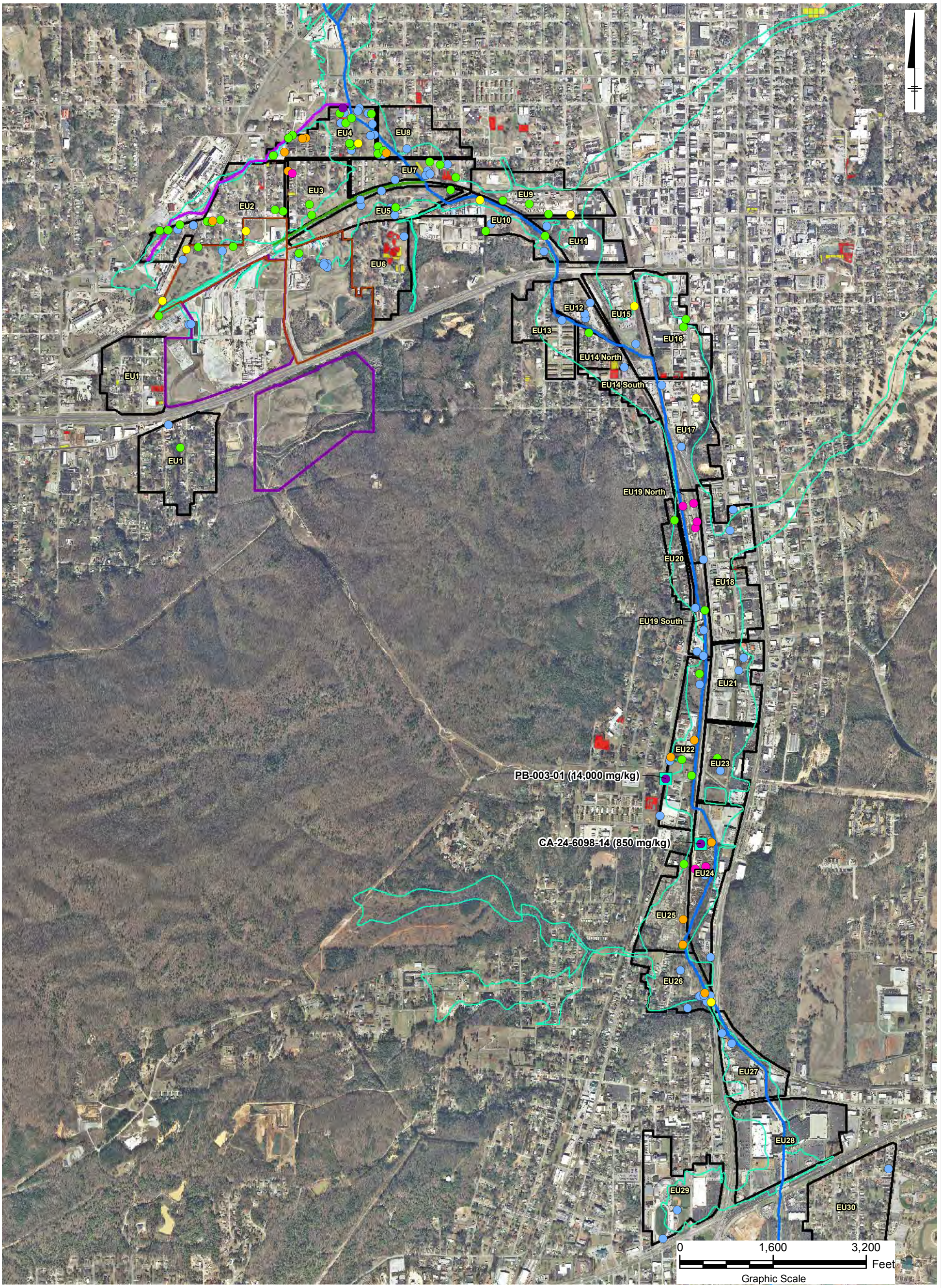
Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Arsenic Concentrations in Surface Soil

Solutia

Figure
5-42

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure2-42_OU1_2_Chromium_SurfaceSoil_HHRA.mxd 3/30/2016 12:52:43 PM



Legend

Soil Sample Location
Chromium Concentration (mg/kg)
- 0 to 20
- 20 to 38
- 38 to 50
- 50 to 100
- 100 to 500
- >500

Location with a sample exceeding the PRG of 568 mg/kg for chromium

- Snow Creek
- 11th Street Ditch
- West 9th Street Creek
- 100-Year Floodplain and Drainage Areas
- Northside and Eastside Areas
- Operable Unit 3
- Exposure Unit
- Special Use: Low Activity Area ≥1 mg/kg
- Special Use: High Activity Area

Note:
1. 2013 Aerial imagery provided by Calhoun County.
2. Two sample locations had results that exceeded the PRG for chromium (568 mg/kg).
3. EU: exposure unit
   mg/kg: milligrams per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl
   PRG: preliminary remediation goal

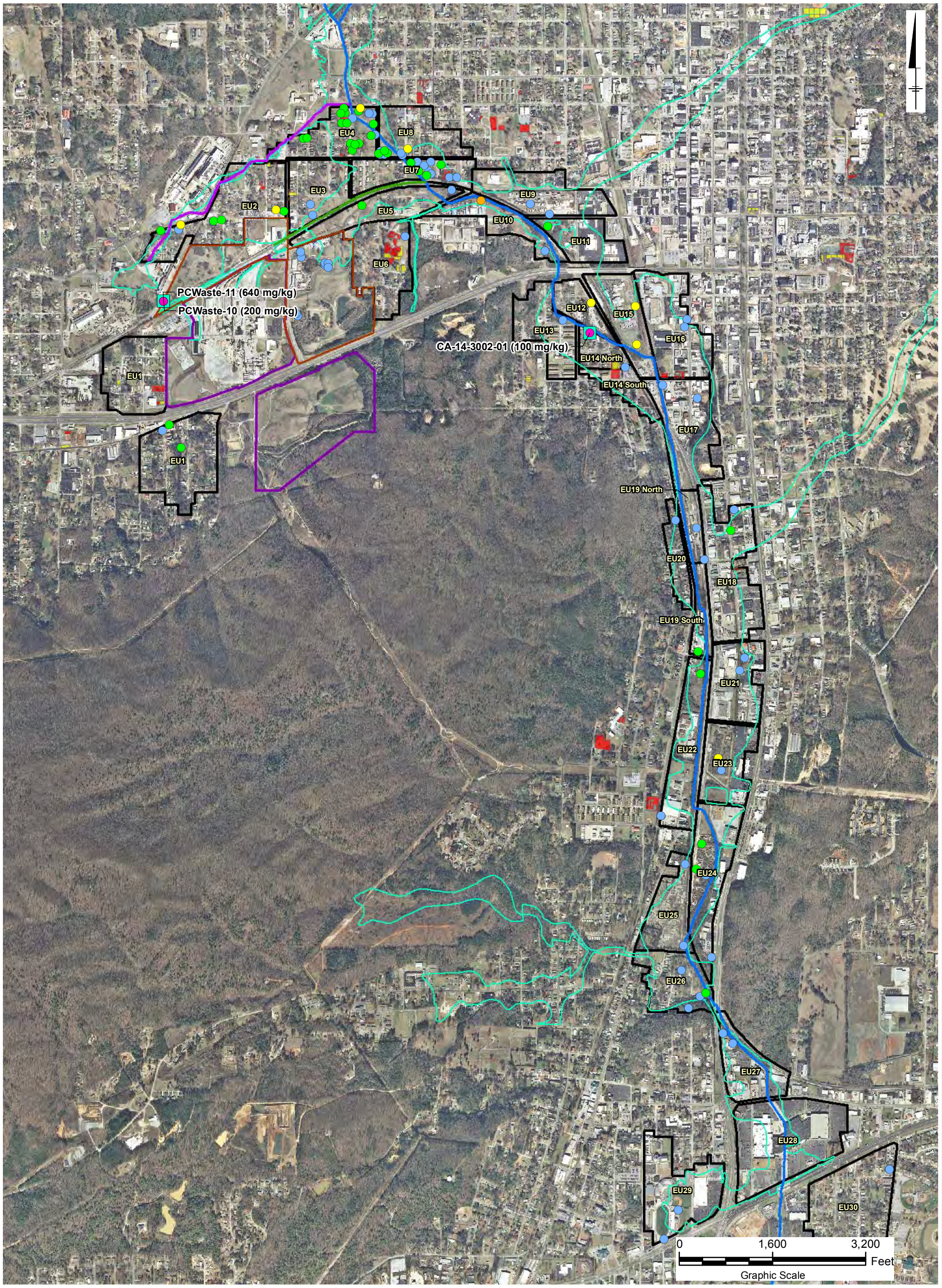
Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Chromium Concentrations in Surface Soil

Solutia

Figure
5-43

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure2-43_OU1_2_PAH_SurfaceSoil_HHRA.mxd 3/25/2016 8:57:44 AM



Legend

Soil Sample Location

Benzo(a)pyrene Equivalent (mg/kg)

- ND to < 1
- 1 to 5
- 5 to 10
- 10 to 100
- > 100
- Location with a sample exceeding the concentration of 21 mg/kg for BaPE

- Snow Creek
- 11th Street Ditch
- West 9th Street Creek
- Operable Unit 3
- Northside and Eastside Areas
- 100-Year Floodplain and Drainage Areas
- Exposure Unit
- Special Use: Low Activity Area ≥1 mg/kg
- Special Use: High Activity Area

Note:
1. 2013 Aerial imagery provided by Calhoun County.
2. Three sample locations had results that exceeded the PRG for BaPE (21 mg/kg).
3. BaPE: benzo(a)pyrene equivalent
   EU: exposure unit
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

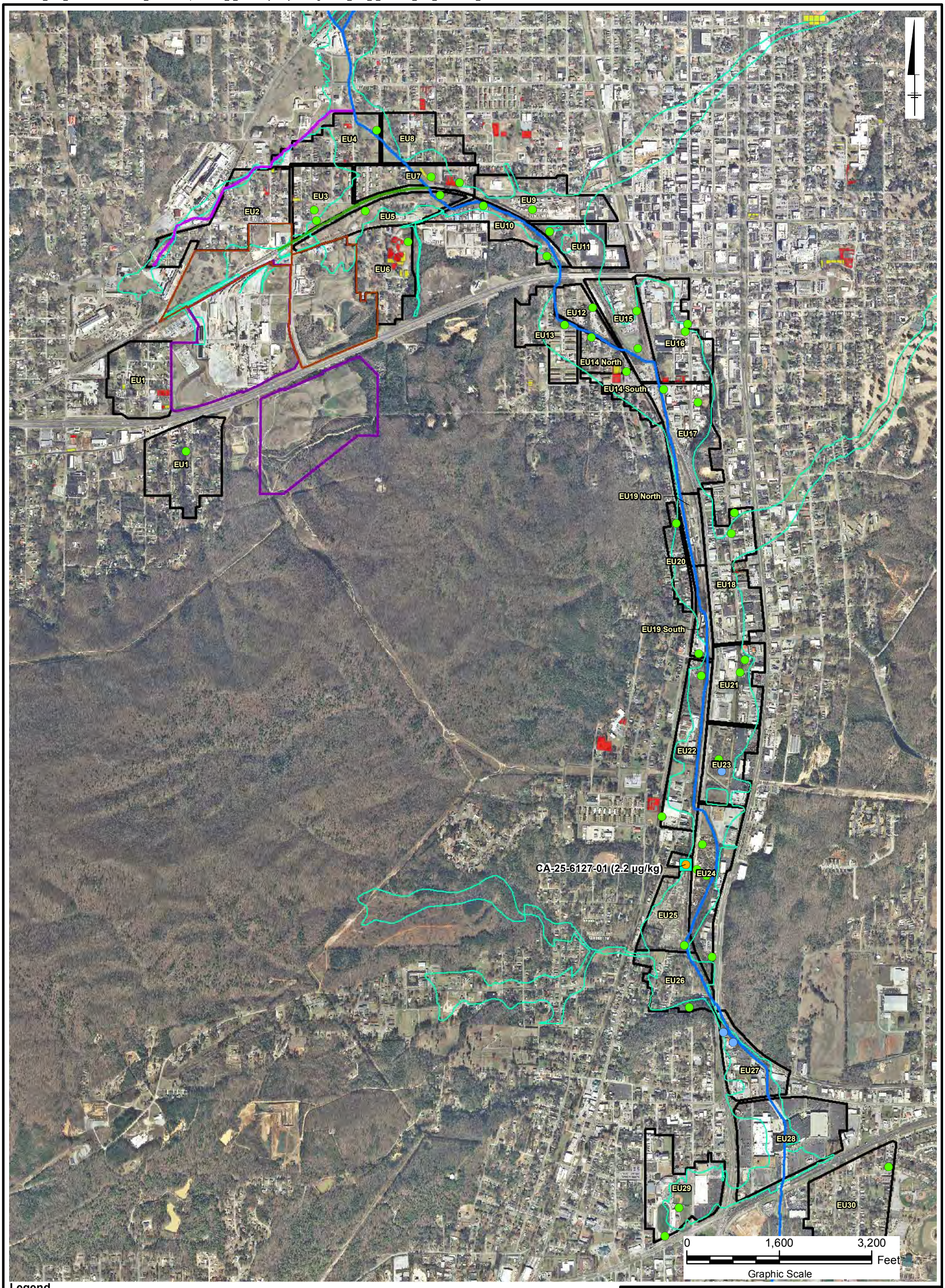
Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

PAH as Benzo(a)pyrene Equivalent (BaPE) Concentrations in Surface Soil

Solutia

Figure
5-44

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure2-44_OU1_2_PCDDDF_TEQ_SurfaceSoil_HHRA.mxd 3/25/2016 9:01:10 AM



Legend

Soil Sample Location

PCDD/DF TEQ Concentration (µg/kg)

- < 0.001
- 0.001 to 0.25
- 0.25 to 2
- > 2

Location with a sample exceeding the concentration of 0.6 µg/kg for PCDD/DF TEQ

- Snow Creek
- 11th Street Ditch
- West 9th Street Creek
- Northside and Eastside Areas
- Operable Unit 3
- 100-Year Floodplain and Drainage Areas
- Exposure Unit
- Special Use: Low Activity Area ≥1 mg/kg
- Special Use: High Activity Area

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. One sample had a result that exceeded the PRG for PCDD/DF TEQ (0.6 µg/kg).
3. EU: exposure unit
   mg/kg: milligrams per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl
   PCDD/DF: polychlorinated dibenzo-p-dioxin/dibenzofurans
   TEQ: toxic equivalent
   µg/kg: micrograms per kilogram

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

PCDD/DF TEQ Concentrations in Surface Soil

Solutia

Figure
5-45

Figure 5-46b
Figure 5-46f
Figure 5-46e
Figure 5-46h
Figure 5-46c
Figure 5-46d
Figure 5-46g
Figure 5-46j
Figure 5-46i
Figure 5-46k
Figure 5-46l
Figure 5-46m
Figure 5-46n
Figure 5-46o

Legend

Sediment Sample Location
- Snow Creek Upstream of OU-1/OU-2
- Snow Creek inside OU-1/OU-2
- West 9th St Ditch

Snow Creek Centerline
- 11th Street Ditch
- West 9th Street Creek
- OU1/OU2 Downgradient Floodplain

- Snow Creek
- Sediment Deposit

0 1,750 3,500 Feet

Graphic Scale

Note:
1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Sample Locations and PCB Concentrations in OU1/OU2 Sediment

Solutia

Figure
5-46a

Legend

Sediment Sample Location

Snow Creek Upstream of OU-1/OU-2

Snow Creek

Notes:

1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl

2. Aerial imagery provided by Calhoun County.

3. J: The compound was positively identified; however, the associated numerical value is an estimated concentration only.
   UJ: The compound was analyzed for but not detected. The associated value is the estimated compound detection limit.

0 150 300 Feet

Graphic Scale

Anniston PCB Site: OU1/OU2

Anniston, Alabama

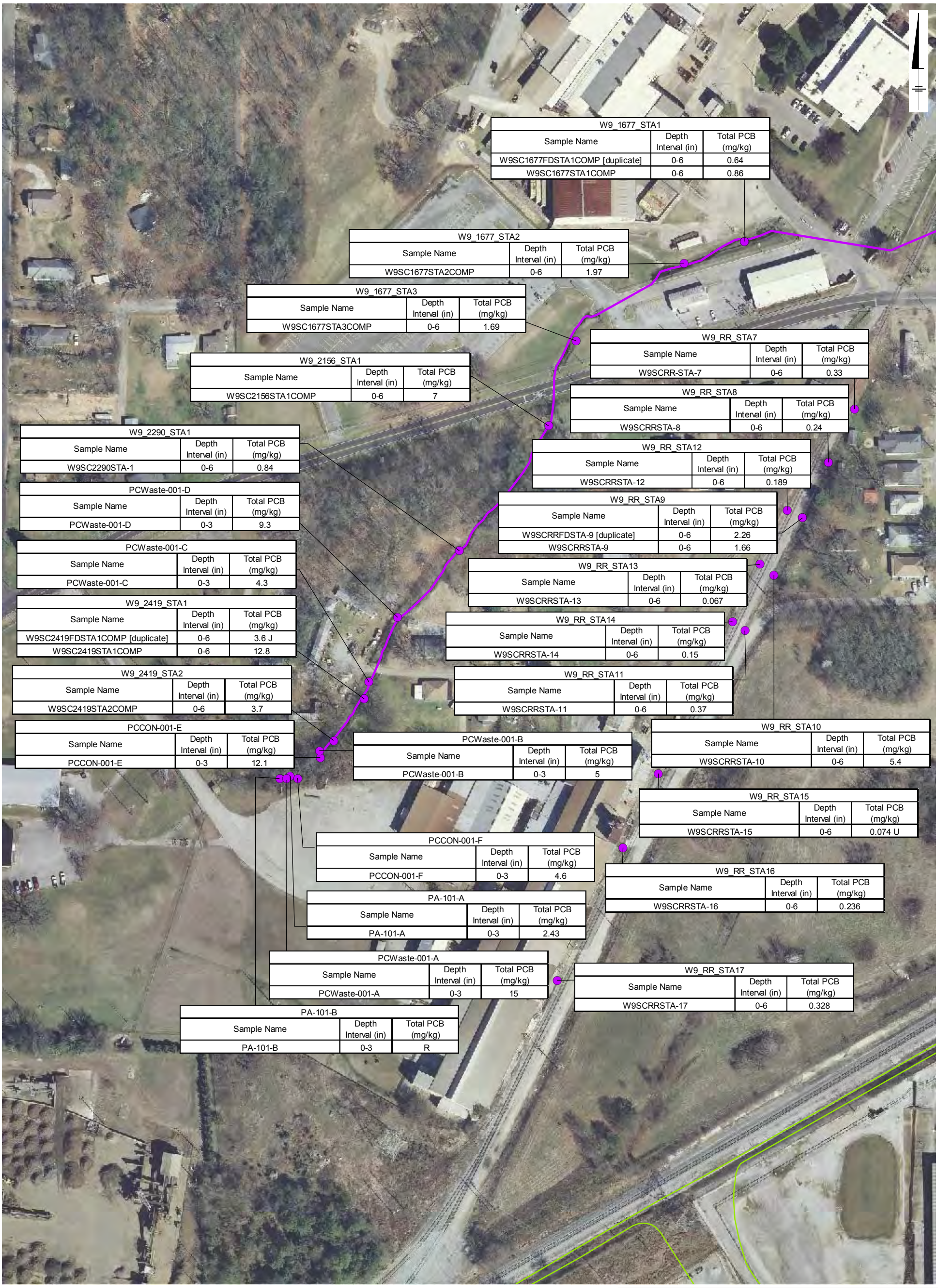
OU1/OU2 Record of Decision

Sample Locations and PCB Concentrations in OU1/OU2 Sediment

Solutia

Figure

5-46b



W9_1677_STA1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SC1677FDSTA1COMP [duplicate]	0-6	0.64
W9SC1677STA1COMP	0-6	0.86

W9_1677_STA2		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SC1677STA2COMP	0-6	1.97

W9_1677_STA3		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SC1677STA3COMP	0-6	1.69

W9_2156_STA1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SC2156STA1COMP	0-6	7

W9_2290_STA1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SC2290STA-1	0-6	0.84

PCWaste-001-D		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PCWaste-001-D	0-3	9.3

PCWaste-001-C		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PCWaste-001-C	0-3	4.3

W9_2419_STA1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SC2419FDSTA1COMP [duplicate]	0-6	3.6 J
W9SC2419STA1COMP	0-6	12.8

W9_2419_STA2		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SC2419STA2COMP	0-6	3.7

PCCON-001-E		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PCCON-001-E	0-3	12.1

PCWaste-001-B		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PCWaste-001-B	0-3	5

PCCON-001-F		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PCCON-001-F	0-3	4.6

PA-101-A		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PA-101-A	0-3	2.43

PCWaste-001-A		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PCWaste-001-A	0-3	15

PA-101-B		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PA-101-B	0-3	R

W9_RR_STA7		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SCRR-STA-7	0-6	0.33

W9_RR_STA8		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SCRRSTA-8	0-6	0.24

W9_RR_STA12		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SCRRSTA-12	0-6	0.189

W9_RR_STA9		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SCRRFDSTA-9 [duplicate]	0-6	2.26
W9SCRRSTA-9	0-6	1.66

W9_RR_STA13		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SCRRSTA-13	0-6	0.067

W9_RR_STA14		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SCRRSTA-14	0-6	0.15

W9_RR_STA11		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SCRRSTA-11	0-6	0.37

W9_RR_STA10		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SCRRSTA-10	0-6	5.4

W9_RR_STA15		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SCRRSTA-15	0-6	0.074 U

W9_RR_STA16		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SCRRSTA-16	0-6	0.236

W9_RR_STA17		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SCRRSTA-17	0-6	0.328

Legend

Sediment Sample Location
- West 9th St Ditch

Snow Creek Centerline
- West 9th Street Creek

OU1/OU2 Downgradient Floodplain

Notes:
1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl

2. Aerial imagery provided by Calhoun County.

3. R: Sample results are rejected.
   U: The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

0 150 300 Feet

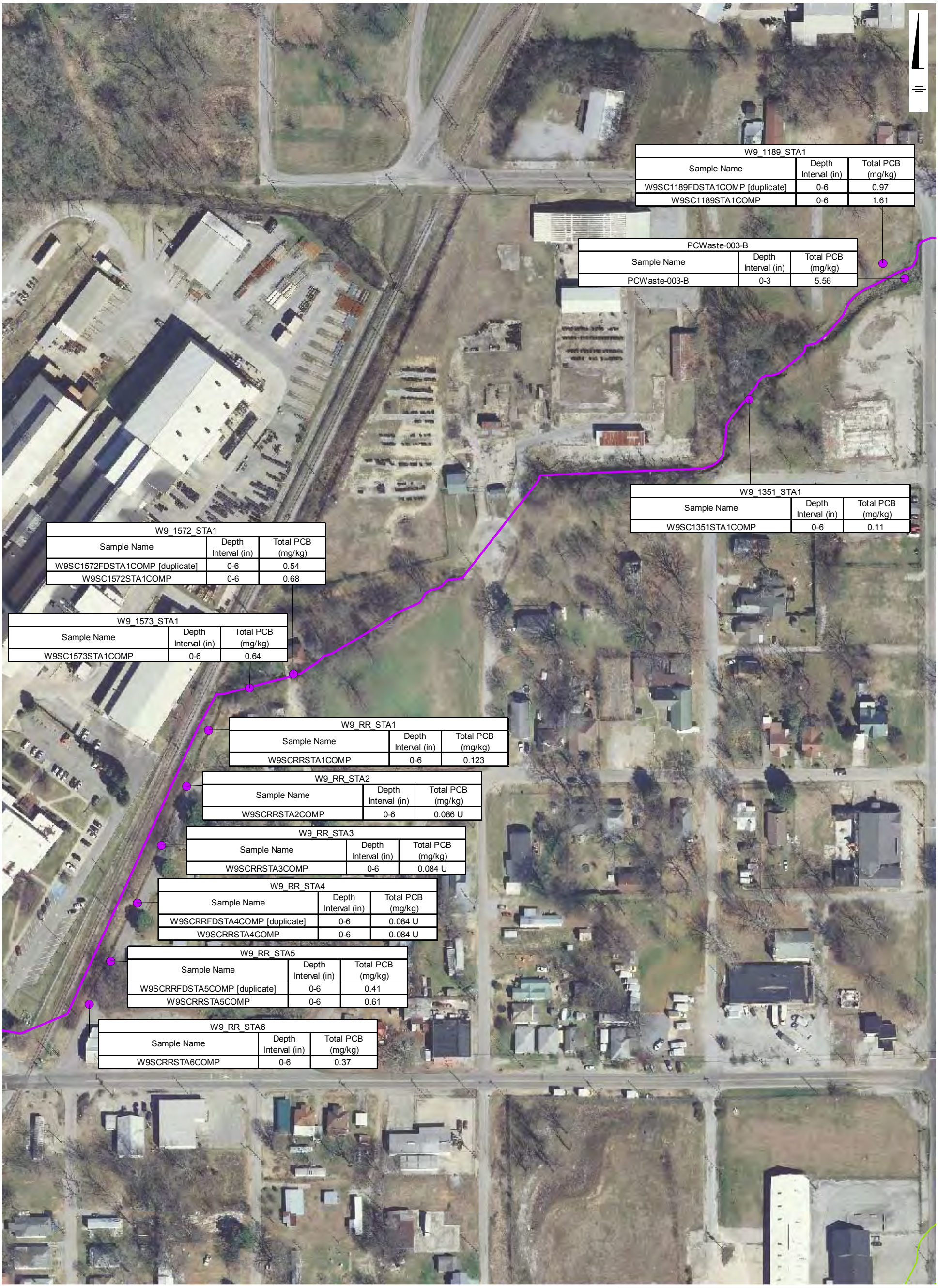
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Sample Locations and PCB Concentrations in OU1/OU2 Sediment

Solutia

Figure
5-46c



W9_1189_STA1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SC1189FDSTA1COMP [duplicate]	0-6	0.97
W9SC1189STA1COMP	0-6	1.61

PCWaste-003-B		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PCWaste-003-B	0-3	5.56

W9_1351_STA1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SC1351STA1COMP	0-6	0.11

W9_1572_STA1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SC1572FDSTA1COMP [duplicate]	0-6	0.54
W9SC1572STA1COMP	0-6	0.68

W9_1573_STA1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SC1573STA1COMP	0-6	0.64

W9_RR_STA1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SCRRSTA1COMP	0-6	0.123

W9_RR_STA2		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SCRRSTA2COMP	0-6	0.086 U

W9_RR_STA3		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SCRRSTA3COMP	0-6	0.084 U

W9_RR_STA4		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SCRRFDSTA4COMP [duplicate]	0-6	0.084 U
W9SCRRSTA4COMP	0-6	0.084 U

W9_RR_STA5		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SCRRFDSTA5COMP [duplicate]	0-6	0.41
W9SCRRSTA5COMP	0-6	0.61

W9_RR_STA6		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SCRRSTA6COMP	0-6	0.37

Legend

Sediment Sample Location

West 9th St Ditch

Snow Creek Centerline

West 9th Street Creek

OU1/OU2 Downgradient Floodplain

Notes:

1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl

2. Aerial imagery provided by Calhoun County.

3. U: The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

0 150 300 Feet

Graphic Scale

Anniston PCB Site: OU1/OU2

Anniston, Alabama

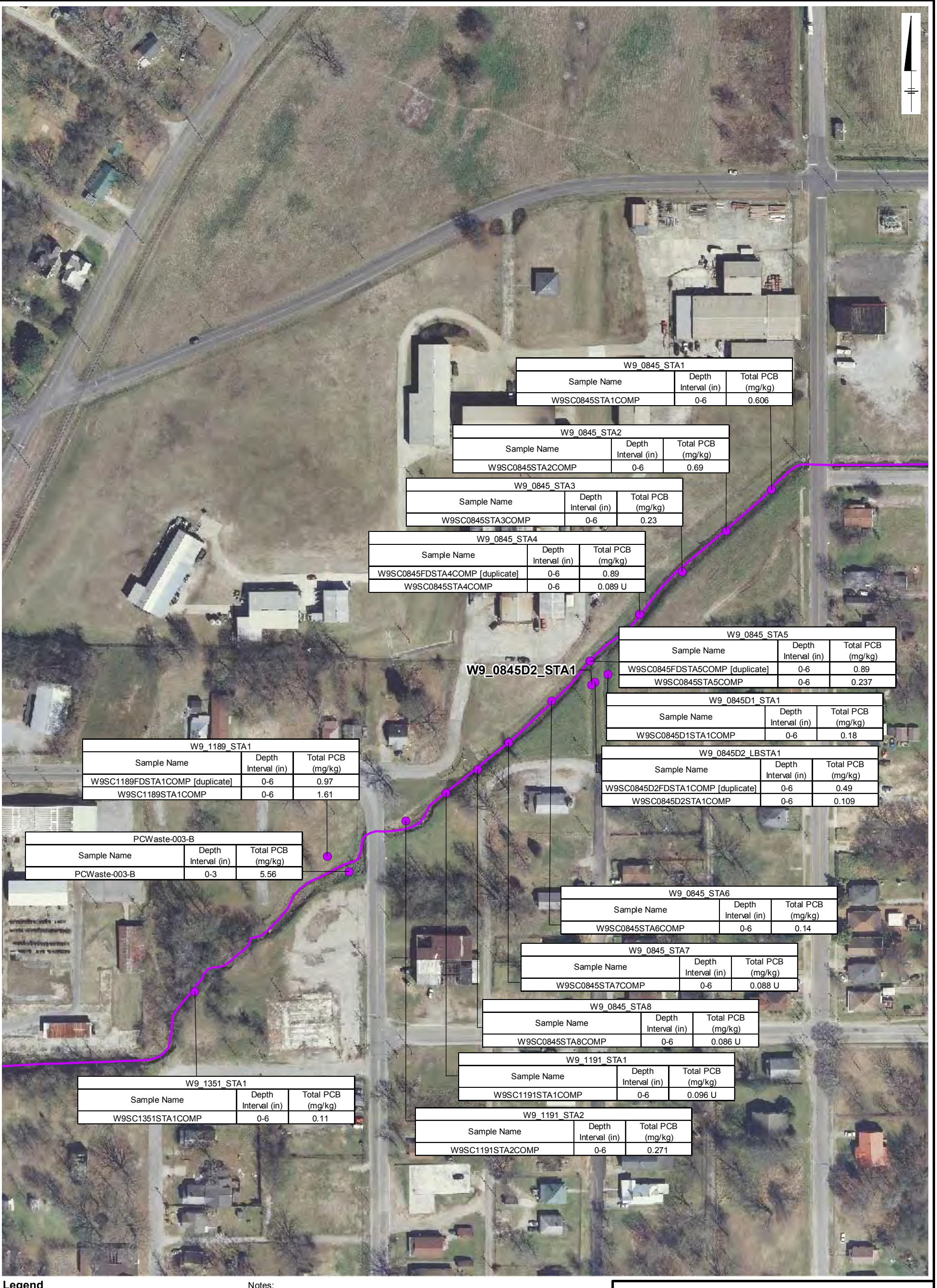
OU1/OU2 Record of Decision

Sample Locations and PCB Concentrations in OU1/OU2 Sediment

Solutia

Figure

5-46d



Legend

Sediment Sample Location

West 9th St Ditch

Snow Creek Centerline

West 9th Street Creek

Notes:

1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl

2. Aerial imagery provided by Calhoun County.

3. U: The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

0 150 300 Feet

Graphic Scale

Anniston PCB Site: OU1/OU2

Anniston, Alabama

OU1/OU2 Record of Decision

Sample Locations and PCB Concentrations in OU1/OU2 Sediment

Solutia

Figure

5-46e

S-016-SED-1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10012	0-2	0.083 U
S10013	2-7	0.077 U

S-016-SED-2		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10014	0-2	0.082 U
S10015	2-8	0.079 U

S-016-SED-3		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10016	0-2	0.043 J
S10017	2-7	0.079 U

S-016-SED-4		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10018	0-2	0.239 J
S10019	2-6.5	0.078 U

PCWaste-005		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PCWaste-005	0-3	0.14

S-014-SED-1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10001	0-2	0.399 J
S10002	2-8	0.081 U

S-014-SED-2		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10003	0-2	0.414
S10004	2-8	0.45 J
S10005	8-15	0.064 J

S-014-SED-3		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10006	0-2	0.24
S10007	2-9	0.11 J
S10008	9-14	0.082 U

S-014-SED-4		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10009	0-2	0.97
S10010	2-4	0.14
S10011	4-15	0.082 U

W9_0631_STA1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SC0631STA1COMP	0-6	0.972

W9_0631_STA2		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
W9SC0631STA2COMP	0-6	0.827

Legend

Sediment Sample Location
- Snow Creek Upstream of OU-1/OU-2
- West 9th St Ditch

Snow Creek Centerline
- West 9th Street Creek
- Snow Creek
- OU1/OU2 Downgradient Floodplain

Notes:
1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl

2. Aerial imagery provided by Calhoun County.

3. J: The compound was positively identified; however, the associated numerical value is an estimated concentration only.
   U: The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

0 150 300 Feet

Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Sample Locations and PCB Concentrations in OU1/OU2 Sediment

Solutia

Figure
5-46f

SED-BG1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
SED-BG1	0-3	1.4 U

S-1-01		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10021	0-2	3.76 J
S10022	2-8	30.5 J

S-1-02		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10023	0-2	8

S-1-04		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10024	0-2	14
S10025	2-5	16.5

S-1-05		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10026	0-2	11.2 J

S-1-07		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10027	0-2	16.2 J
S10028	2-12	1.21 J
S10029	12-23	0.17 U

S-1-08		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10030	0-2	31.5 J
S10031	2-12	12.3
S10032 [duplicate]	2-12	4.3
S10033	12-14.5	37 J

S-1-10		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10034	0-2	11.6 J
S10035	2-12	28.5 J
S10036	12-16.5	18.3

S-1-11a		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10037	0-2	2.23
S10038	2-12	0.2 U
S10039	12-24	0.39 J

S-1-11b		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10040	0-2.5	11.8

S-1-12		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10041	0-2	0.67
S10042	2-5	2.08

Legend

Sediment Sample Location
- Snow Creek inside OU-1/OU-2

Snow Creek Centerline
- 11th Street Ditch
- Snow Creek
- OU1/OU2 Downgradient Floodplain
- Sediment Deposit

Notes:
1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl

2. Aerial imagery provided by Calhoun County.

3. J: The compound was positively identified; however, the associated numerical value is an estimated concentration only.
   U: The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

0 150 300 Feet

Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Sample Locations and PCB Concentrations in OU1/OU2 Sediment

Solutia

Figure
5-46g

Legend

Sediment Sample Location
- Snow Creek inside OU-1/OU-2

Snow Creek

OU1/OU2 Downgradient Floodplain

Sediment Deposit

Notes:
1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl

2. Aerial imagery provided by Calhoun County.

0 150 300 Feet

Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Sample Locations and PCB Concentrations in OU1/OU2 Sediment

Solutia

Figure
5-46h

CP-C-9		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
CP-C-9-0-4"	0-4	2.04

S-2-02		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10045	0-3.5	18.9

SED-A10		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
SED-A10	0-3	6.9

CP-C-10		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
CP-C-10-0-2"	0-2	2.89
CP-C-10-2-6"	2-6	3.55
CP-C-10-6-12"	6-12	12.2 J

S-2-03a		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10046	0-3	3.82

CP-C-11		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
CP-C-11-0-2"	0-2	1.55
CP-C-11-2-6"	2-6	1.177
CP-C-11-6-12"	6-12	7.51

S-2-05		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10048	0-2	5.35
S10049	2-5	6.4

S-MED-1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10134	0-8	60

S-2-06A		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10060	0-2	21.7
S10061	2-5	8.9

S-HIGH-1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10135	0-18	4.22 J
S10137 [duplicate]	0-18	2.32 J

S-2-06B		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10053	0-2	12.8
S10054	2-12	11.4
S10055	12-20.5	34.3
S10131 [duplicate]	12-20.5	60

S-2-08		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10050	0-2	20.3
S10051	2-12	19.9
S10052	12-16	4

S-2-06C		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10056	0-2	30.1
S10057	2-12	13.9
S10058	12-24	23.2
S10059	24-27	15.3

SED-A11		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
SED-A11	0-3	15.6

PECON-011		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PECON-011	0-3	4.29

PECON-012		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PECON-012	0-3	8.46

Legend

Sediment Sample Location

Snow Creek inside OU-1/OU-2

Snow Creek

OU1/OU2 Downgradient Floodplain

Sediment Deposit

Notes:

1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl

2. Aerial imagery provided by Calhoun County.

3. J: The compound was positively identified; however, the associated numerical value is an estimated concentration only.

0 150 300 Feet

Graphic Scale

Anniston PCB Site: OU1/OU2

Anniston, Alabama

OU1/OU2 Record of Decision

Sample Locations and PCB Concentrations in OU1/OU2 Sediment

Solutia

Figure

5-46i

S-3-01		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10064	0-2	3.32
S10065	2-8	4.8

SED-A12		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
SED-A12	0-3	3.9

S-2-16		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10062	0-2	4
S10063	2-4	3.33

S-3-05		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10069	0-2	1.38
S10070	2-10.5	2.13

S-3-02		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10066	0-2	8.1
S10067	2-12	10.7
S10068	12-15.5	16.8

S-3-07		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10071	0-2	0.66
S10072	2-8	0.76

Legend

Sediment Sample Location

- Snow Creek inside OU-1/OU-2
- Snow Creek
- OU1/OU2 Downgradient Floodplain
- Sediment Deposit

Notes:

1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl
2. Aerial imagery provided by Calhoun County.

0 150 300 Feet

Graphic Scale

Anniston PCB Site: OU1/OU2

Anniston, Alabama

OU1/OU2 Record of Decision

Sample Locations and PCB Concentrations in OU1/OU2 Sediment

Solutia

Figure

5-46j

Legend

Sediment Sample Location

- Snow Creek inside OU-1/OU-2
- Snow Creek
- OU1/OU2 Downgradient Floodplain
- Sediment Deposit

Notes:

1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl
2. Aerial imagery provided by Calhoun County.
3. J: The compound was positively identified; however, the associated numerical value is an estimated concentration only.

0 150 300 Feet

Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Sample Locations and PCB Concentrations in OU1/OU2 Sediment

Solutia

Figure
5-46k

Legend

Sediment Sample Location

- Snow Creek inside OU-1/OU-2
- Snow Creek
- OU1/OU2 Downgradient Floodplain
- Sediment Deposit

Notes:

1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl
2. Aerial imagery provided by Calhoun County.

0 150 300 Feet

Graphic Scale

Anniston PCB Site: OU1/OU2

Anniston, Alabama

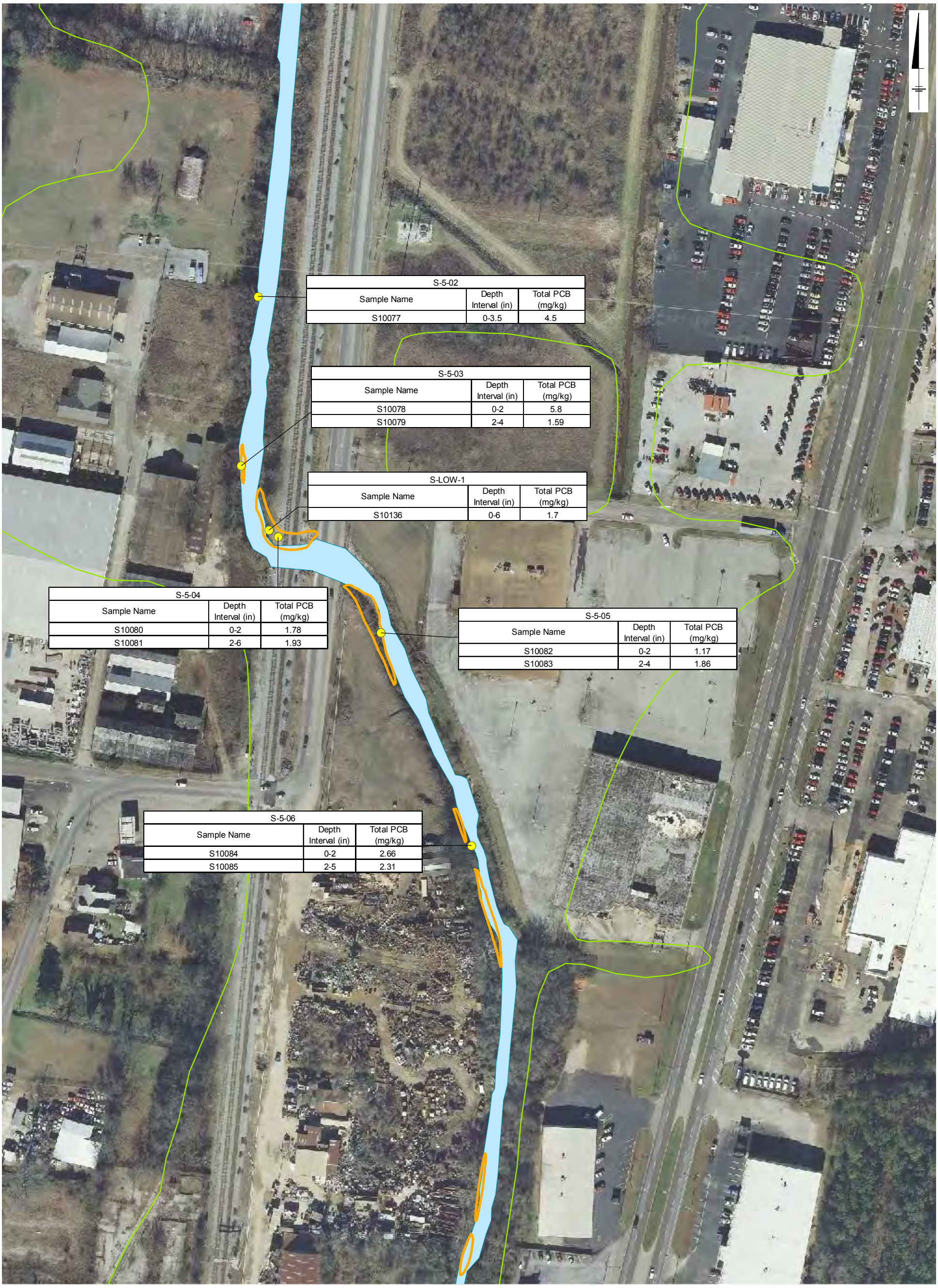
OU1/OU2 Record of Decision

Sample Locations and PCB Concentrations in OU1/OU2 Sediment

Solutia

Figure

5-46l



Legend

Sediment Sample Location

- Snow Creek inside OU-1/OU-2
- Snow Creek
- OU1/OU2 Downgradient Floodplain
- Sediment Deposit

Notes:

1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl
2. Aerial imagery provided by Calhoun County.

0 150 300 Feet

Graphic Scale

Anniston PCB Site: OU1/OU2

Anniston, Alabama

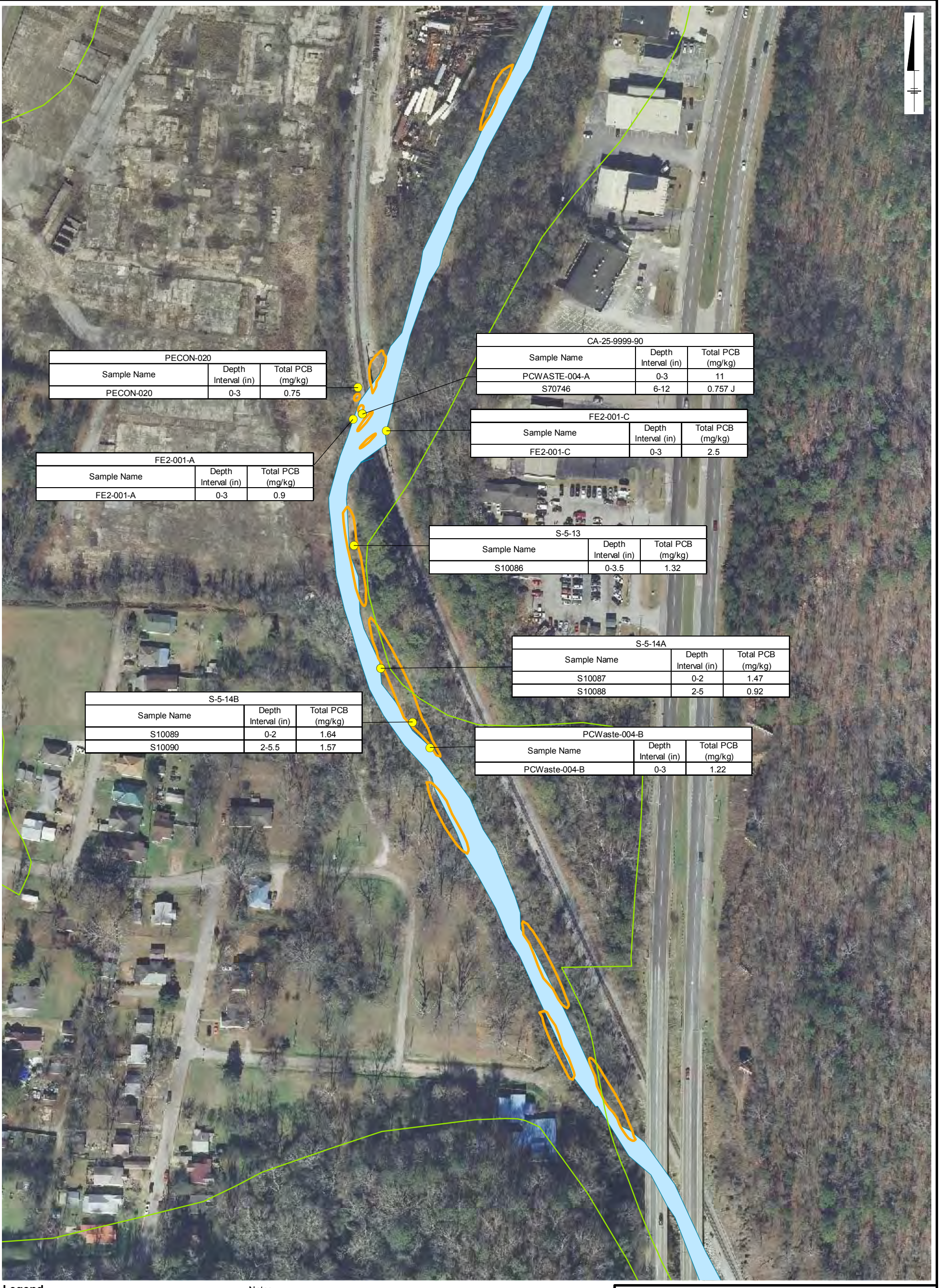
OU1/OU2 Record of Decision

Sample Locations and PCB Concentrations in OU1/OU2 Sediment

Solutia

Figure

5-46m



PECON-020		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PECON-020	0-3	0.75

CA-25-9999-90		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PCWASTE-004-A	0-3	11
S70746	6-12	0.757 J

FE2-001-C		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
FE2-001-C	0-3	2.5

FE2-001-A		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
FE2-001-A	0-3	0.9

S-5-13		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10086	0-3.5	1.32

S-5-14A		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10087	0-2	1.47
S10088	2-5	0.92

S-5-14B		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10089	0-2	1.64
S10090	2-5.5	1.57

PCWaste-004-B		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PCWaste-004-B	0-3	1.22

Legend

Sediment Sample Location
- Snow Creek inside OU-1/OU-2

Snow Creek

OU1/OU2 Downgradient Floodplain

Sediment Deposit

Notes:
1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl

2. Aerial imagery provided by Calhoun County.

3. J: The compound was positively identified; however, the associated numerical value is an estimated concentration only.

0 150 300 Feet

Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Sample Locations and PCB Concentrations in OU1/OU2 Sediment

Solutia

Figure
5-46n

Legend

Sediment Sample Location

- Snow Creek inside OU-1/OU-2
- Snow Creek
- OU1/OU2 Downgradient Floodplain
- Sediment Deposit

Notes:

1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl

2. Aerial imagery provided by Calhoun County.

0 150 300 Feet

Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Sample Locations and PCB Concentrations in OU1/OU2 Sediment

Solutia

Figure
5-46o

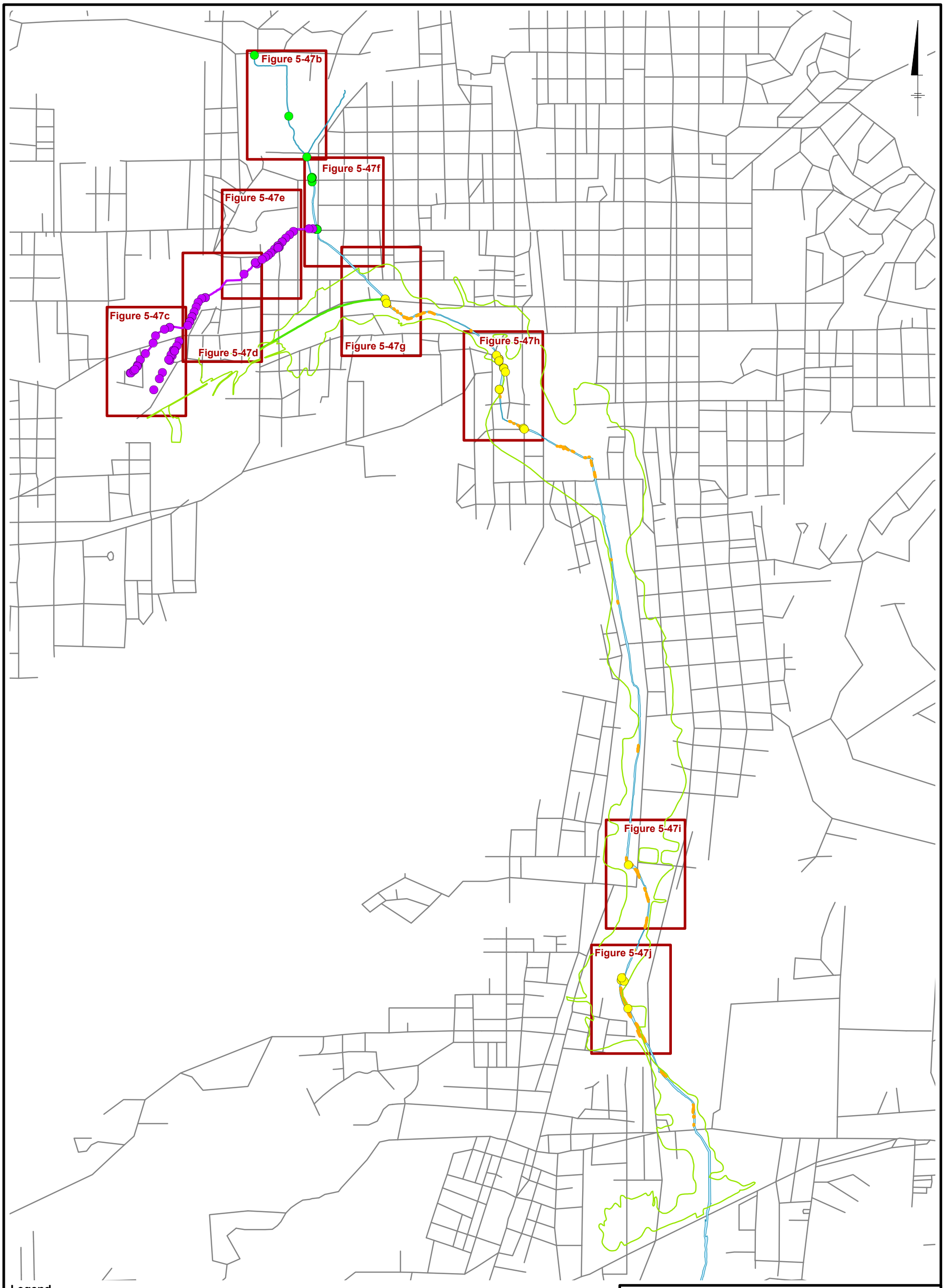


Figure 5-47b
Figure 5-47f
Figure 5-47e
Figure 5-47c
Figure 5-47d
Figure 5-47g
Figure 5-47h
Figure 5-47i
Figure 5-47j
Legend
Sediment Sample Location
Snow Creek Upstream of OU-1/OU-2
Snow Creek inside OU-1/OU-2
West 9th St Ditch
Snow Creek Centerline
11th Street Ditch
West 9th Street Creek
OU1/OU2 Downgradient Floodplain
Snow Creek
Sediment Deposit
0
1,750
3,500
Feet
Graphic Scale
Note:
1. in: inches
mg/kg: milligram per kilogram
OU: operable unit
Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision
Sample Locations and COC Concentrations in OU1/OU2 Sediment
Solutia
Figure
5-47a

PB-008B-09									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
PB-008B-09	0-3	55	17		80		0.1 U		

PB-008C-07									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
PB-008C-07	0-3	120	99		8.1		0.12 U		

PB-008C-TB02									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
PB-008C-TB02	0-3	16	6.9		5.4		0.1 U		

Legend

Sediment Sample Location

Snow Creek Upstream of OU-1/OU-2

Snow Creek

Notes:

1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   COC: constituent of concern

2. Aerial imagery provided by Calhoun County.

3. U: The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

0 150 300 Feet

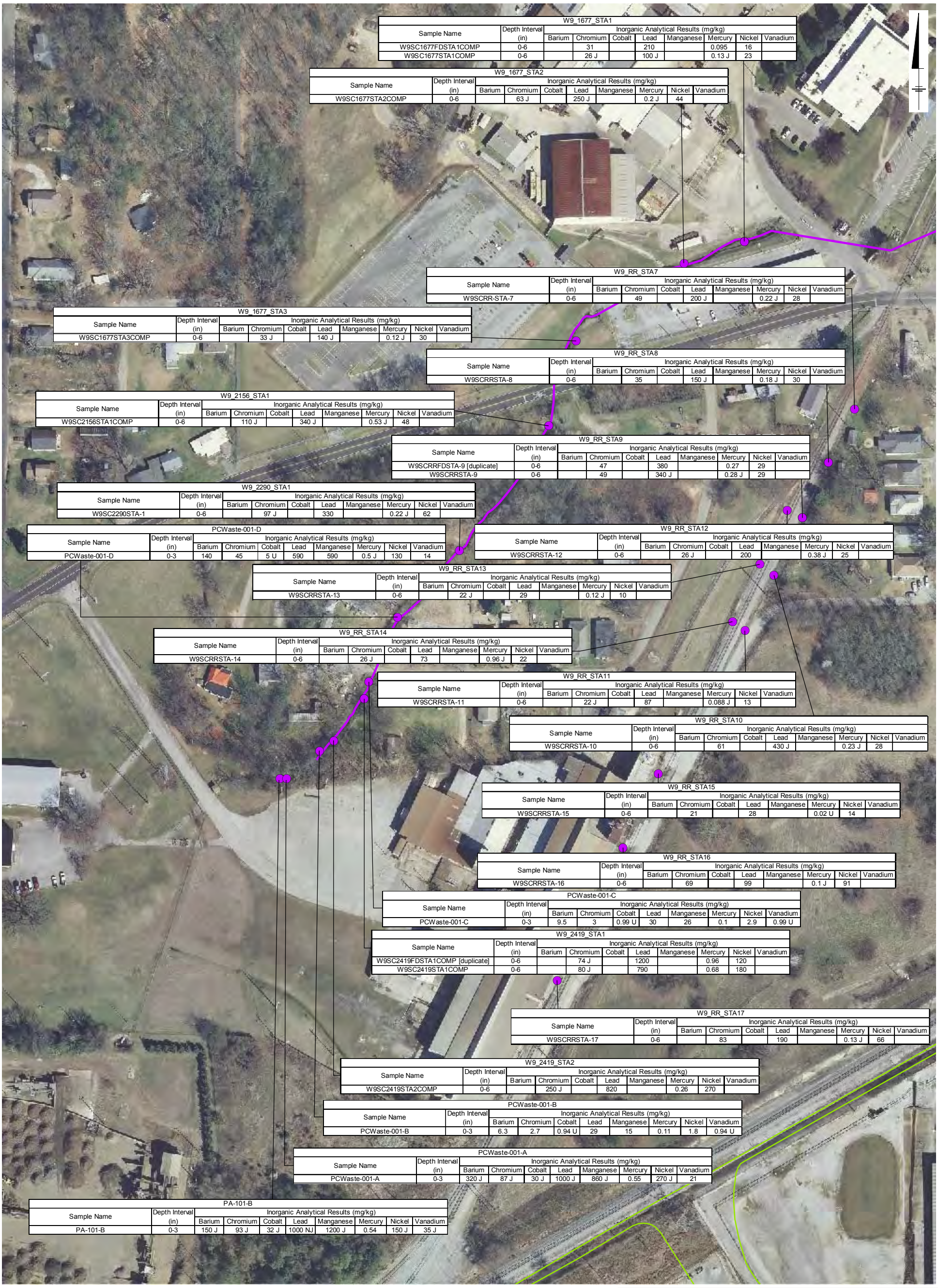
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Sample Locations and COC Concentrations in OU1/OU2 Sediment

Solutia

Figure
5-47b



W9_1677_STA1

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC1677FDSTA1COMP	0-6		31		210		0.095	16	
W9SC1677STA1COMP	0-6		26 J		100 J		0.13 J	23	

W9_1677_STA2

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC1677STA2COMP	0-6		63 J		250 J		0.2 J	44	

W9_RR_STA7

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SCRR-STA-7	0-6		49		200 J		0.22 J	28	

W9_1677_STA3

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC1677STA3COMP	0-6		33 J		140 J		0.12 J	30	

W9_RR_STA8

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SCRRSTA-8	0-6		35		150 J		0.18 J	30	

W9_2156_STA1

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC2156STA1COMP	0-6		110 J		340 J		0.53 J	48	

W9_RR_STA9

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SCRRFDSTA-9 [duplicate]	0-6		47		380		0.27	29	
W9SCRRSTA-9	0-6		49		340 J		0.28 J	29	

W9_2290_STA1

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC2290STA-1	0-6		97 J		330		0.22 J	62	

PCWaste-001-D

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
PCWaste-001-D	0-3	140	45	5 U	590	590	0.5 J	130	14

W9_RR_STA12

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SCRRSTA-12	0-6		26 J		200		0.38 J	25	

W9_RR_STA13

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SCRRSTA-13	0-6		22 J		29		0.12 J	10	

W9_RR_STA14

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SCRRSTA-14	0-6		26 J		73		0.96 J	22	

W9_RR_STA11

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SCRRSTA-11	0-6		22 J		87		0.088 J	13	

W9_RR_STA10

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SCRRSTA-10	0-6		61		430 J		0.23 J	28	

W9_RR_STA15

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SCRRSTA-15	0-6		21		28		0.02 U	14	

W9_RR_STA16

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SCRRSTA-16	0-6		69		99		0.1 J	91	

PCWaste-001-C

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
PCWaste-001-C	0-3	9.5	3	0.99 U	30	26	0.1	2.9	0.99 U

W9_2419_STA1

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC2419FDSTA1COMP [duplicate]	0-6		74 J		1200		0.96	120	
W9SC2419STA1COMP	0-6		80 J		790		0.68	180	

W9_RR_STA17

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SCRRSTA-17	0-6		83		190		0.13 J	66	

W9_2419_STA2

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC2419STA2COMP	0-6		250 J		820		0.26	270	

PCWaste-001-B

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
PCWaste-001-B	0-3	6.3	2.7	0.94 U	29	15	0.11	1.8	0.94 U

PCWaste-001-A

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
PCWaste-001-A	0-3	320 J	87 J	30 J	1000 J	860 J	0.55	270 J	21

PA-101-B

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
PA-101-B	0-3	150 J	93 J	32 J	1000 NJ	1200 J	0.54	150 J	35 J

Legend

Sediment Sample Location
- West 9th St Ditch

Snow Creek Centerline
- West 9th Street Creek

OU-1/OU-2 Downgradient Floodplain

Notes:
1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   COC: constituent of concern

2. Aerial imagery provided by Calhoun County.

3. J: The compound was positively identified; however, the associated numerical value is an estimated concentration only.
   JN: The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
   U: The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

0 150 300 Feet

Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Sample Locations and COC Concentrations in OU1/OU2 Sediment

Solutia

Figure 5-47c

W9_1189_STA1

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC1189FDSTA1COMP [duplicate]	0-6		40		310		0.25	39	
W9SC1189STA1COMP	0-6		22 J		130		0.13	17	

PCWaste-003-B

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
PCWaste-003-B	0-3	92	30	4.4	290	380	0.93	35	17

W9_1351_STA1

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC1351STA1COMP	0-6		26 J		320		0.25	14	

W9_1572_STA1

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC1572FDSTA1COMP [duplicate]	0-6		20		300		0.4	12	
W9SC1572STA1COMP	0-6		26 J		110		0.2	23	

W9_1573_STA1

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC1573STA1COMP	0-6		39		280		0.095 J	38	

W9_RR_STA1

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SCRRSTA1COMP	0-6		14		41		0.056 J	9.4	

W9_RR_STA2

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SCRRSTA2COMP	0-6		19		42		0.089 J	7.3	

W9_RR_STA3

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SCRRSTA3COMP	0-6		18		13		0.082 J	5 U	

W9_RR_STA4

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SCRRFDSTA4COMP [duplicate]	0-6		16		28		0.2	6.6	
W9SCRRSTA4COMP	0-6		26 J		43 J		0.12 J	8	

W9_RR_STA5

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SCRRFDSTA5COMP [duplicate]	0-6		19		280		0.32	12	
W9SCRRSTA5COMP	0-6		18		160		0.22 J	8.1	

W9_RR_STA6

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SCRRSTA6COMP	0-6		21		160		0.13 J	11	

Legend

Sediment Sample Location
- West 9th St Ditch

Snow Creek Centerline
- 11th Street Ditch
- West 9th Street Creek

OU-1/OU-2 Downgradient Floodplain

0 150 300 Feet

Graphic Scale

Notes:
1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   COC: constituent of concern

2. Aerial imagery provided by Calhoun County.

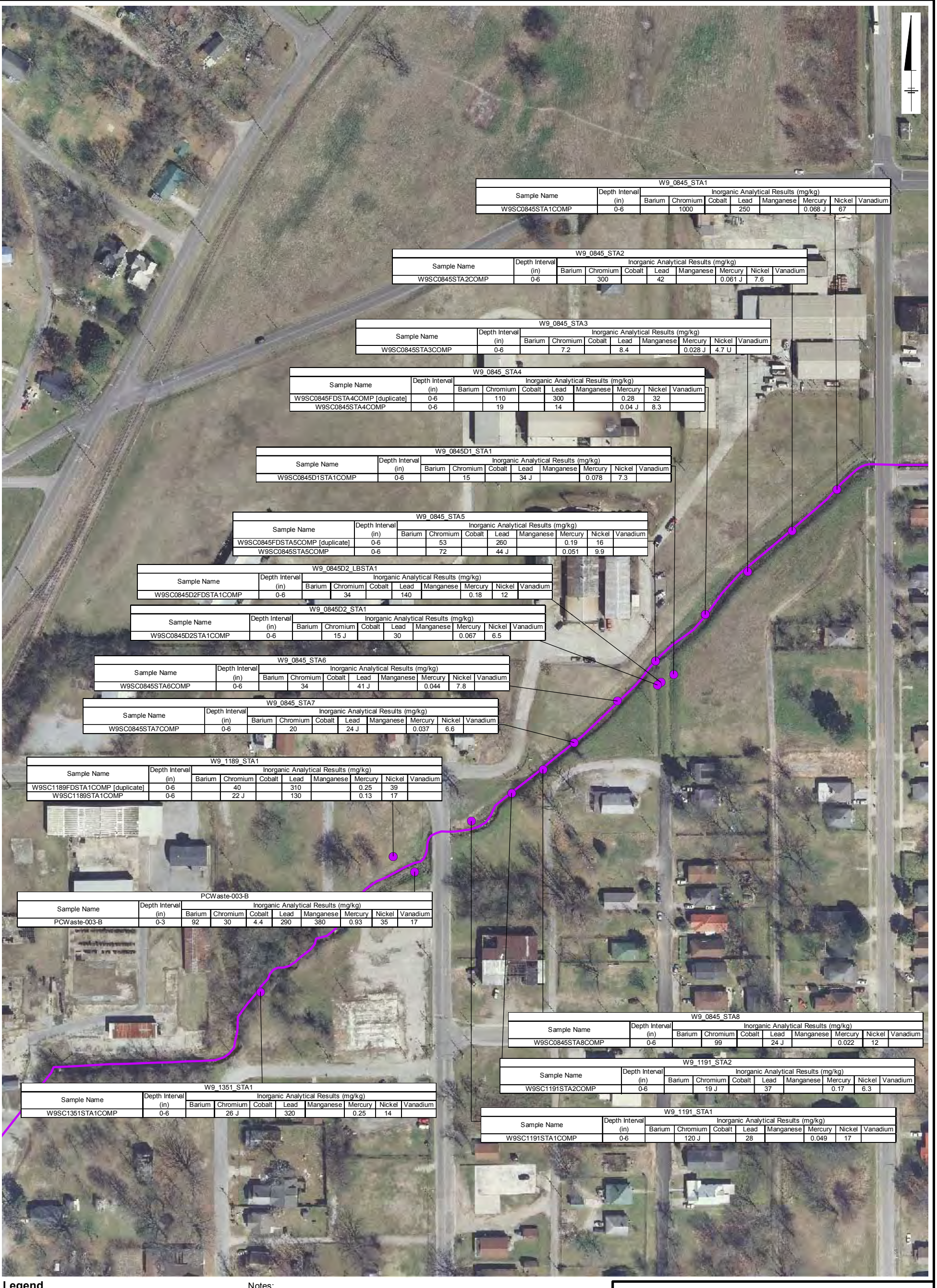
3. J: The compound was positively identified; however, the associated numerical value is an estimated concentration only.
   U: The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Sample Locations and COC Concentrations in OU1/OU2 Sediment

Solutia

Figure
4-47d



W9_0845_STA1									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC0845STA1COMP	0-6		1000		250		0.068 J	67	

W9_0845_STA2									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC0845STA2COMP	0-6		300		42		0.061 J	7.6	

W9_0845_STA3									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC0845STA3COMP	0-6		7.2		8.4		0.028 J	4.7 U	

W9_0845_STA4									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC0845FDSTA4COMP [duplicate]	0-6		110		300		0.28	32	
W9SC0845STA4COMP	0-6		19		14		0.04 J	8.3	

W9_0845D1_STA1									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC0845D1STA1COMP	0-6		15		34 J		0.078	7.3	

W9_0845_STA5									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC0845FDSTA5COMP [duplicate]	0-6		53		260		0.19	16	
W9SC0845STA5COMP	0-6		72		44 J		0.051	9.9	

W9_0845D2_LBSTA1									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC0845D2FDSTA1COMP	0-6		34		140		0.18	12	

W9_0845D2_STA1									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC0845D2STA1COMP	0-6		15 J		30		0.067	6.5	

W9_0845_STA6									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC0845STA6COMP	0-6		34		41 J		0.044	7.8	

W9_0845_STA7									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC0845STA7COMP	0-6		20		24 J		0.037	6.6	

W9_1189_STA1									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC1189FDSTA1COMP [duplicate]	0-6		40		310		0.25	39	
W9SC1189STA1COMP	0-6		22 J		130		0.13	17	

PCWaste-003-B									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
PCWaste-003-B	0-3	92	30	4.4	290	380	0.93	35	17

W9_0845_STA8									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC0845STA8COMP	0-6		99		24 J		0.022	12	

W9_1191_STA2									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC1191STA2COMP	0-6		19 J		37		0.17	6.3	

W9_1191_STA1									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC1191STA1COMP	0-6		120 J		28		0.049	17	

W9_1351_STA1									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC1351STA1COMP	0-6		26 J		320		0.25	14	

Legend

Sediment Sample Location

West 9th St Ditch

Snow Creek Centerline

West 9th Street Creek

Notes:

1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   COC: constituent of concern

2. Aerial imagery provided by Calhoun County.

3. J: The compound was positively identified; however, the associated numerical value is an estimated concentration only.
   U: The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

0 150 300 Feet

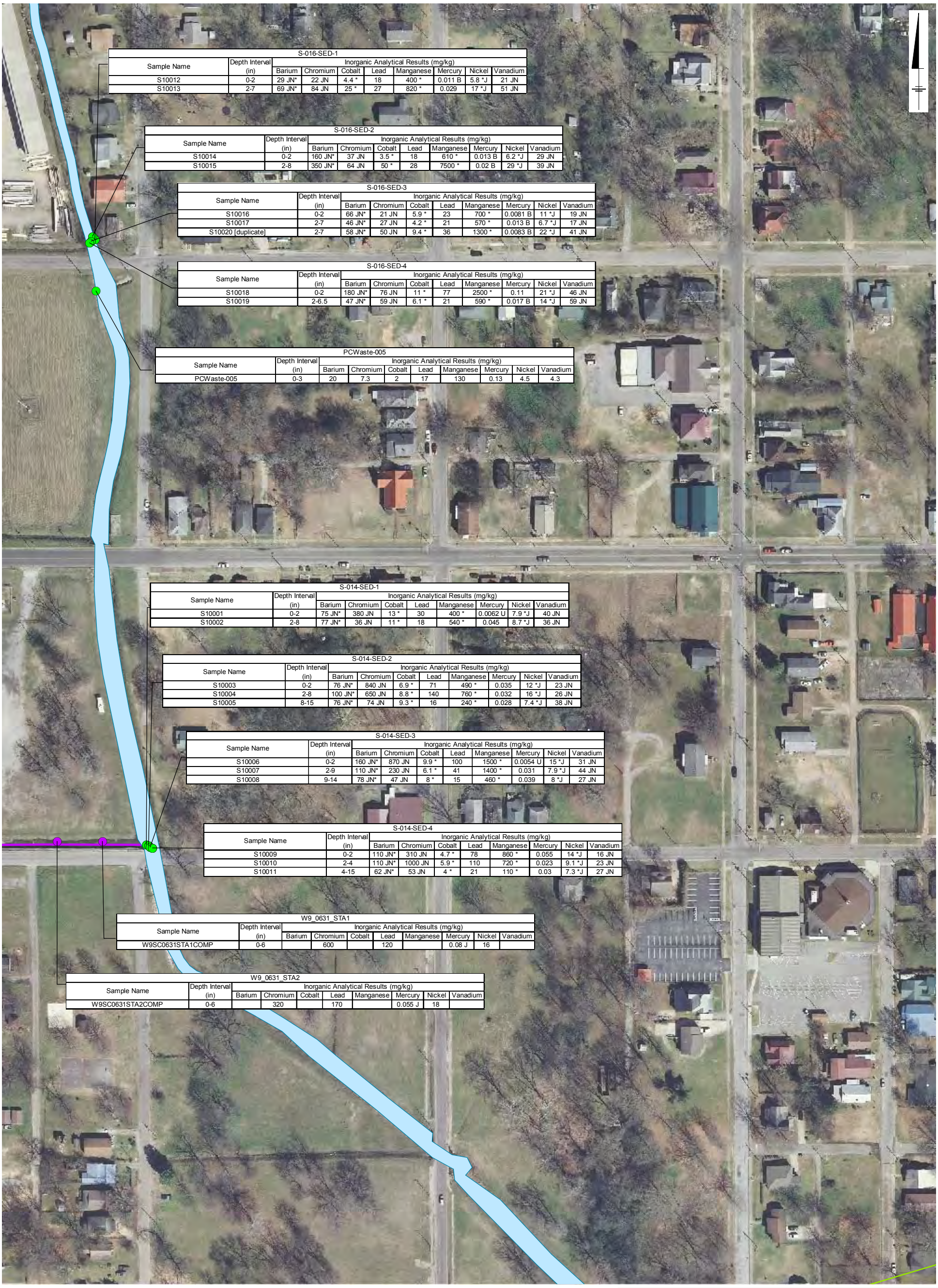
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Sample Locations and COC Concentrations in OU1/OU2 Sediment

Solutia

Figure
5-47e



S-016-SED-1

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
S10012	0-2	29 JN*	22 JN	4.4 *	18	400 *	0.011 B	5.8 *J	21 JN
S10013	2-7	69 JN*	84 JN	25 *	27	820 *	0.029	17 *J	51 JN

S-016-SED-2

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
S10014	0-2	160 JN*	37 JN	3.5 *	18	610 *	0.013 B	6.2 *J	29 JN
S10015	2-8	350 JN*	64 JN	50 *	28	7500 *	0.02 B	29 *J	39 JN

S-016-SED-3

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
S10016	0-2	66 JN*	21 JN	5.9 *	23	700 *	0.0081 B	11 *J	19 JN
S10017	2-7	46 JN*	27 JN	4.2 *	21	570 *	0.013 B	6.7 *J	17 JN
S10020 [duplicate]	2-7	58 JN*	50 JN	9.4 *	36	1300 *	0.0083 B	22 *J	41 JN

S-016-SED-4

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
S10018	0-2	180 JN*	76 JN	11 *	77	2500 *	0.11	21 *J	46 JN
S10019	2-6.5	47 JN*	59 JN	6.1 *	21	590 *	0.017 B	14 *J	59 JN

PCWaste-005

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
PCWaste-005	0-3	20	7.3	2	17	130	0.13	4.5	4.3

S-014-SED-1

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
S10001	0-2	75 JN*	380 JN	13 *	30	400 *	0.0062 U	7.9 *J	40 JN
S10002	2-8	77 JN*	36 JN	11 *	18	540 *	0.045	8.7 *J	36 JN

S-014-SED-2

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
S10003	0-2	76 JN*	840 JN	6.9 *	71	490 *	0.035	12 *J	23 JN
S10004	2-8	100 JN*	650 JN	8.8 *	140	760 *	0.032	16 *J	26 JN
S10005	8-15	76 JN*	74 JN	9.3 *	16	240 *	0.028	7.4 *J	38 JN

S-014-SED-3

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
S10006	0-2	160 JN*	870 JN	9.9 *	100	1500 *	0.0054 U	15 *J	31 JN
S10007	2-9	110 JN*	230 JN	6.1 *	41	1400 *	0.031	7.9 *J	44 JN
S10008	9-14	78 JN*	47 JN	8 *	15	460 *	0.039	8 *J	27 JN

S-014-SED-4

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
S10009	0-2	110 JN*	310 JN	4.7 *	78	860 *	0.055	14 *J	16 JN
S10010	2-4	110 JN*	1000 JN	5.9 *	110	720 *	0.023	9.1 *J	23 JN
S10011	4-15	62 JN*	53 JN	4 *	21	110 *	0.03	7.3 *J	27 JN

W9_0631_STA1

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC0631STA1COMP	0-6		600		120		0.08 J	16	

W9_0631_STA2

Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
W9SC0631STA2COMP	0-6		320		170		0.055 J	18	

Legend

Sediment Sample Location
- Snow Creek Upstream of OU-1/OU-2
- West 9th St Ditch

Snow Creek Centerline
- West 9th Street Creek
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain

0 150 300 Feet

Graphic Scale

Notes:
1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   COC: constituent of concern

2. Aerial imagery provided by Calhoun County.

3. J: The compound was positively identified; however, the associated numerical value is an estimated concentration only.
   JN: The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
   U: The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
   *: Laboratory duplicate analysis was outside control limits.

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Sample Locations and COC Concentrations in OU1/OU2 Sediment

Solutia

Figure
5-47f

S-1-01									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
S10021	0-2	190	670	12	57	1400	0.013 U	18	64
S10022	2-8	410	260 JN*	26	150 JN	2400 *	8.6 J	34	46

S-1-04									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
S10024	0-2	190	280	18	72	1100	0.26 N	27	54
S10025	2-5	110	90 JN*	19	120 JN	860 *	1.3 J	24	61

Legend

Sediment Sample Location
- Snow Creek inside OU-1/OU-2

Snow Creek Centerline
- 11th Street Ditch
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain
- Sediment Deposit

0 150 300 Feet

Graphic Scale

Notes:
1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   COC: constituent of concern

2. Aerial imagery provided by Calhoun County.

3. J: The compound was positively identified; however, the associated numerical value is an estimated concentration only.
   JN: The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
   U: The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
   *: Laboratory duplicate analysis was outside control limits.

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Sample Locations and COC Concentrations in OU1/OU2 Sediment

Solutia

Figure 5-47g

CP-C-9									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
CP-C-9-0-4"	0-4				22				

CP-C-10									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
CP-C-10-0-2"	0-2				28				
CP-C-10-2-6"	2-6				36				
CP-C-10-6-12"	6-12				23				

S-2-03a									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
S10046	0-3	270 JN*	140 JN*	110 JN	66 JN*	5200 *	3.2 *J	110 JN	50 *
S10047 [duplicate]	0-3	370 JN*	150 JN*	67 JN	79 JN*	3800 *	1.2 *J	74 JN	57 *

CP-C-11									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
CP-C-11-0-2"	0-2				23				
CP-C-11-2-6"	2-6				25				
CP-C-11-6-12"	6-12				49				

S-MED-1									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
S10134	0-8	577 J	42.8 J	34.7 J	49.4	4610 J	0.093 J	55.7 J	23.9 J

S-HIGH-1									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
S10135	0-18	85.5 J	78.9 J	24.6 J	52.1 J	950 J	0.029 J	30.6 J	23.6 J
S10137 [duplicate]	0-18	131 J	80 J	32.9 J	23.7 J	2640 J	0.061 J	27.8 J	14.4 J

PECON-011									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
PECON-011	0-3	59 J	32 J	13 J	35	800 J	0.41 J	13 J	15

PECON-012									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
PECON-012	0-3	94 J	28	14 J	69	910 J	0.2 J	23 J	20

Legend

Sediment Sample Location

- Snow Creek inside OU-1/OU-2
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain
- Sediment Deposit

Notes:

1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   COC: constituent of concern

2. Aerial imagery provided by Calhoun County.

3. J: The compound was positively identified; however, the associated numerical value is an estimated concentration only.
   JN: The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
   *: Laboratory duplicate analysis was outside control limits.

0 150 300 Feet

Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Sample Locations and COC Concentrations in OU1/OU2 Sediment

Solutia

Figure
5-47h

S-LOW-1									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
S10136	0-6	109 J	29.6 J	18.9 J	14.6 J	2150 J	0.049 J	11.7 J	19.7 J

Legend

Sediment Sample Location

- Snow Creek inside OU-1/OU-2
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain
- Sediment Deposit

Notes:

1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   COC: constituent of concern
2. Aerial imagery provided by Calhoun County.
3. J: The compound was positively identified; however, the associated numerical value is an estimated concentration only.

0 150 300 Feet

Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Sample Locations and COC Concentrations in OU1/OU2 Sediment

Solutia

Figure
5-47i

PECON-020									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
PECON-020	0-3	160	150 J	7.1 UJ	510 J	2200	0.06 U	86 J	23

CA-25-9999-90									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
PCWASTE-004-A	0-3	54	28	2	49	720	0.26	12	5.7

FE2-001-C									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
FE2-001-C	0-3	74	57	5.9	33 J	340	0.19	12	18

FE2-001-A									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
FE2-001-A	0-3	81	54	9.3	120 J	660	0.86	20	22

PCWaste-004-B									
Sample Name	Depth Interval (in)	Inorganic Analytical Results (mg/kg)							
		Barium	Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Vanadium
PCWaste-004-B	0-3	52 J	48	7.7 J	23 J	540	0.19	13 J	12 J

Legend

Sediment Sample Location

Snow Creek inside OU-1/OU-2

Snow Creek

OU-1/OU-2 Downgradient Floodplain

Sediment Deposit

Notes:

1. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   COC: constituent of concern

2. Aerial imagery provided by Calhoun County.

3. J: The compound was positively identified; however, the associated numerical value is an estimated concentration only.
   U: The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
   UJ: The compound was analyzed for but not detected. The associated value is the estimated compound detection limit.

0 150 300 Feet

Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Sample Locations and COC Concentrations in OU1/OU2 Sediment

Solutia

Figure
5-47j

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: ldrum
ANNISTON
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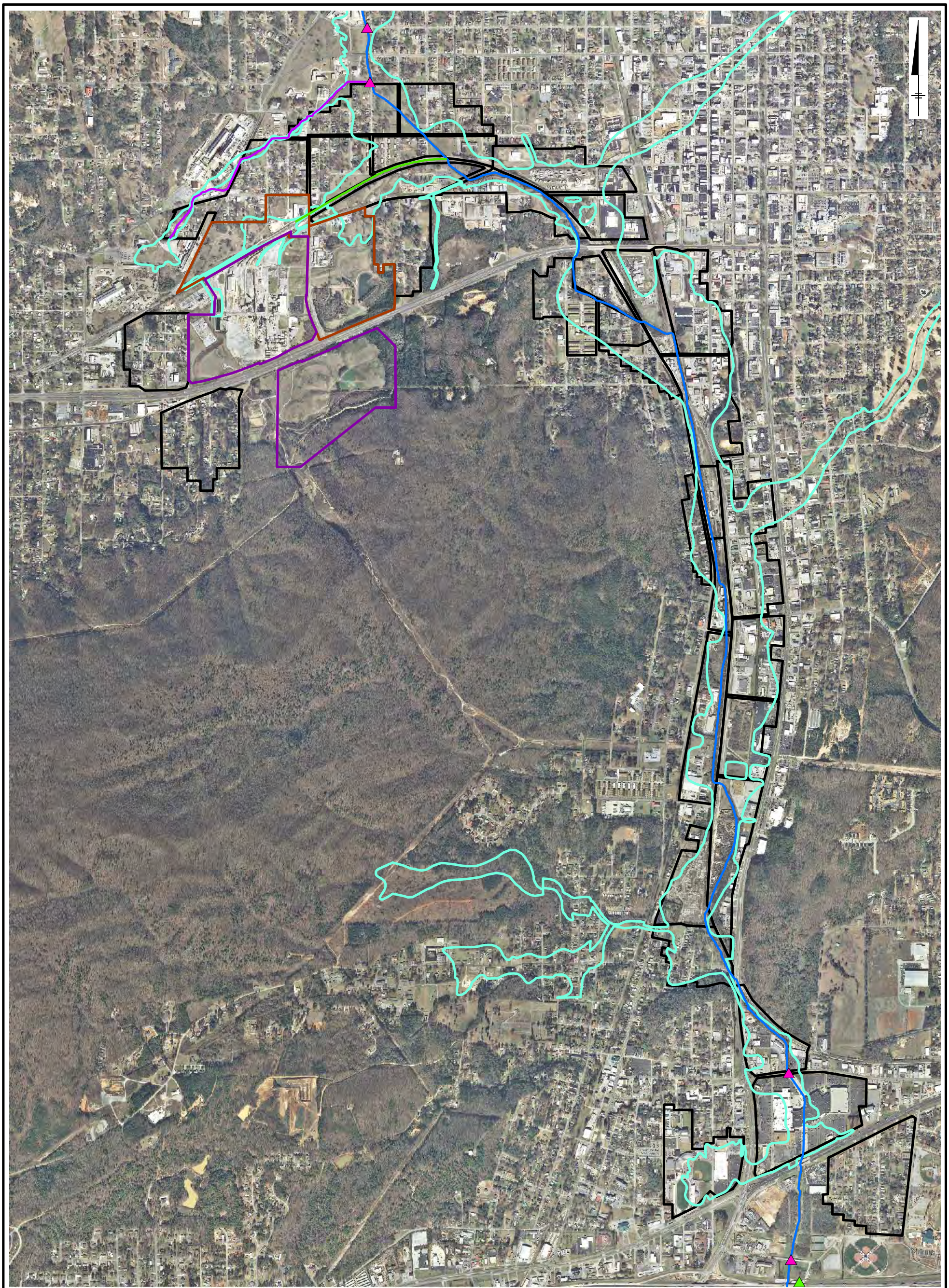


Legend

Surface Water Sample Location
Program
- RCRA
- RI/FS

- Snow Creek
- 11th Street Ditch
- West 9th Street Creek
- Operable Unit 3
- Northside and Eastside Areas
- 100-Year Floodplain and Drainage Areas
- Exposure Unit

0 1,600 3,200 Feet
Graphic Scale

Notes:
1. Aerial imagery provided by Calhoun County.

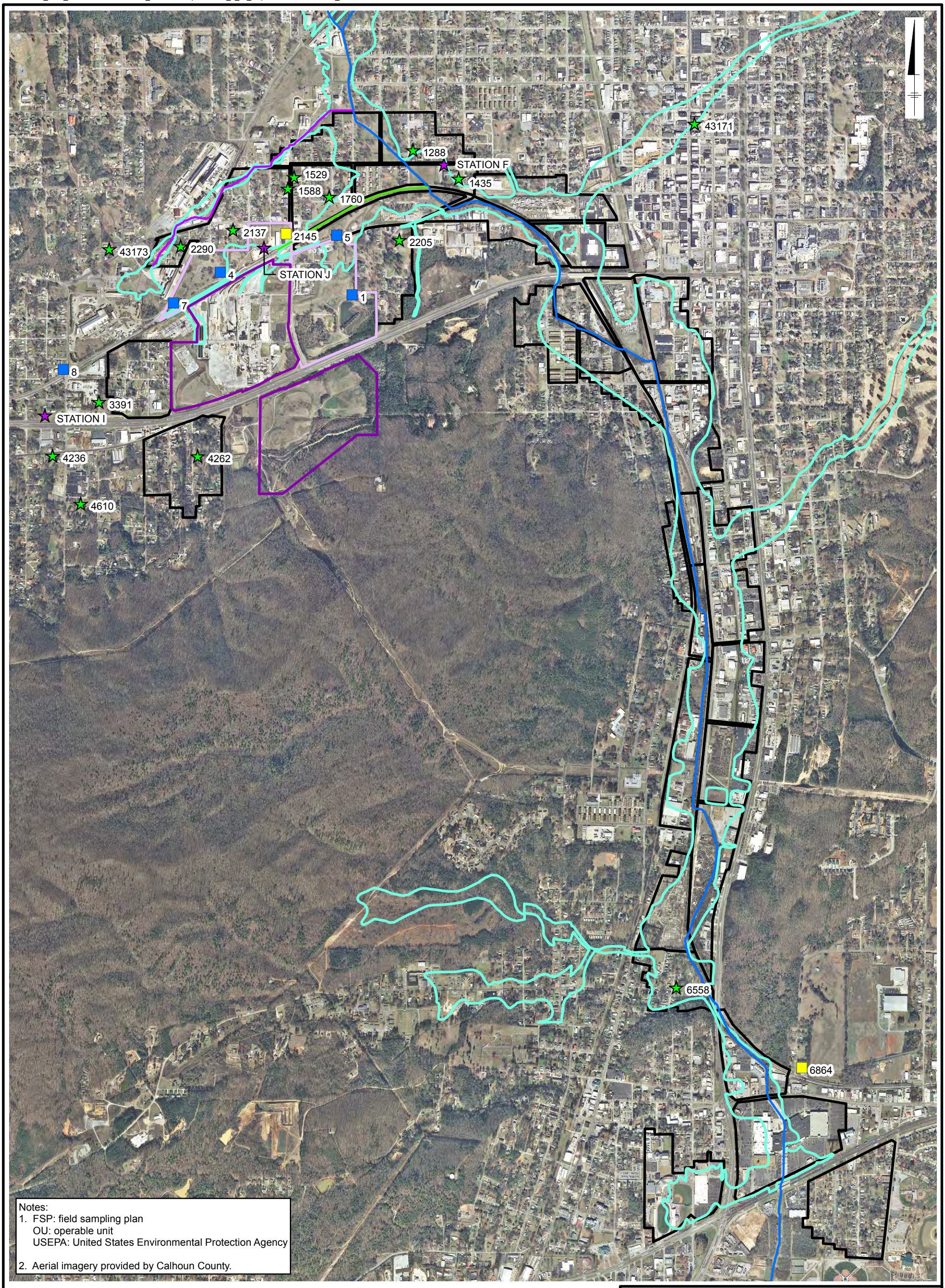
2. OU: operable unit
PCB: polychlorinated biphenyl
RCRA: Resource Conservation and Recovery Act
RI/FS: Remedial Investigation / Feasibility Study

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Surface Water Sample Locations

Solutia

Figure
5-48



Legend

- USEPA 2012 / 2013 Air Study Location
- USEPA 2000 Air Monitoring Location
- 2003/2004 ENSR Air Monitoring Location (for P/S)
- 2006 Nonresidential FSP Air Sampling Location (FOR P/S)
- Snow Creek
- 11th Street Ditch
- West 9th Street Creek
- Operable Unit 3
- Northside and Eastside Areas
- 100-Year Floodplain and Drainage Areas
- Exposure Unit

0 1,600 3,200 Feet

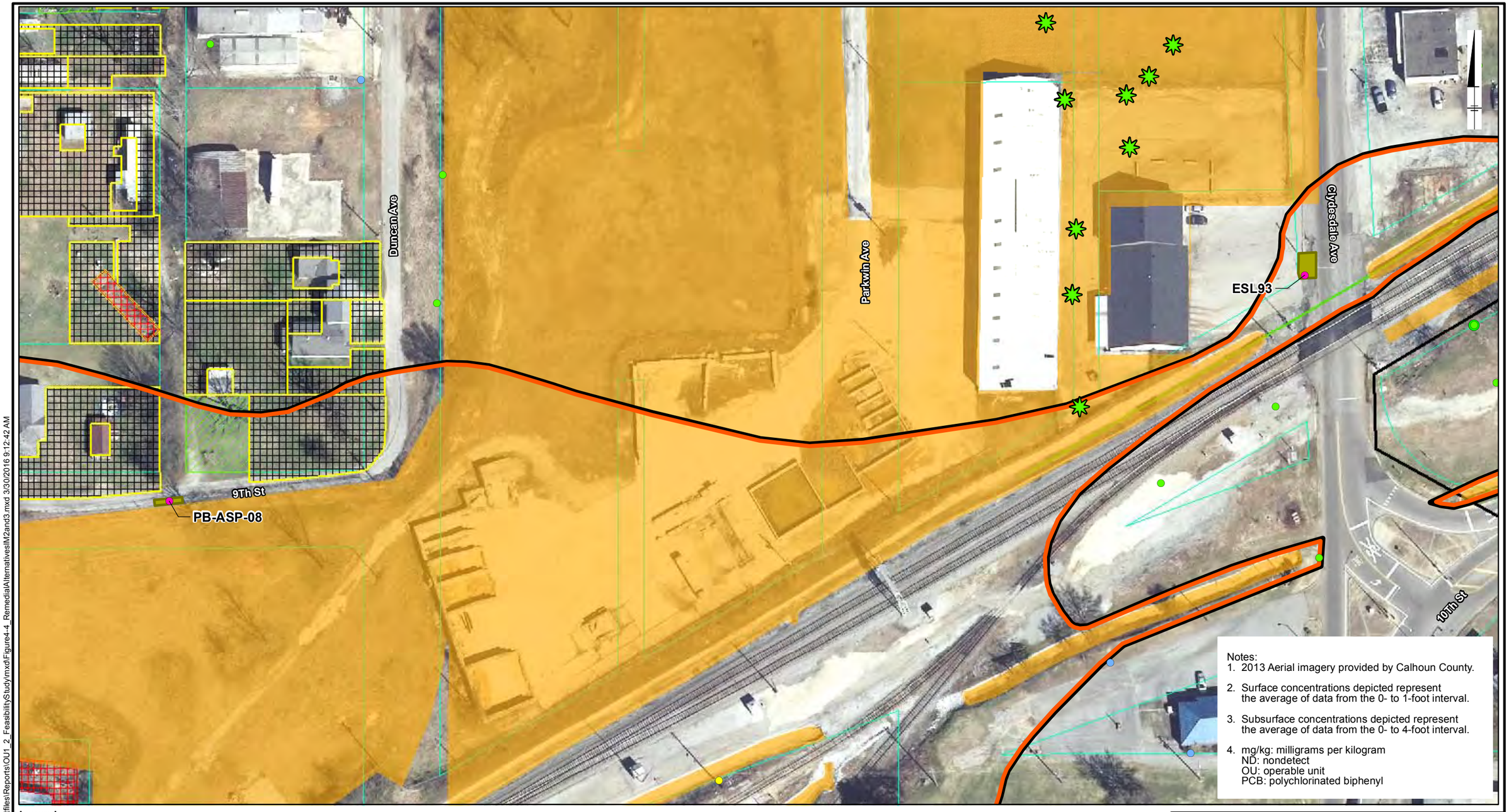
Graphic Scale

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Air Monitoring Locations

Solutia

Figure
5-49



Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Legend

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

- Locations Beneath Cover System with Maximum PCB Results ≥ 500 mg/kg
- 11th Street Ditch
- Residential >1 (mg/kg) - Not removed
- Completed Removal Area
- Residential < 1 (mg/kg)

- OU-1/OU-2 Downgradient Floodplain
- Exposure Unit
- Parcel Boundaries
- Interim Measure and Other Early Actions
- Remedial Alternatives IM-2 and IM-3

0 75 150 Feet
Graphic Scale

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Northside Area Candidate Remedial Areas

Solutia

Figure 9-1

City: SYR Div/Group: SWG Created By: K.IVES Last Saved By: jbistrovich
Anniston
Q:\Anniston_PCB_site\AnnistonALL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-4_RemedialAlternativesIM2and3.mxd 3/30/2016 9:12:42 AM

Legend

Soil Sample Location

Surface PCB (mg/kg)
- ND to < 1
- ≥ 1 to <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- ≥ 500

- 11th Street Ditch
- Completed Removal Area
- Residential < 1 (mg/kg)
- Exposure Unit
- Parcel Boundaries
- OU-1/OU-2 Downgradient Floodplain

- Special Use: High Activity Area Removed
- Interim Measure and Other Early Actions
- Interim Measures Expansion Area – Alternatives IM-2, IM-3, and IM-4

0 100 200 Feet
Graphic Scale

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

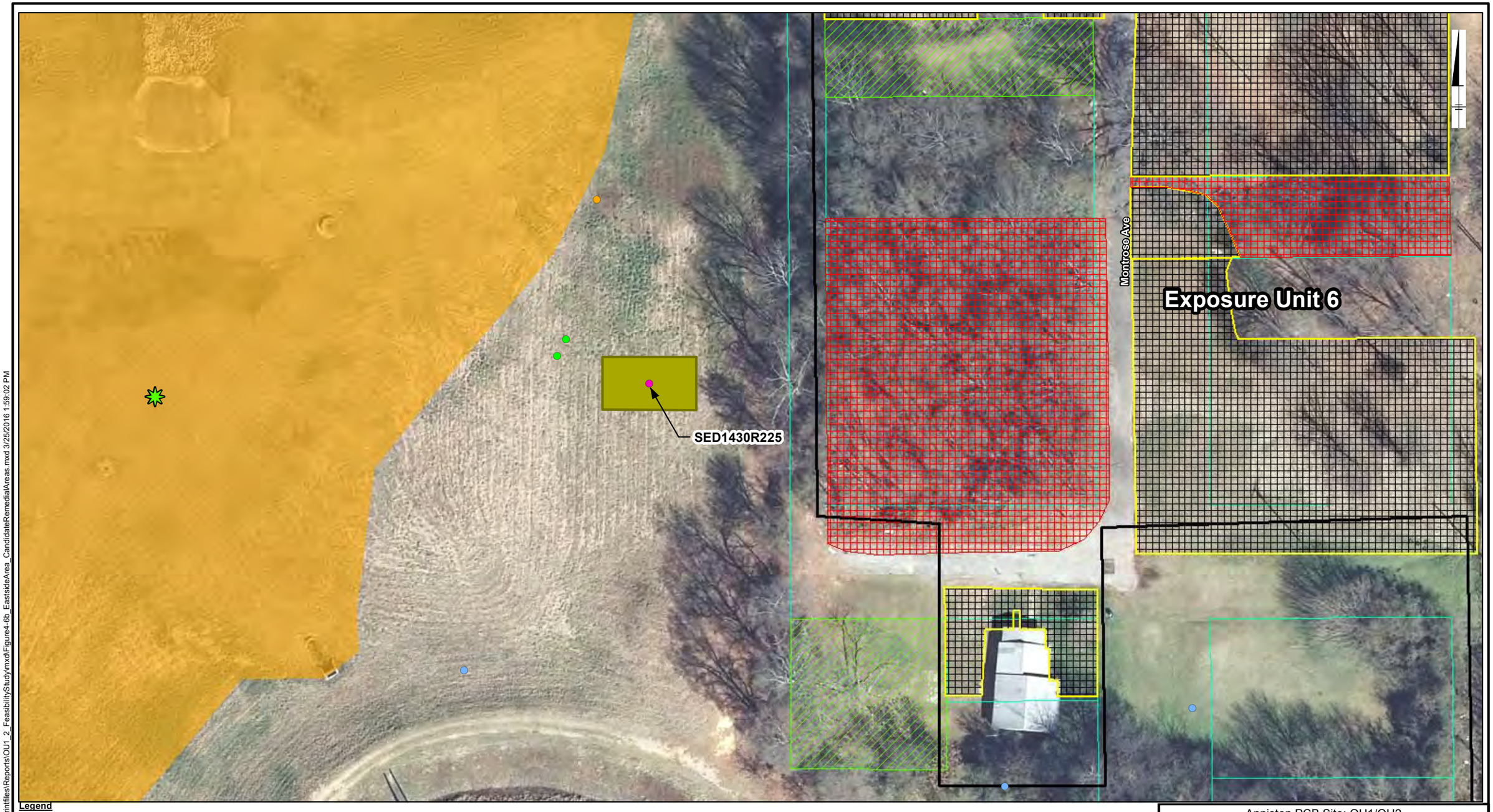
Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Eastside Area Candidate Remedial Areas

Solutia

Figure 9-2a

City: SYR Div/Group: SWG Created By: K.IVES Last Saved By: jbistrovich
Anniston
Q:\Anniston_PCB_site\AnnistonALL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-6a_EastsideArea_CandidateRemedialAreas.mxd 3/25/2016 1:44:46 PM



Legend

Soil Sample Location

Surface PCB (mg/kg)

- ND to < 1
- ≥ 1 to <10
- ≥ 25 to < 50
- ≥ 50 to < 500

Locations Beneath Cover System with Maximum PCB Results ≥ 500 mg/kg

- Residential >1 (mg/kg) - Not removed
- Completed Removal Area
- Residential < 1 (mg/kg)
- Exposure Unit
- Parcel Boundaries
- Interim Measure and Other Early Actions

Interim Measures Expansion Area – Alternatives IM-2, IM-3, and IM-4

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 100 200 Feet

Graphic Scale

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

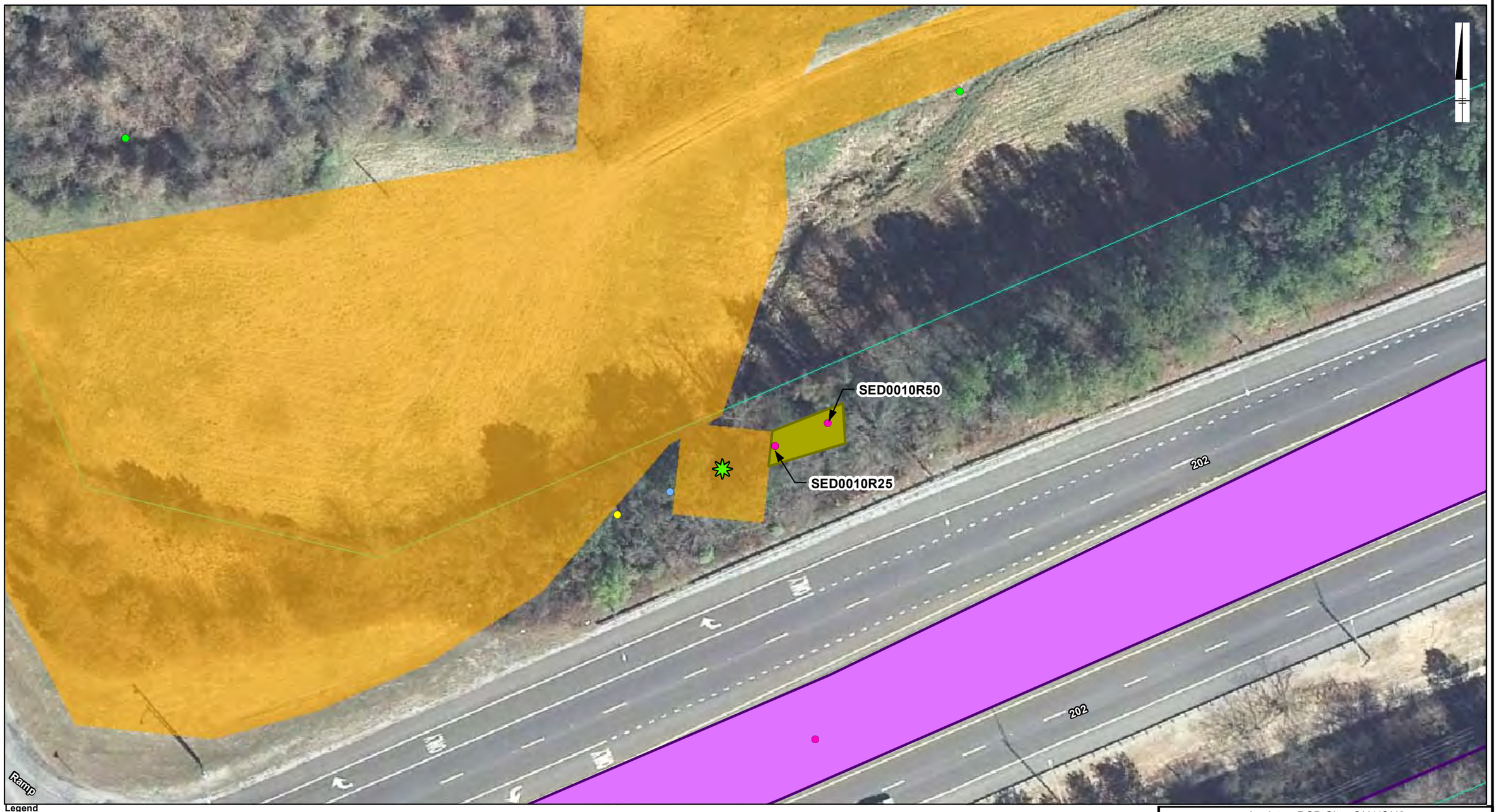
Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Eastside Area Candidate Remedial Areas

Solutia

Figure 9-2b

City: SYR Div/Group: SWG Created By: K.IVES Last Saved By: jbistrovich
Anniston
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-6b_EastsideArea_CandidateRemedialAreas.mxd 3/25/2016 1:59:02 PM



Legend

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

Operable Unit 3
Parcel Boundaries
Interim Measure and Other Early Actions

Interim Measures Expansion Area – Alternatives IM-2, IM-3, and IM-4
Target Remedial Area - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
Locations Beneath Cover System with Maximum PCB Results ≥ 500 mg/kg

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 100 200 Feet
Graphic Scale

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Eastside Area Candidate Remedial Areas

Solutia

Figure
9-2c

City: SYR Div/Group: SWG Created By: K.IVES Last Saved By: jbistrovich
Anniston
Q:\Anniston_PCB_site\Anniston\ALM\XDs_Printfiles\Reports\OU1_2_Feasibility\Study\mxd\Figure4-6c_EastsideArea_CandidateRemedialAreas.mxd 3/25/2016 2:03:52 PM

Legend

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

- Analytes other than PCB and Lead Analyzed
- 11th Street Ditch
- Exposure Unit
- Parcel Boundaries
- Completed Removal Area
- Residential < 1 (mg/kg)
- OU-1/OU-2 Downgradient Floodplain
- Interim Measure and Other Early Actions
- Special Use: High Activity Area
- Special Use: Low Activity Area ≥ 1 mg/kg
- Interim Measures Expansion Area – Alternatives IM-2, IM-3, and IM-4
- Locations with Maximum PCB Results ≥ 500 mg/kg
- Locations Beneath Cover System with Maximum PCB Results ≥ 500 mg/kg

0 100 200 Feet
Graphic Scale

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl

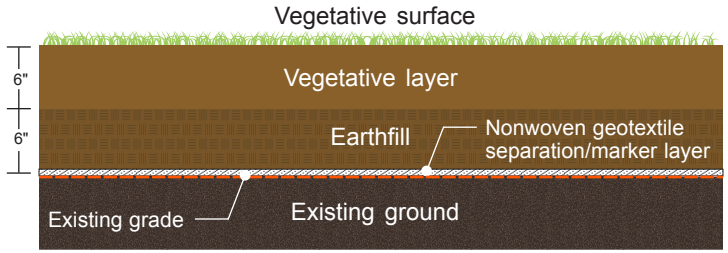
Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Eastside Drainageway Candidate Remedial Areas

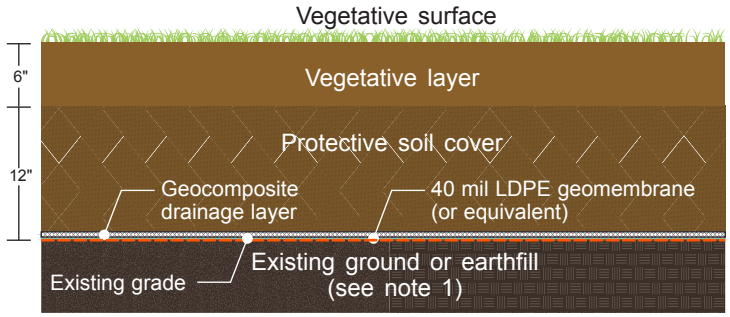
Solutia

Figure
9-3

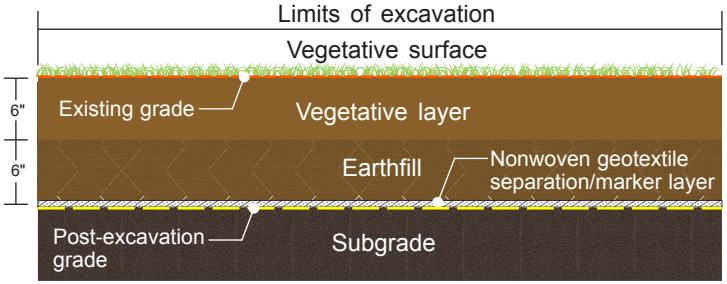
City: SYR Div/Group: SWG Created By: K.IVES Last Saved By: jbistrovich
Anniston
Q:\Anniston_PCB_site\AnnistonALL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-8_EastsideDrainageWay_CandidateRemedialAreas.mxd 3/25/2016 3:10:01 PM



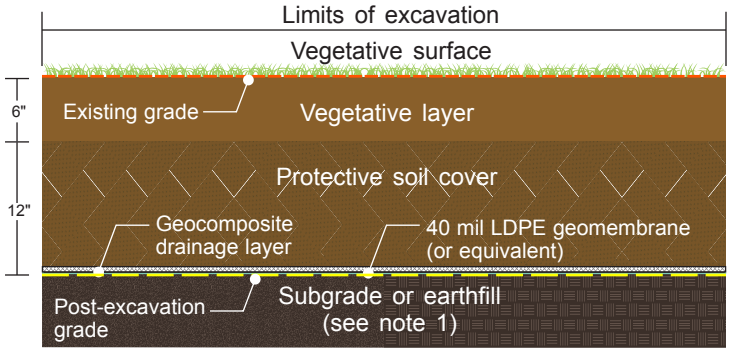
Typical Soil Cover Cross Section - No Soil Excavation



Typical Low-Permeability Cap Cross Section - No Soil Excavation



Typical Soil Cover Cross Section - Soil Excavation (Where Cover Placement Cannot Be Implemented Due to the Potential for Local Flooding)



Typical Low-Permeability Cap Cross Section - Soil Excavation (where Cover Placement Cannot Be Implemented Due to the Potential for Local Flooding)

Not to scale

Note:
1. Earthfill material to be provided as necessary to provide the proper drainage for the cap system.

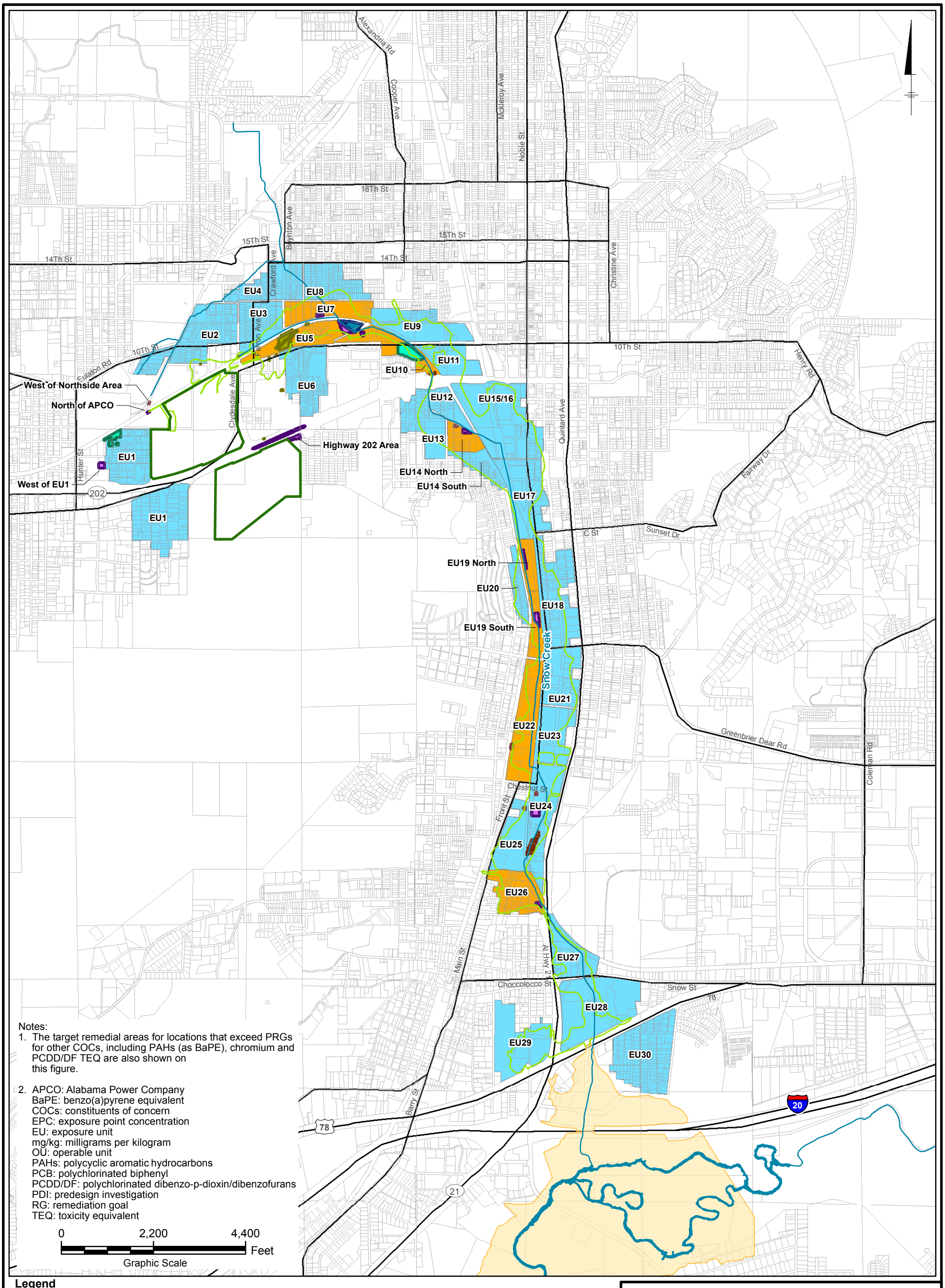
LDPE: low density polyethylene
OU: operable unit
PCB: polychlorinated biphenyl

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Typical Soil Cover and Low-Permeability Cap Cross Sections

Solutia

Figure 9-4



Notes:

1. The target remedial areas for locations that exceed PRGs for other COCs, including PAHs (as BaPE), chromium and PCDD/DF TEQ are also shown on this figure.

2. APCO: Alabama Power Company
   BaPE: benzo(a)pyrene equivalent
   COCs: constituents of concern
   EPC: exposure point concentration
   EU: exposure unit
   mg/kg: milligrams per kilogram
   OU: operable unit
   PAHs: polycyclic aromatic hydrocarbons
   PCB: polychlorinated biphenyl
   PCDD/DF: polychlorinated dibenzo-p-dioxin/dibenzofurans
   PDI: predesign investigation
   RG: remediation goal
   TEQ: toxicity equivalent

0 2,200 4,400 Feet

Graphic Scale

Legend

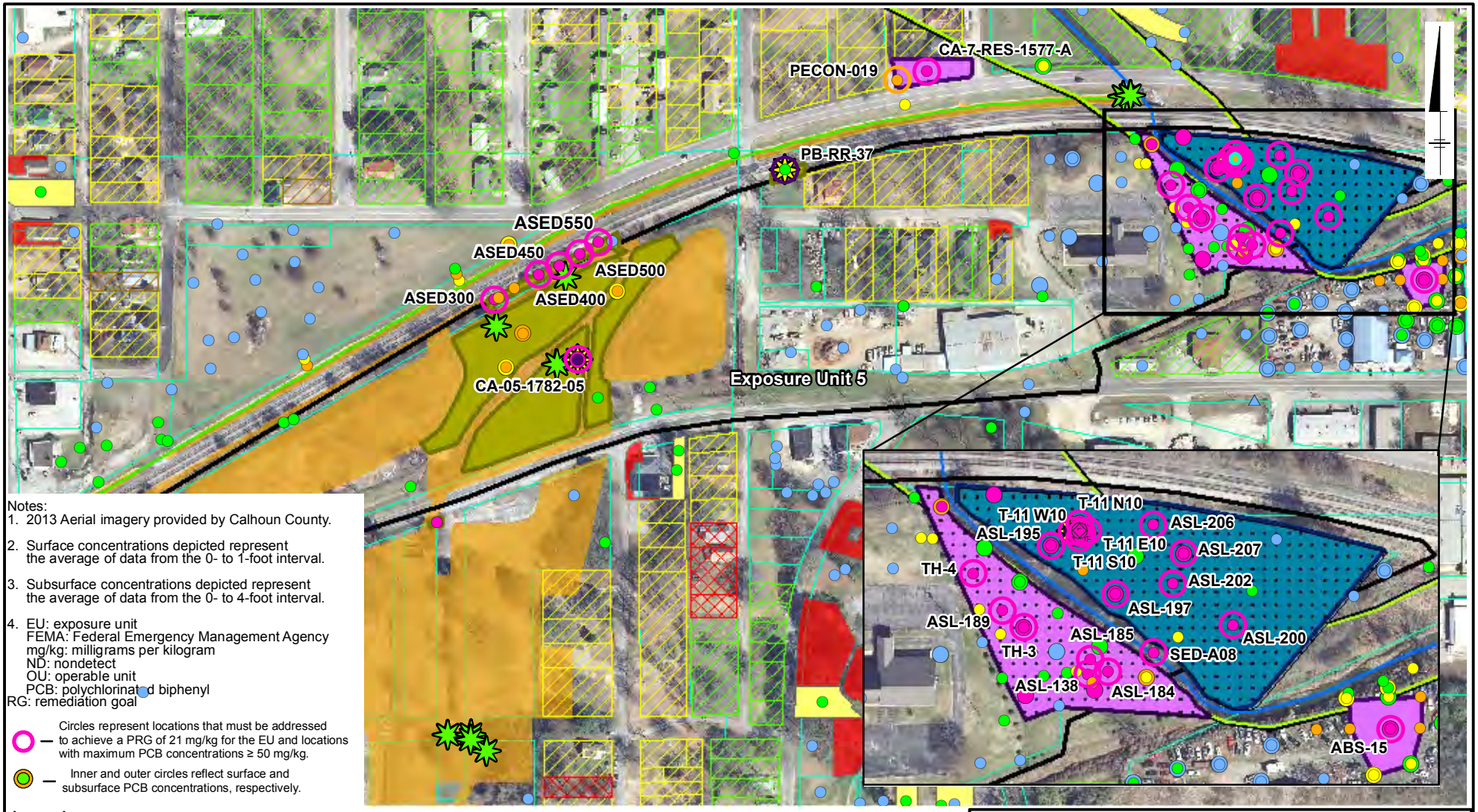
- Creek
- Major Roads
- OU-3 Boundary
- OU-4 100-Year Floodplain
- OU-1/OU-2 Downgradient Floodplain
- Parcels
- Exposure Unit with PCB EPC < 21 mg/kg or a maximum PCB concentration < 50 mg/kg
- EU with PCB EPC ≥ 21 mg/kg or a maximum PCB concentration ≥ 50 mg/kg
- Interim Measures Expansion Area – Alternatives IM-2, IM-3, and IM-4
- Target Remedial Area – Alternatives GW-2, GW-3, and GW-4
- Target Remedial Area for PCBs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
- Unapproved Waste Disposal Area – Alternatives UWDA-2, UWDA-3, and UWDA-4
- Dredge Spoil Pile In-Place Subject to PDI Sampling - Alternative DSP-2 and DSP-3
- Target Remedial Areas for Other COCs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6

Anniston PCB Site: OU1/OU2
Anniston, Alabama
OU1/OU2 Record of Decision

Candidate Remedial Areas for Nonresidential Surface Soil with a PCB RG of 21 mg/kg

Solutia

Figure
9-5a



Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   FEMA: Federal Emergency Management Agency
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

Circles represent locations that must be addressed to achieve a PRG of 21 mg/kg for the EU and locations with maximum PCB concentrations ≥ 50 mg/kg.

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Legend

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

Snow Creek
11th Street Ditch
Exposure Unit

Interim Measure and Other Early Actions
FEMA Floodway
All Parcels

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6
- Residential > 1 (mg/kg) (Removal Pending)
- Special Use: High Activity Area
- Principal Threat Waste Area

Special Use: Low Activity Area ≥ 1 mg/kg
Interim Measures Expansion Area – Alternatives IM-2, IM-3, and IM-4
Target Remedial Area – Alternatives GW-2, GW-3, and GW-4
Target Remedial Area for PCBs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
Area Not Suitable for Cover Placement without Excavation Due to Potential Local Flooding Impacts

Locations with Maximum PCB Results ≥ 500 mg/kg
Locations Beneath Cover System with Maximum PCB Results ≥ 500 mg/kg

0 300 600 Feet
Graphic Scale

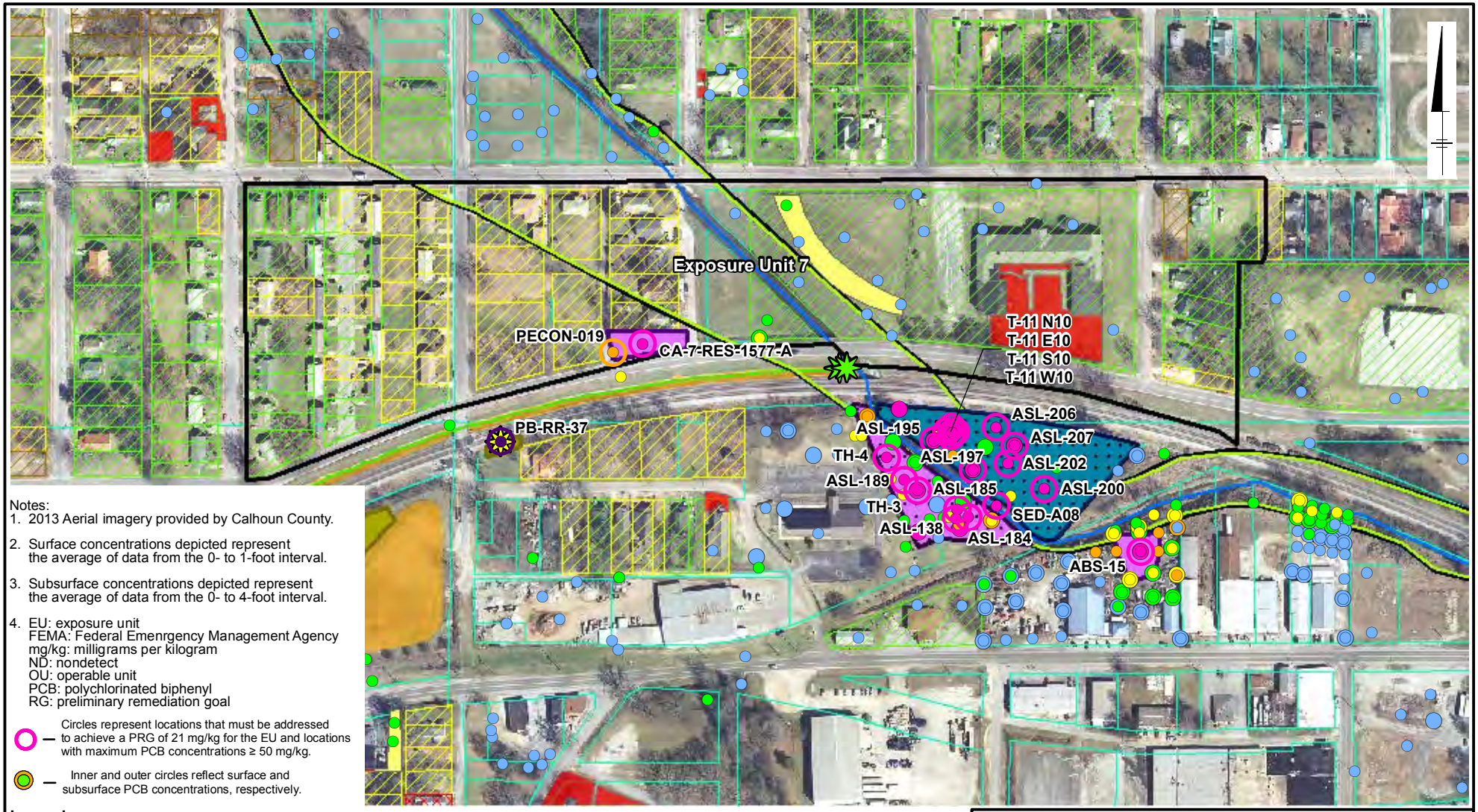
Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Nonresidential Surface Soil with a PCB RG of 21 mg/kg Exposure Unit 5

Solutia

Figure
9-5b



Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   FEMA: Federal Emenrgency Management Agency
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: preliminary remediation goal

Circles represent locations that must be addressed to achieve a PRG of 21 mg/kg for the EU and locations with maximum PCB concentrations ≥ 50 mg/kg.

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Legend

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

Snow Creek
11th Street Ditch
Exposure Unit

Interim Measure and Other Early Actions
FEMA Floodway
All Parcels

Residential Parcels Sampled
- Residential < 1 (mg/kg)
- Removal Complete
- Residential Appendix 6
- Residential > 1 (mg/kg) (Removal Pending)
- Special Use: High Activity Area

Special Use: Low Activity Area ≥ 1 mg/kg
Interim Measures Expansion Area – Alternatives IM-2, IM-3, and IM-4
Target Remedial Area – Alternatives GW-2, GW-3, and GW-4
Target Remedial Area for PCBs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
Area Not Suitable for Cover Placement without Excavation Due to Potential Local Flooding Impacts

Locations with Maximum PCB Results ≥ 500 mg/kg
Locations Beneath Cover System with Maximum PCB Results ≥ 500 mg/kg

0 300 600 Feet
Graphic Scale

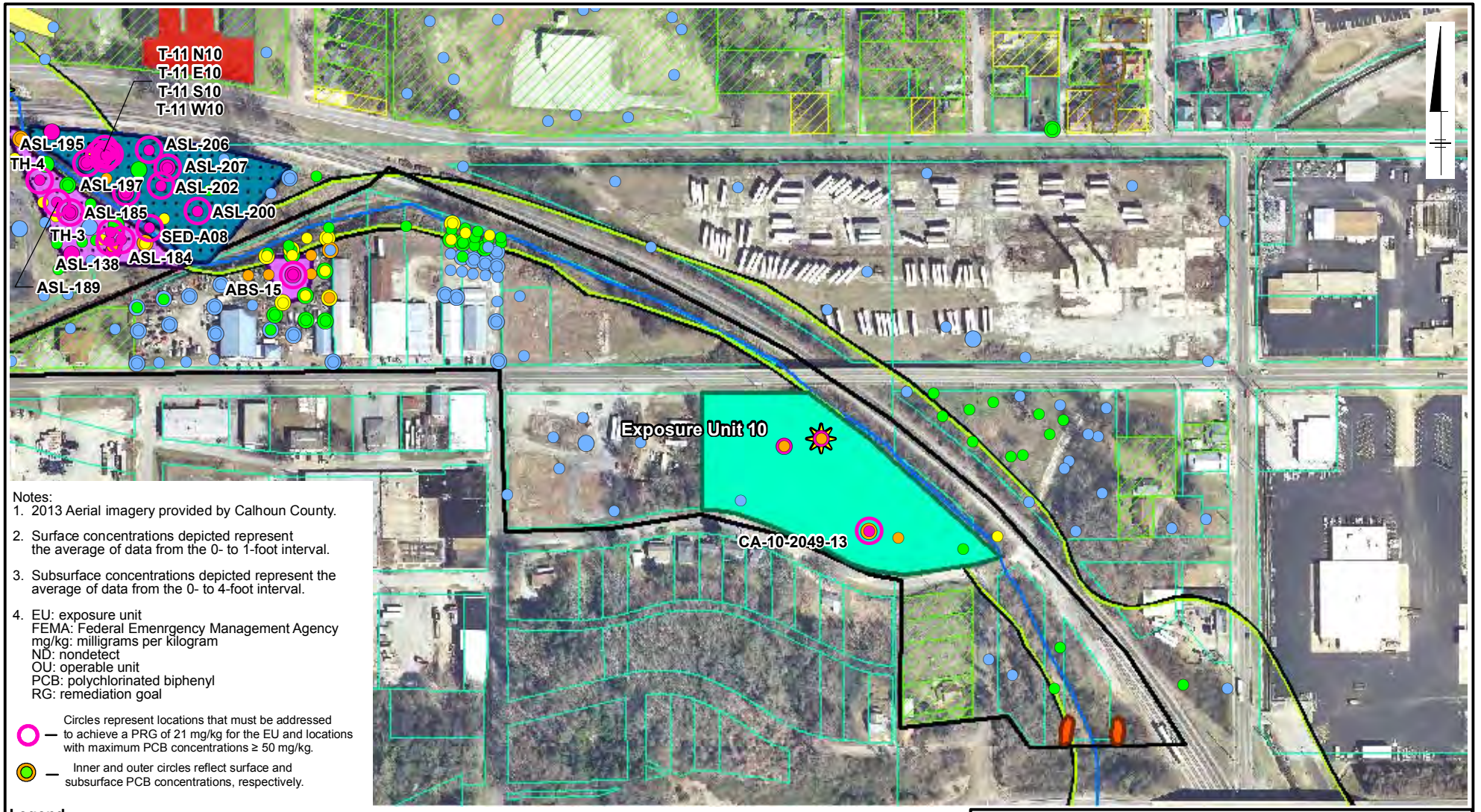
Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Nonresidential Surface Soil with a PCB RG of 21 mg/kg Exposure Unit 7

Solutia

Figure
9-5c



Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   FEMA: Federal Emenrgency Management Agency
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

Circles represent locations that must be addressed to achieve a PRG of 21 mg/kg for the EU and locations with maximum PCB concentrations ≥ 50 mg/kg.

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Legend

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

Snow Creek
Exposure Unit
Interim Measure and Other Early Actions

FEMA Floodway
All Parcels
Residential Parcels Sampled
Residential < 1 (mg/kg)
Removal Complete
Residential Appendix 6

Special Use: High Activity Area
Special Use: Low Activity Area ≥ 1 mg/kg
Target Remedial Area – Alternatives GW-2, GW-3, and GW-4
Target Remedial Area for PCBs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
Unapproved Waste Disposal Area – Alternatives UWDA-2, UWDA-3, and UWDA-4
Dredge Spoil Pile In-Place

Area Not Suitable for Cover Placement without Excavation Due to Potential Local Flooding Impacts
Locations with Maximum PCB Results ≥ 500 mg/kg
Locations Beneath Cover System with Maximum PCB Results ≥ 500 mg/kg

0 300 600 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

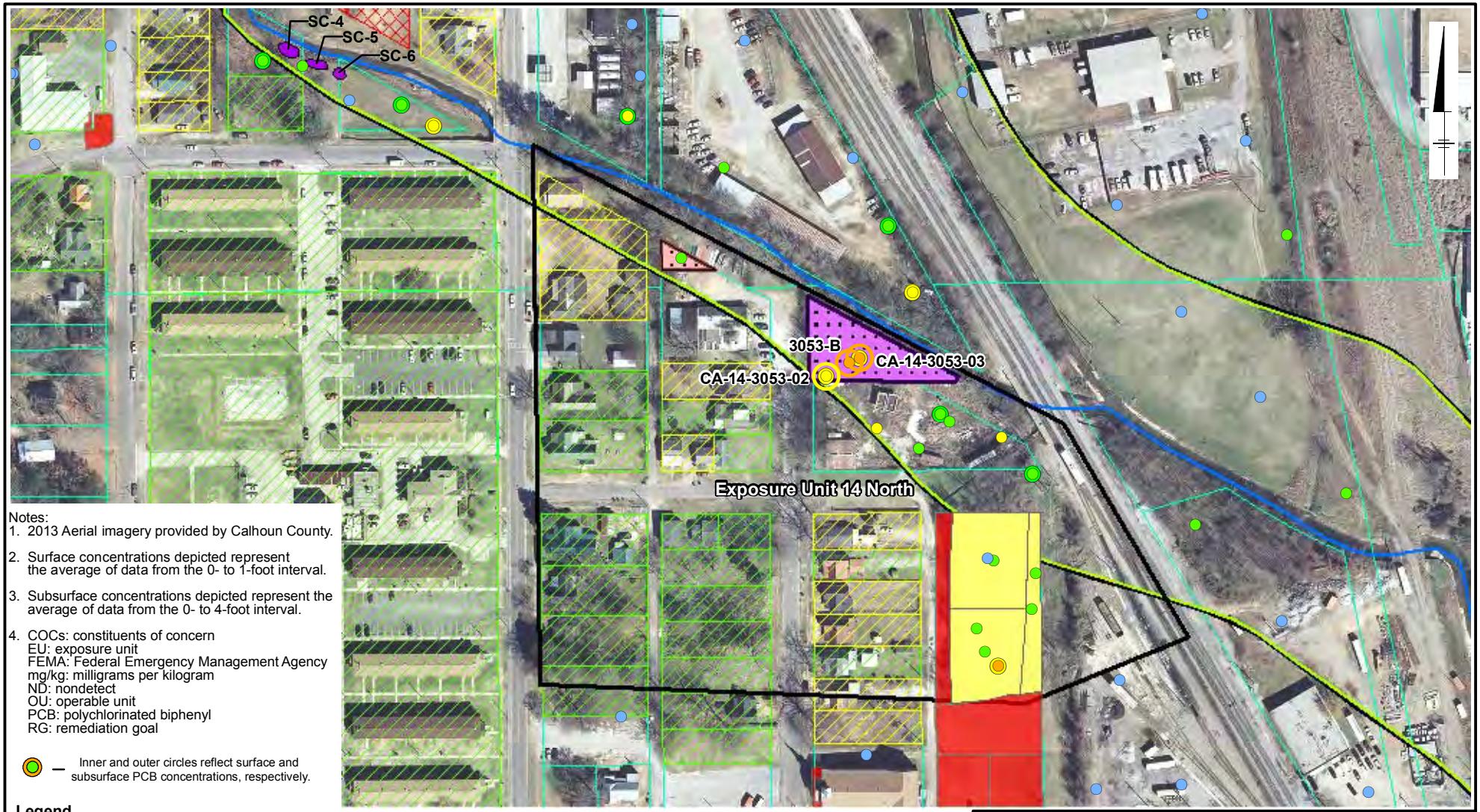
OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Nonresidential Surface Soil with a PCB RG of 21 mg/kg Exposure Unit 10

Solutia

Figure
9-5d

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-17e_PCB_EU14N_Labels_21mgkg_v2.mxd 3/30/2016 10:04:33 AM



Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. COCs: constituents of concern
   EU: exposure unit
   FEMA: Federal Emergency Management Agency
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

— Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Legend

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

Snow Creek
Exposure Unit
FEMA Floodway
Dredge Spoil Pile Removed

All Parcels
Residential Parcels Sampled
Residential < 1 (mg/kg)
Removal Complete
Residential > 1 (mg/kg) (Removal Pending)

Special Use: High Activity Area
Special Use: Low Activity Area ≥ 1 mg/kg
Target Remedial Area for PCBs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
Target Remedial Areas for Other COCs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
Area Not Suitable for Cover Placement without Excavation Due to Potential Local Flooding Impacts

— Circles represent locations that must be addressed to achieve a PRG of 21 mg/kg for the EU and locations with maximum PCB concentrations ≥ 50 mg/kg.

0 200 400 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

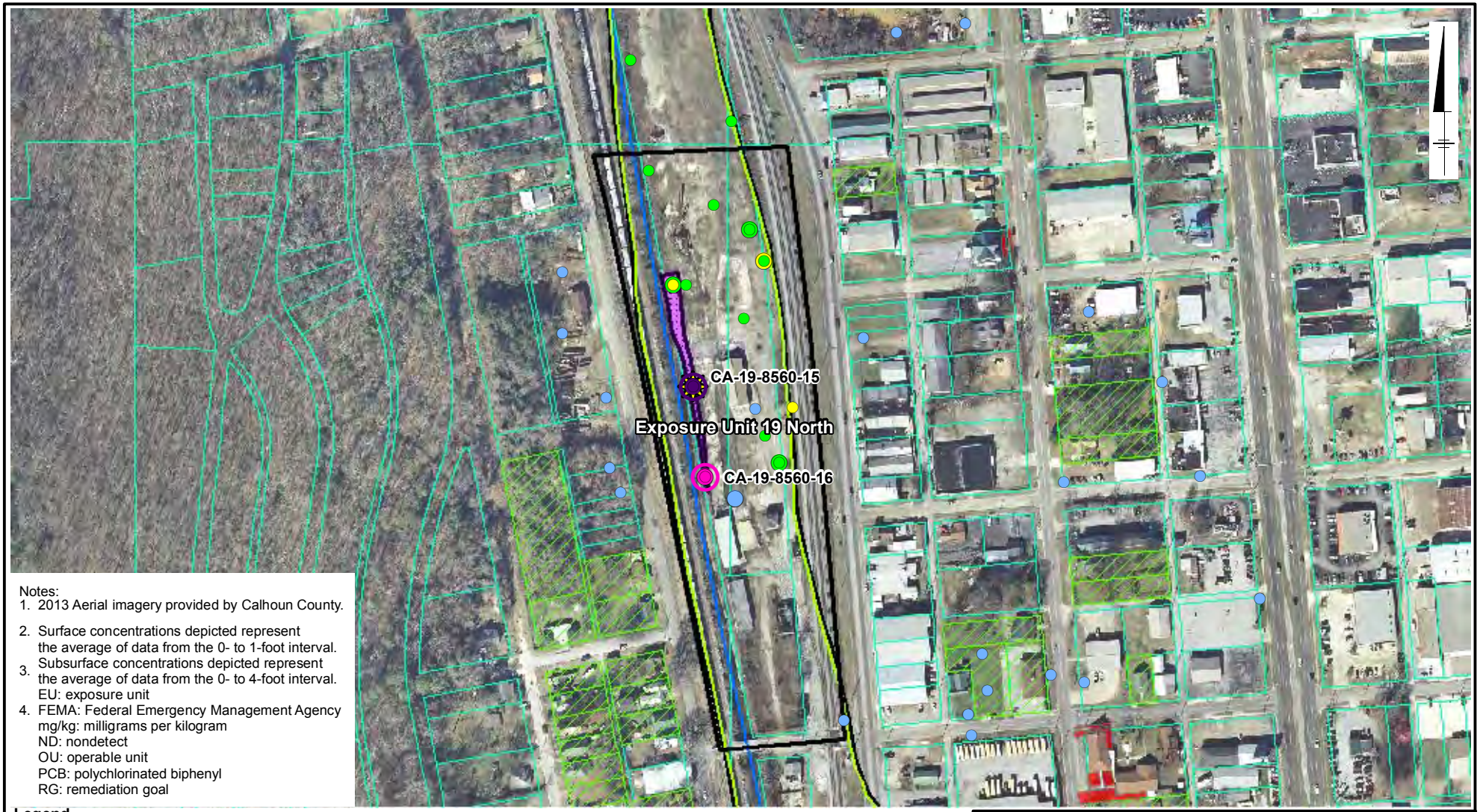
OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Nonresidential Surface Soil with a PCB RG of 21 mg/kg Exposure Unit 14 North

Solutia

Figure
9-5e

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-17f_PCB_EU19N_Labels_21mgkg_v2.mxd 3/30/2016 10:06:05 AM



Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
   EU: exposure unit
4. FEMA: Federal Emergency Management Agency
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

Legend

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

Snow Creek

Exposure Unit
FEMA Floodway
All Parcels
Residential Parcels Sampled
Residential < 1 (mg/kg)

Special Use: High Activity Area
Target Remedial Area for PCBs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
Area Not Suitable for Cover Placement without Excavation Due to Potential Local Flooding Impacts
Locations with Maximum PCB Results ≥ 500 mg/kg

Circles represent locations that must be addressed to achieve a PRG of 21 mg/kg for the EU and locations with maximum PCB concentrations ≥ 50 mg/kg.
Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 300 600 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

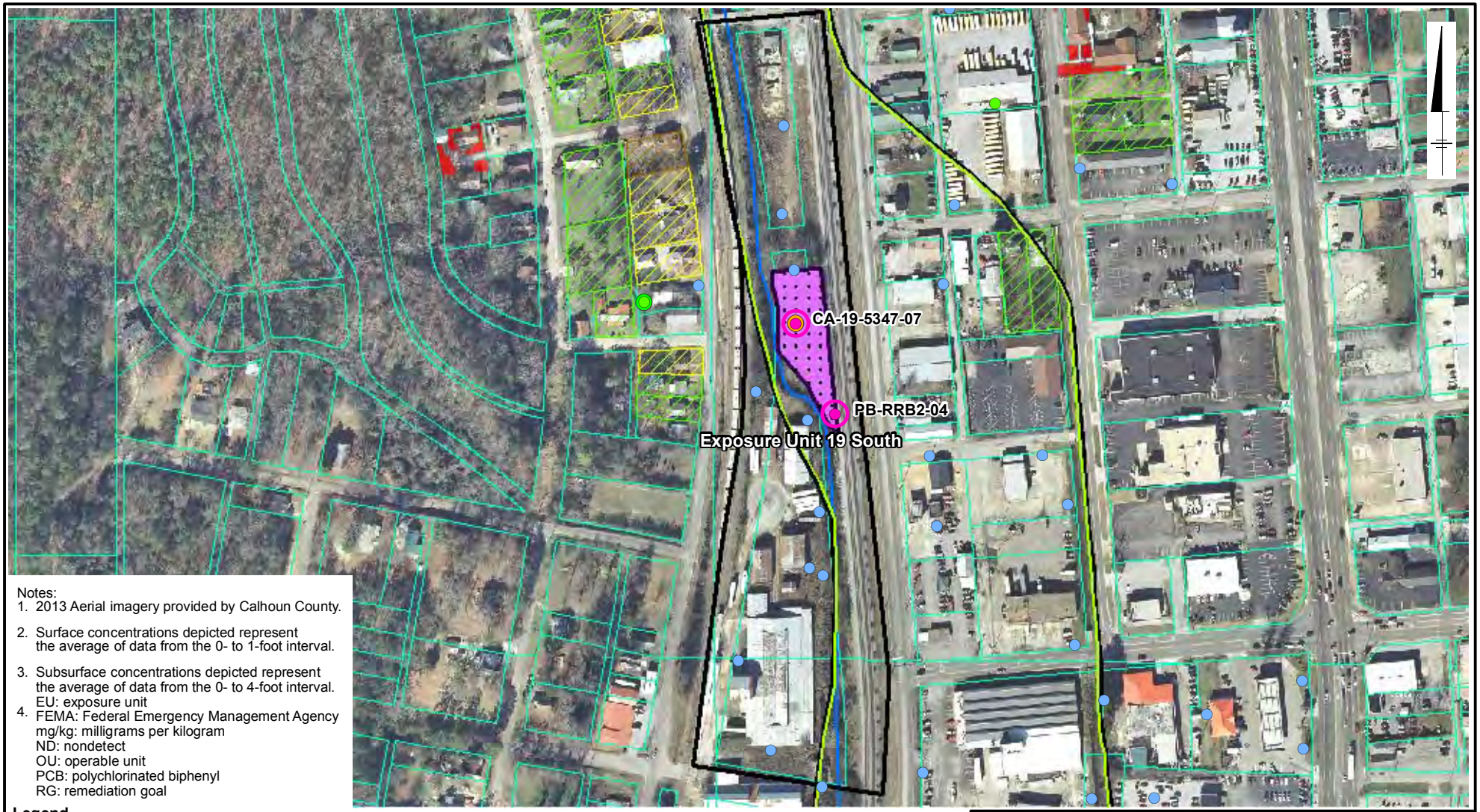
OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Nonresidential Surface Soil with a PCB RG of 21 mg/kg Exposure Unit 19 North

Solutia
Ingenuity Productivity Performance

Figure
9-5f

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-17g_PCB_EU19S_Labels_21mgkg_v2.mxd 3/30/2016 10:07:26 AM



Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   FEMA: Federal Emergency Management Agency
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

Legend

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

Snow Creek
Exposure Unit
FEMA Floodway

All Parcels
Residential Parcels Sampled
Residential < 1 (mg/kg)
Removal Complete
Residential Appendix 6
Special Use: High Activity Area

Target Remedial Area for PCBs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
Area Not Suitable for Cover Placement without Excavation Due to Potential Local Flooding Impacts

Circles represent locations that must be addressed to achieve a PRG of 21 mg/kg for the EU and locations with maximum PCB concentrations ≥ 50 mg/kg.
Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 300 600 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Nonresidential Surface Soil with a PCB RG of 21 mg/kg Exposure Unit 19 South

Solutia

Figure
9-5g

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-17h_PCB_EU24_Labels_21mgkg_v2.mxd 3/30/2016 10:08:41 AM

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
   COCs: constituents of concern
4. EU: exposure unit
   FEMA: Federal Emergency Management Agency
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

Legend

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

Snow Creek
Exposure Unit
FEMA Floodway

All Parcels
Special Use: High Activity Area
Target Remedial Area for PCBs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
Dredge Spoil Pile In-Place
Target Remedial Areas for Other COCs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
Area Not Suitable for Cover Placement without Excavation Due to Potential Local Flooding Impacts

Circles represent locations that must be addressed to achieve a PRG of 21 mg/kg for the EU and locations with maximum PCB concentrations ≥ 50 mg/kg.

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 300 600 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Nonresidential Surface Soil with a PCB RG of 21 mg/kg Exposure Unit 24

Solutia

Figure
9-5h

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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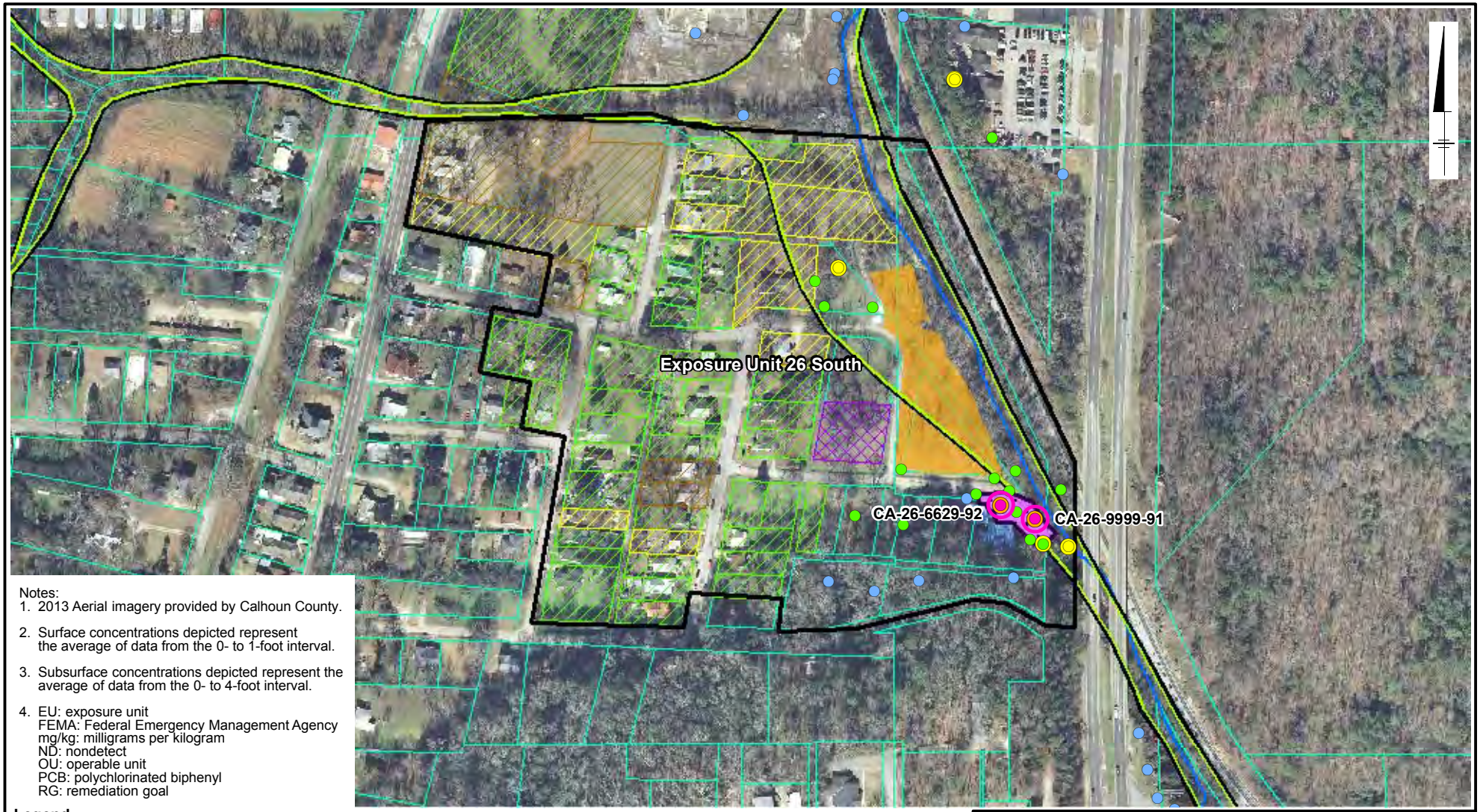

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. EU: exposure unit
   FEMA: Federal Emergency Management Agency
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

Legend

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

Snow Creek
Exposure Unit
Interim Measure and Other Early Actions
FEMA Floodway
All Parcels
Residential Parcels Sampled
Residential < 1 (mg/kg)
Removal Complete
Residential Appendix 6
Residential > 1 (mg/kg)
Target Remedial Area for PCBs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
Area Not Suitable for Cover Placement without Excavation Due to Potential Local Flooding Impacts

Circles represent locations that must be addressed to achieve a PRG of 21 mg/kg for the EU and locations with maximum PCB concentrations ≥ 50 mg/kg.

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 300 600 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Nonresidential Surface Soil with a PCB RG of 21 mg/kg Exposure Unit 26

Solutia

Figure
9-5i

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-17j_PCB_Hwy202_Labels_21mgkg_v2.mxd 3/30/2016 10:11:25 AM

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. Target remedial areas were based on lowering PCB exposure concentrations for the area below 21 mg/kg and addressing surface soil with PCBs ≥ 50 mg/kg.
5. mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

Legend

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

Exposure Unit
Operable Unit 3

Interim Measure and Other Early Actions
All Parcels
Residential Parcels Sampled
Residential < 1 (mg/kg)
Removal Complete
Residential > 1 (mg/kg) (Unsuitable for Removal)

Interim Measures Expansion Area – Alternatives IM-2, IM-3, and IM-4
Target Remedial Area for PCBs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
Locations Beneath Cover System with Maximum PCB Results ≥ 500 mg/kg

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Circles represent locations that must be addressed to achieve a PRG of 21 mg/kg for the area and locations with maximum PCB concentrations ≥ 50 mg/kg.

0 300 600 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Nonresidential Surface Soil with a PCB RG of 21 mg/kg Highway 202 Area

Solutia

Figure
9-5j

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. The target remedial area west of the northside area was identified to address PAHs, not PCBs.
5. Target remedial areas were based on lowering PCB exposure concentrations for the area below 21 mg/kg and addressing surface soil with PCBs ≥ 50 mg/kg.
   FEMA: Federal Emergency Management Agency
6. mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PAHs: polycyclic aromatic hydrocarbons
   PCB: polychlorinated biphenyl
   RG: remediation goal
   UWDA: unapproved waste disposal area

Legend

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

Exposure Unit
Operable Unit 3

All Parcels
Residential Parcels Sampled
Residential < 1 (mg/kg)
Removal Complete
Residential Appendix 6
Residential > 1 (mg/kg) (Removal Pending)
Residential > 1 (mg/kg) (Unsuitable for Removal)

Special Use: High Activity Area
Special Use: Low Activity Area ≥ 1 mg/k
Target Remedial Area for PCBs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
Unapproved Waste Disposal Area – Alternatives UWDA-2, UWDA-3, and UWDA-4
Locations with Maximum PCB Results ≥ 500 mg/kg

Circles represent locations that must be addressed to achieve a PRG of 21 mg/kg for the area and locations with maximum PCB concentrations ≥ 50 mg/kg.

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 300 600 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Nonresidential Surface Soil with a PCB RG of 21 mg/kg West of Exposure Unit 1

Solutia

Figure
9-5k

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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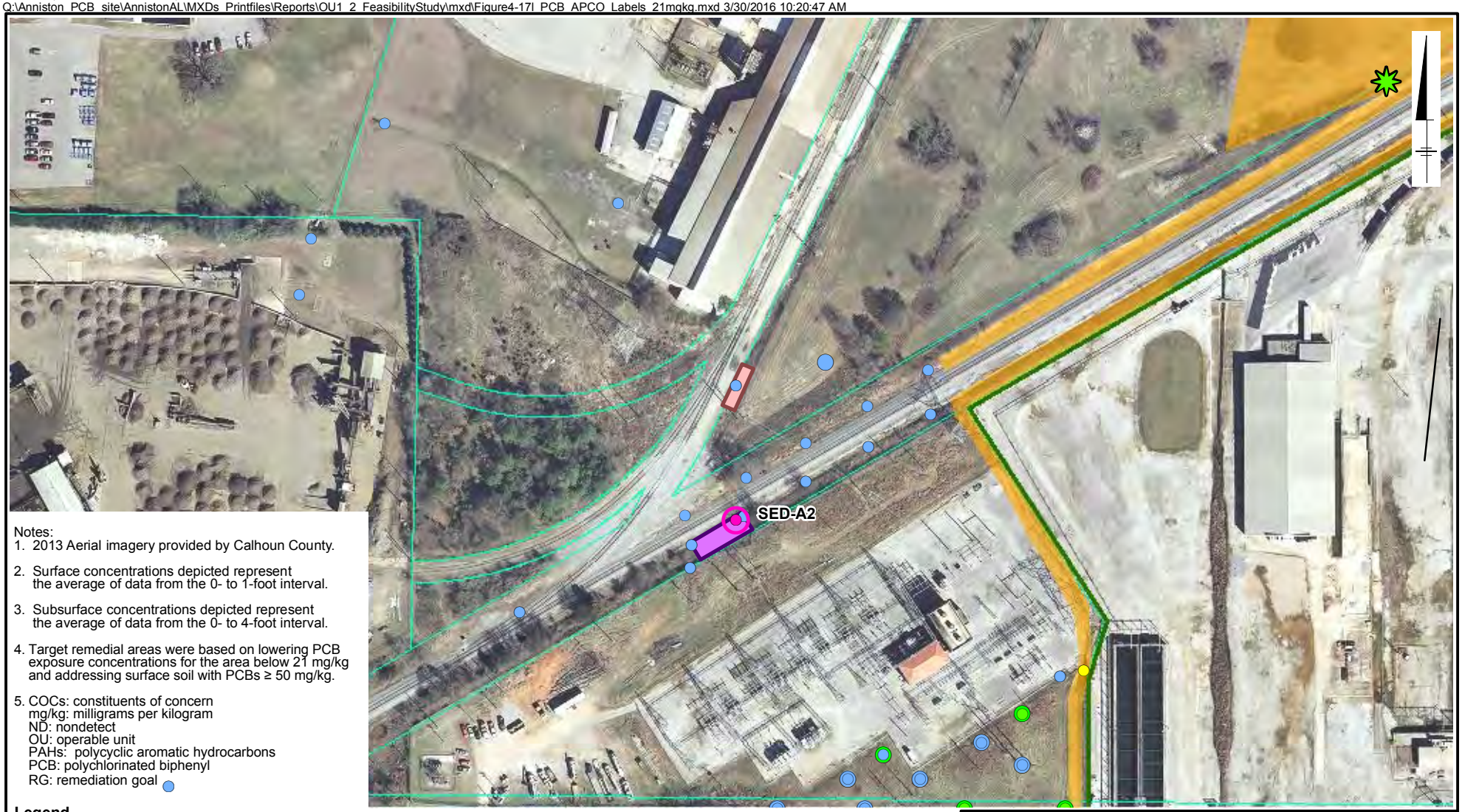


Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. Target remedial areas were based on lowering PCB exposure concentrations for the area below 21 mg/kg and addressing surface soil with PCBs ≥ 50 mg/kg.
5. COCs: constituents of concern
mg/kg: milligrams per kilogram
ND: nondetect
OU: operable unit
PAHs: polycyclic aromatic hydrocarbons
PCB: polychlorinated biphenyl
RG: remediation goal

Legend

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

- Exposure Unit
- Interim Measure and Other Early Actions
- Operable Unit 3
- All Parcels
- Target Remedial Area for PCBs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
- Target Remedial Areas for Other COCs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
- Locations Beneath Cover System with Maximum PCB Results ≥ 500 mg/kg

Circles represent locations that must be addressed to achieve a PRG of 21 mg/kg for the area and locations with maximum PCB concentrations ≥ 50 mg/kg.
Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 200 400 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

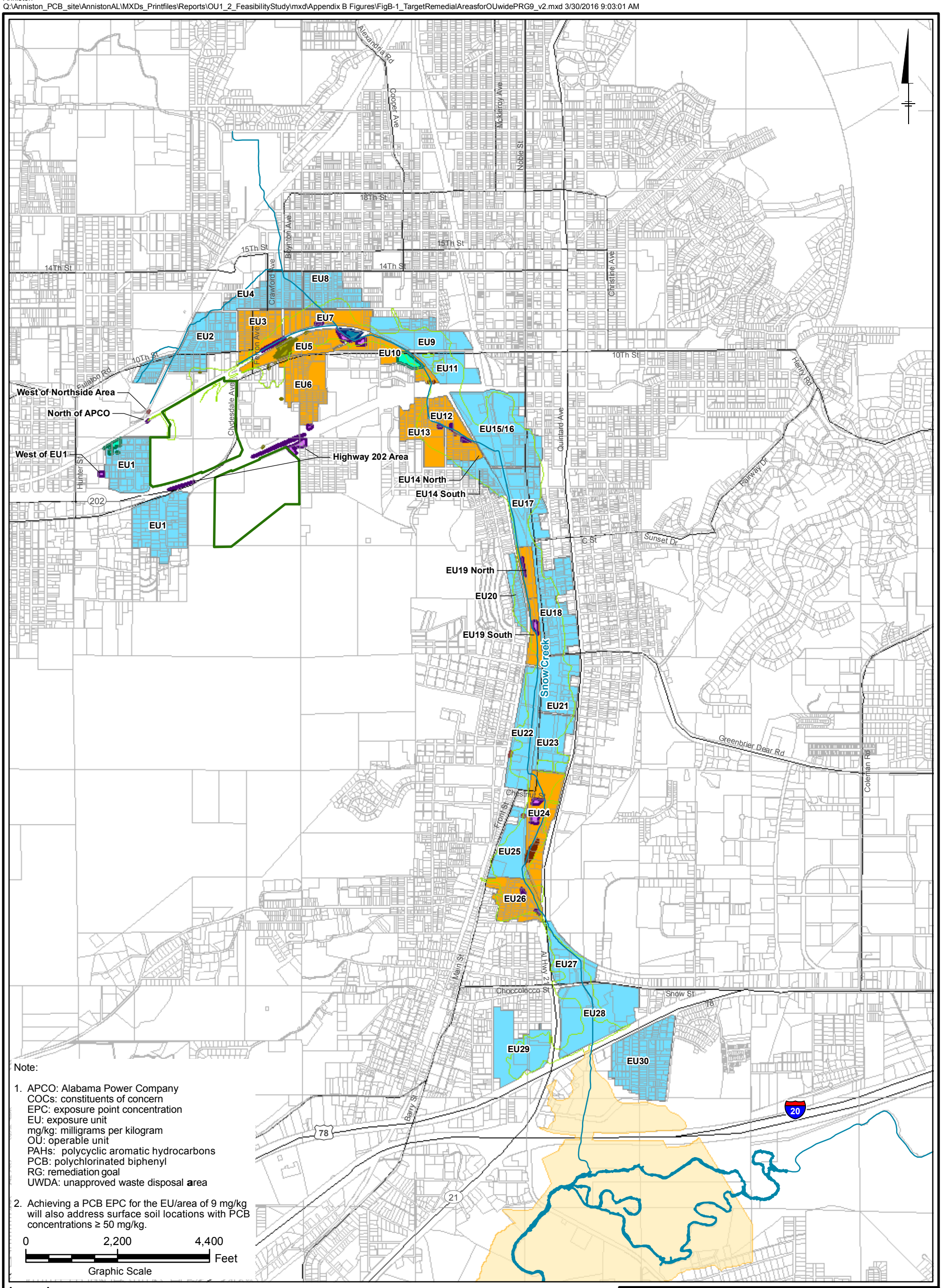
OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Nonresidential Surface Soil with a PCB RG of 21 mg/kg North of APCO

Solutia

Figure
9-5 I

City: SYR Div/Group: SWG Created By: K.Ives Last Saved By: jbistrovich
Anniston
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Appendix B Figures\FigB-1_TargetRemedialAreasforOUwidePRG9_v2.mxd 3/30/2016 9:03:01 AM



Note:

1. APCO: Alabama Power Company
   COCs: constituents of concern
   EPC: exposure point concentration
   EU: exposure unit
   mg/kg: milligrams per kilogram
   OU: operable unit
   PAHs: polycyclic aromatic hydrocarbons
   PCB: polychlorinated biphenyl
   RG: remediation goal
   UWDA: unapproved waste disposal area
2. Achieving a PCB EPC for the EU/area of 9 mg/kg will also address surface soil locations with PCB concentrations ≥ 50 mg/kg.

0 2,200 4,400 Feet
Graphic Scale

Legend

- Creek
- Major Roads
- OU-3 Boundary
- OU-4 100-Year Floodplain
- OU-1/OU-2 Downgradient Floodplain
- Parcels
- Exposure Unit with PCB EPC < 9 mg/kg
- Exposure Unit with PCB EPC ≥ 9 mg/kg
- Interim Measures Expansion Area – Alternatives IM-2, IM-3, and IM-4
- Target Remedial Area – Alternatives GW-2, GW-3, and GW-4
- Target Remedial Area for PCBs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
- Unapproved Waste Disposal Area – Alternatives UWDA-2, UWDA-3, and UWDA-4
- Dredge Spoil Pile In-Place
- Target Remedial Areas for Other COCs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6

Anniston PCB Site: OU-1/OU-2 Anniston, Alabama

OU-1/OU-2 FRecord of Decision

Candidate Remedial Areas for Nonresidential Surface Soil with a PCB RG of 9 mg/kg

Solutia

Figure
9-6

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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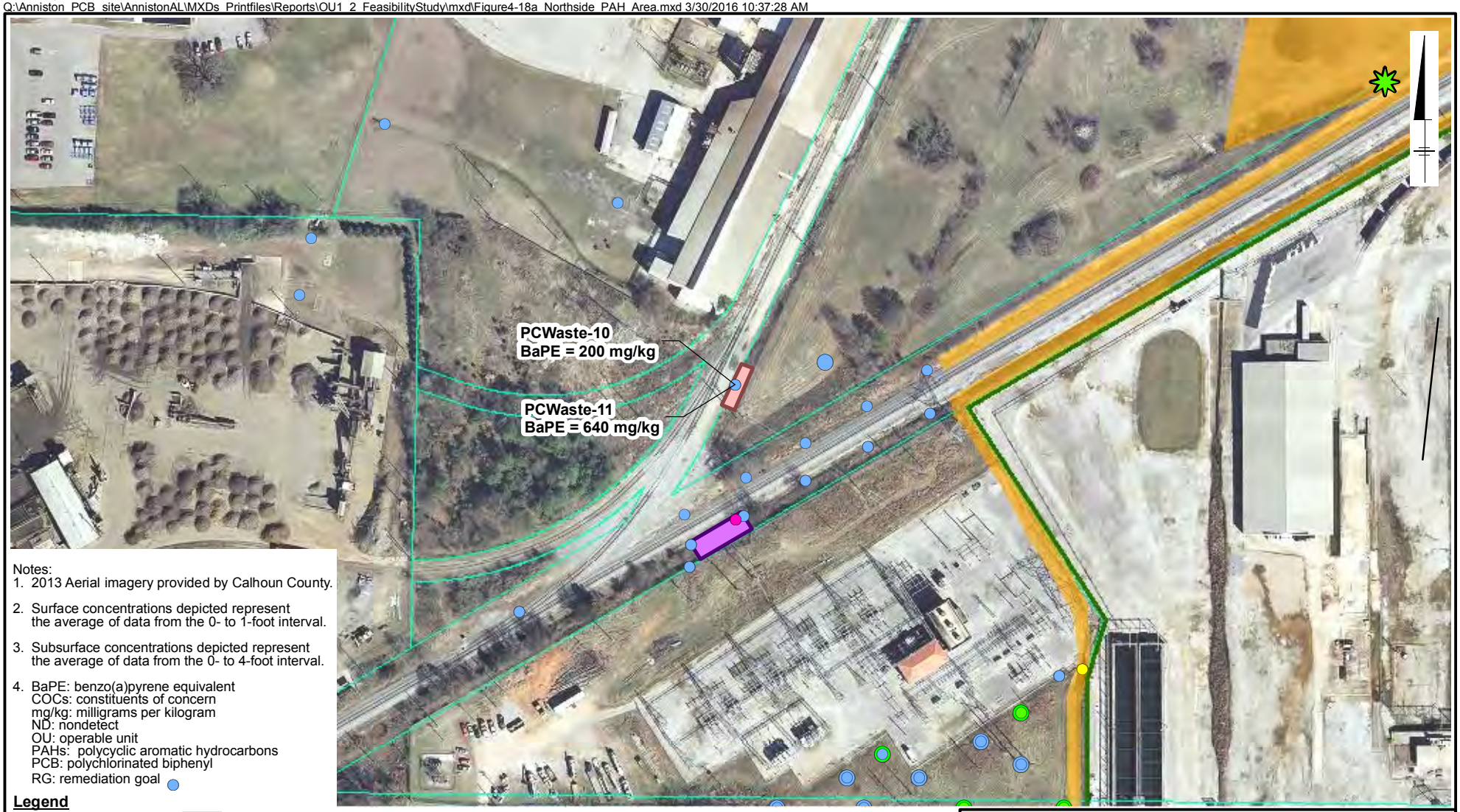

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. BaPE: benzo(a)pyrene equivalent
COCs: constituents of concern
mg/kg: milligrams per kilogram
ND: nondetect
OU: operable unit
PAHs: polycyclic aromatic hydrocarbons
PCB: polychlorinated biphenyl
RG: remediation goal

Legend

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

- Exposure Unit
- Interim Measure and Other Early Actions
- Operable Unit 3
- All Parcels
- Target Remedial Area for PCBs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
- Target Remedial Areas for Other COCs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
- Locations Beneath Cover System with Maximum PCB Results ≥ 500 mg/kg

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 200 400 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Area for Nonresidential Surface Soil Exceeding PAH (as BaPE) RG of 21 mg/kg West of Northside Area

Solutia
Ingenuity Productivity Performance

Figure
9-7a

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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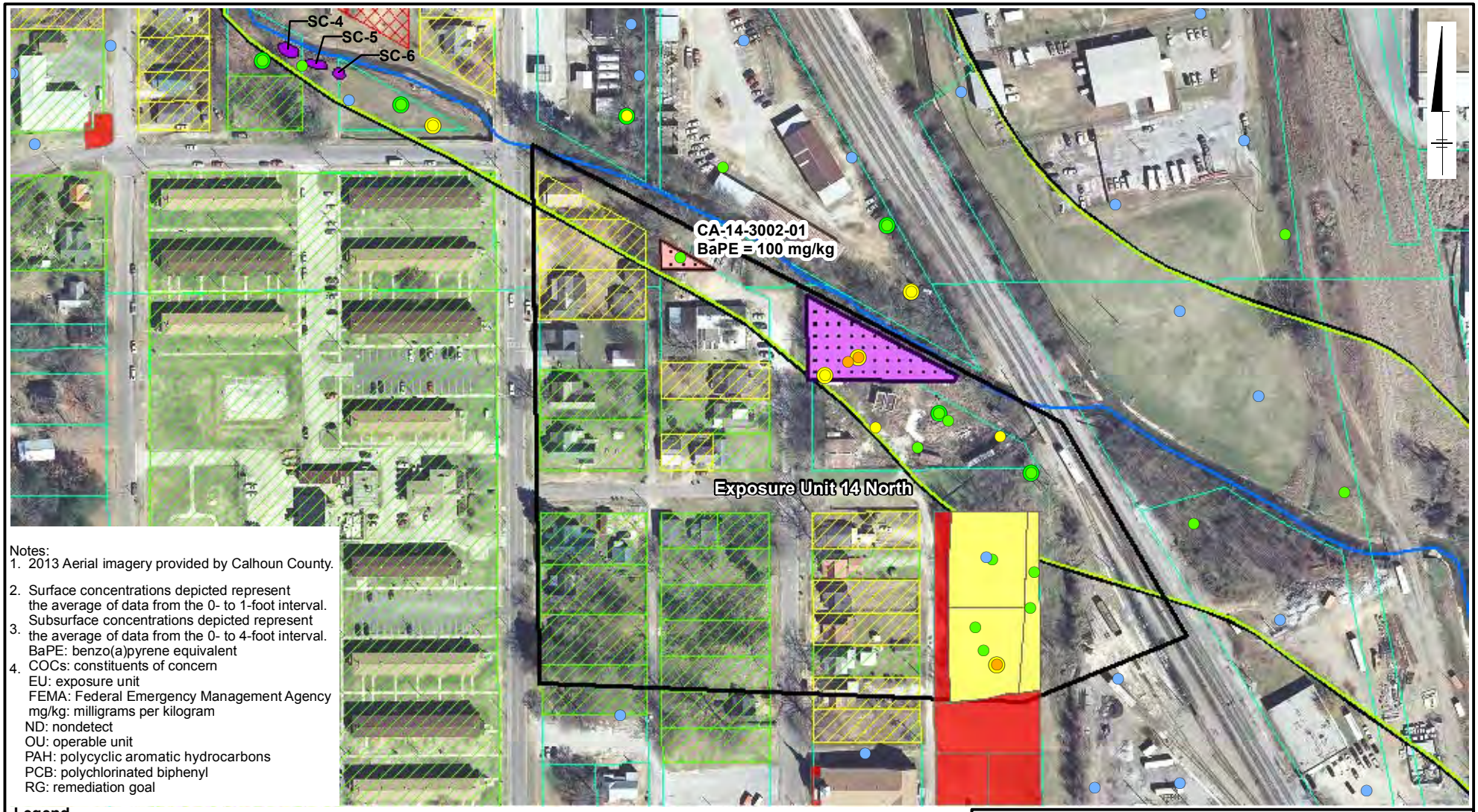

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
   BaPE: benzo(a)pyrene equivalent
4. COCs: constituents of concern
   EU: exposure unit
   FEMA: Federal Emergency Management Agency
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PAH: polycyclic aromatic hydrocarbons
   PCB: polychlorinated biphenyl
   RG: remediation goal

Legend

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

Snow Creek
Dredge Spoil Pile Removed
Exposure Unit
FEMA Floodway
All Parcels
Residential Parcels Sampled
Residential < 1 (mg/kg)
Removal Complete
Residential > 1 (mg/kg) (Removal Pending)
Special Use: High Activity Area
Special Use: Low Activity Area ≥ 1 mg/kg
Target Remedial Area for PCBs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
Target Remedial Areas for Other COCs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 200 400 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Area for Nonresidential Surface Soil Exceeding PAH (as BaPE) RG of 21 mg/kg EU14 North

Solutia

Figure
9-7b

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-19a_EU22_Chromium_Area.mxd 3/28/2016 8:19:08 AM

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. Chromium exceedance is located in EU22.
5. COCs: constituents of concern
EU: exposure unit
FEMA: Federal Emergency Management Agency
mg/kg: milligrams per kilogram
ND: nondetect
OU: operable unit
PCB: polychlorinated biphenyl
RG: remediation goal

Legend

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

Snow Creek

Exposure Unit
Special Use: High Activity Area
FEMA Floodway
All Parcels
Target Remedial Areas for Other COCs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Area for Nonresidential Surface Soil Exceeding Chromium RG of 568 mg/kg EU22

Solutia

Figure
9-8a

CITY: SYR DIV/GROUP: 40 DB: KES EAL LD: PIC: PM: TM: TR:
Anniston (B0010291.2010.00001)
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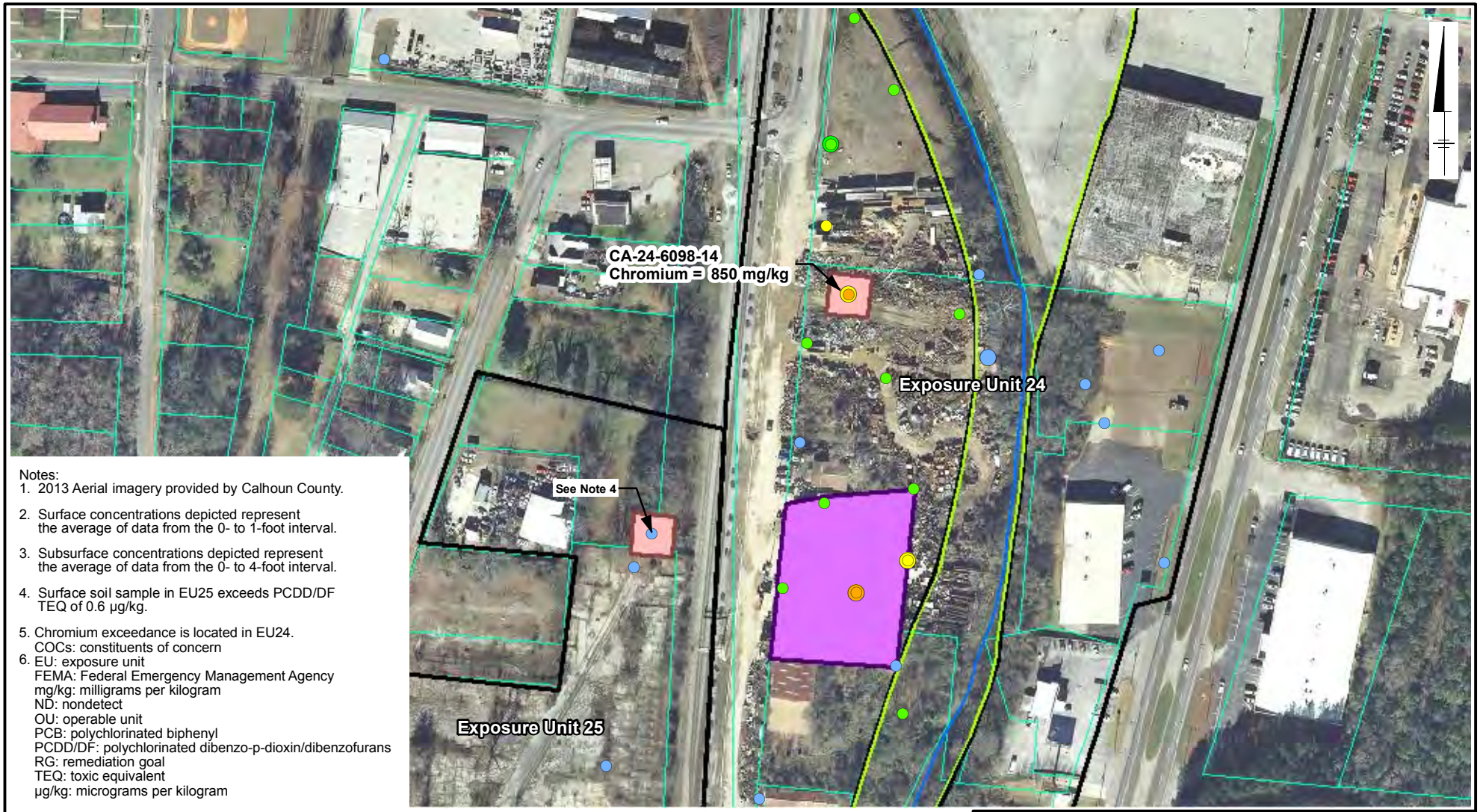


Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. Surface soil sample in EU25 exceeds PCDD/DF TEQ of 0.6 µg/kg.
5. Chromium exceedance is located in EU24.
   COCs: constituents of concern
6. EU: exposure unit
   FEMA: Federal Emergency Management Agency
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   PCDD/DF: polychlorinated dibenzo-p-dioxin/dibenzofurans
   RG: remediation goal
   TEQ: toxic equivalent
   µg/kg: micrograms per kilogram

Legend

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

Snow Creek

Exposure Unit
FEMA Floodway
All Parcels
Target Remedial Area for PCBs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
Target Remedial Areas for Other COCs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 150 300 Feet
Graphic Scale

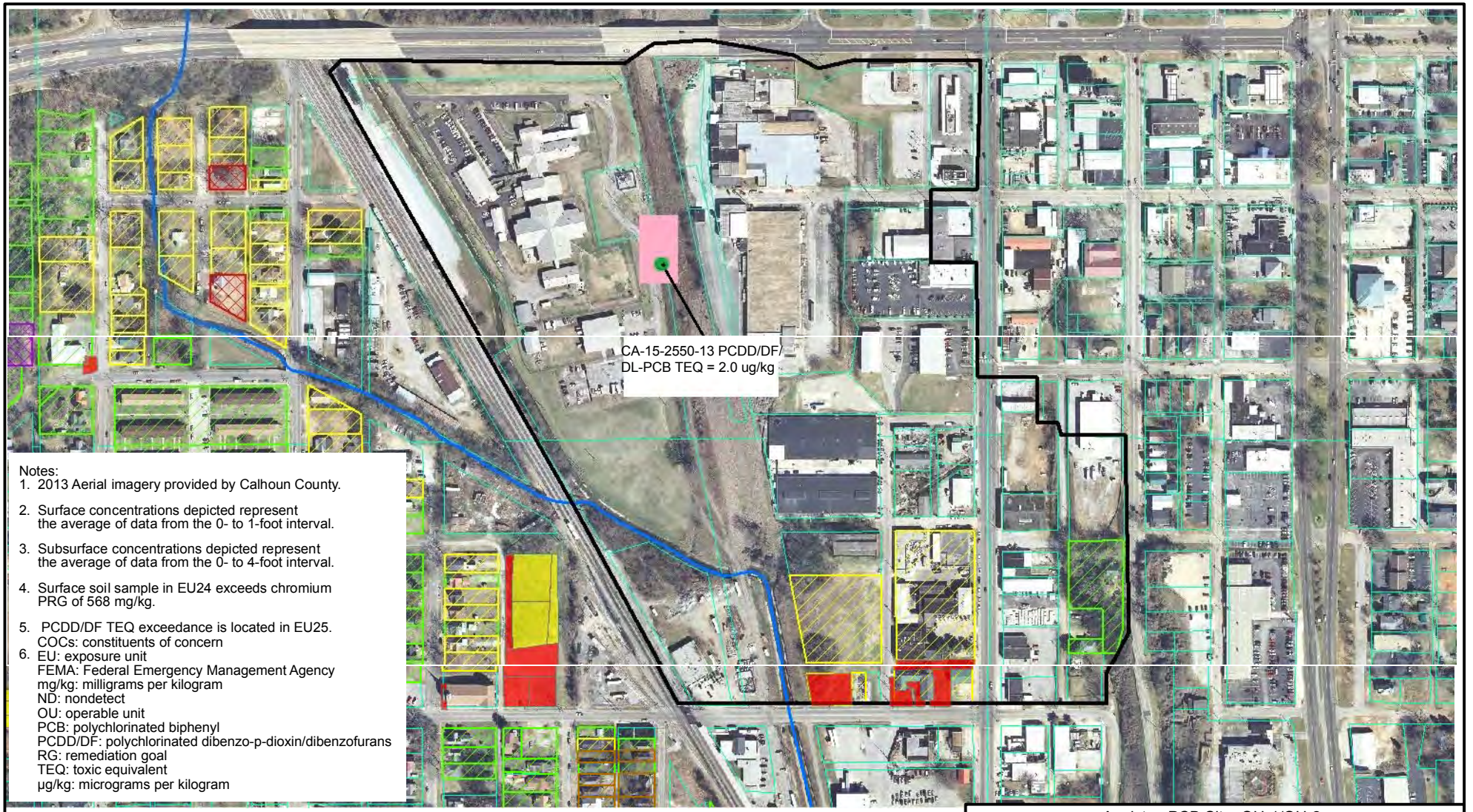
Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Area for Nonresidential Surface Soil Exceeding Chromium RG of 568 mg/kg EU24

Solutia

Figure
9-8b



Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. Surface soil sample in EU24 exceeds chromium PRG of 568 mg/kg.
5. PCDD/DF TEQ exceedance is located in EU25.
   COCs: constituents of concern
6. EU: exposure unit
   FEMA: Federal Emergency Management Agency
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   PCDD/DF: polychlorinated dibenzo-p-dioxin/dibenzofurans
   RG: remediation goal
   TEQ: toxic equivalent
   µg/kg: micrograms per kilogram

Legend

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

Snow Creek

Exposure Unit
FEMA Floodway
All Parcels
Target Remedial Area for PCBs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
Dredge Spoil Pile In-Place
Target Remedial Areas for Other COCs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 150 300 Feet
Graphic Scale

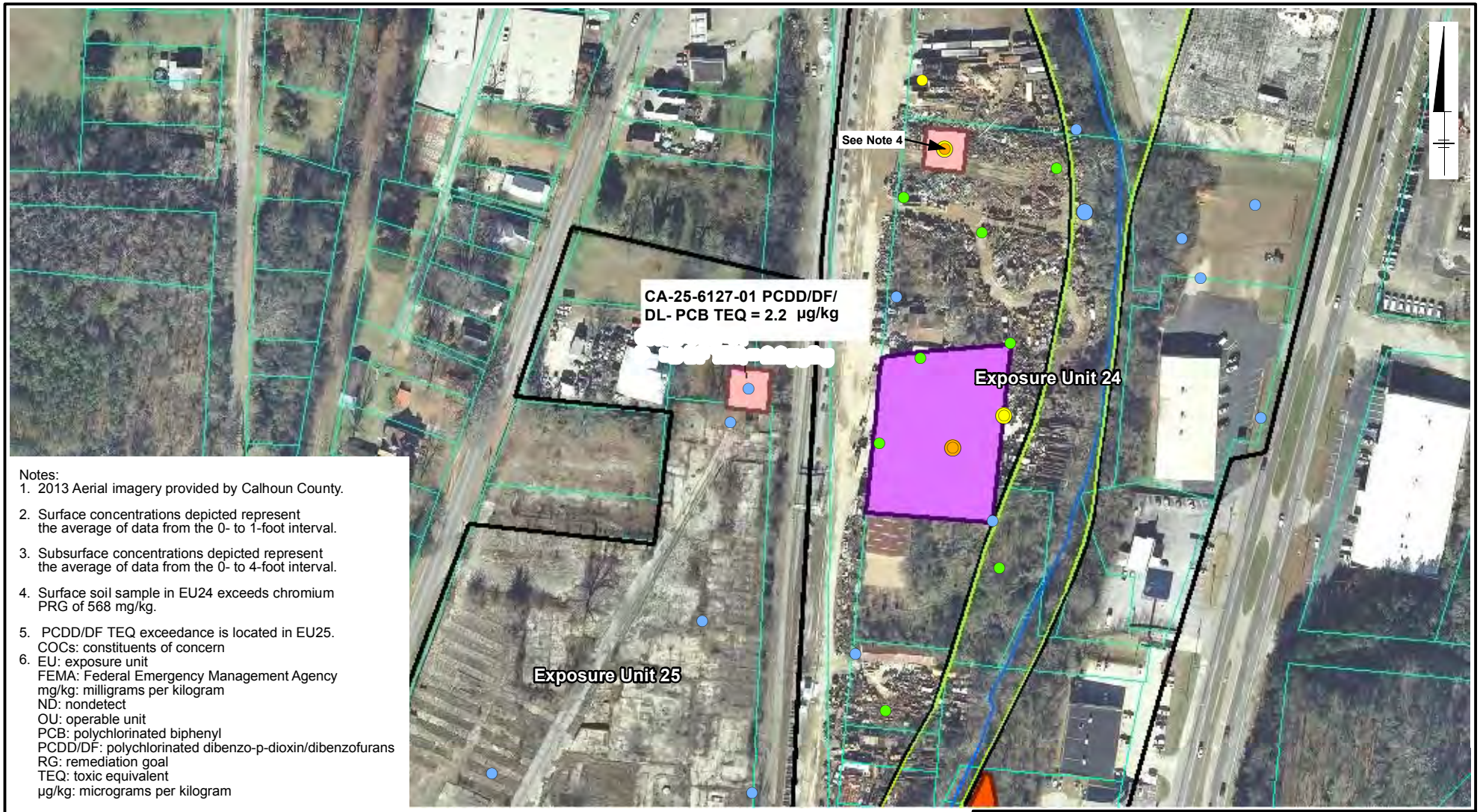
Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Area for Nonresidential Surface Soil Exceeding PCDD/DF/DL-PCB TEQ RG of 0.73 µg/kg

Solutia
Ingenuity Productivity Performance

Figure
9-9a



Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. Surface soil sample in EU24 exceeds chromium PRG of 568 mg/kg.
5. PCDD/DF TEQ exceedance is located in EU25.
   COCs: constituents of concern
6. EU: exposure unit
   FEMA: Federal Emergency Management Agency
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   PCDD/DF: polychlorinated dibenzo-p-dioxin/dibenzofurans
   RG: remediation goal
   TEQ: toxic equivalent
   µg/kg: micrograms per kilogram

Legend

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

Snow Creek

Exposure Unit
FEMA Floodway
All Parcels
Target Remedial Area for PCBs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
Dredge Spoil Pile In-Place
Target Remedial Areas for Other COCs - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

0 150 300 Feet
Graphic Scale

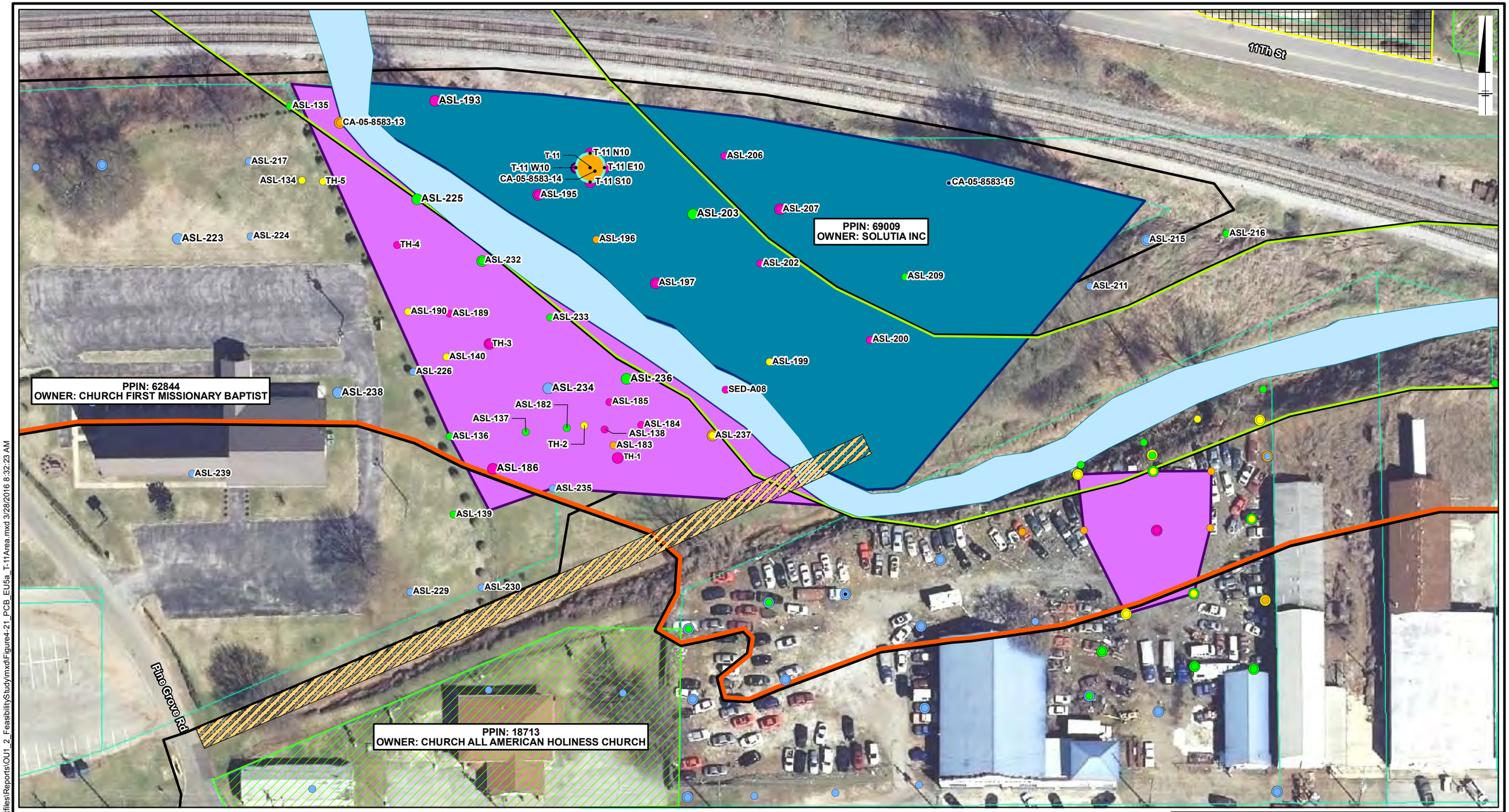
Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Area for Nonresidential Surface Soil Exceeding PCDD/DF/DL-PCB TEQ RG of 0.73 µg/kg

Solutia

Figure
9-9b



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Anniston
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Legend

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

- Snow Creek
- Analytes other than PCB and Lead Analyzed
- Potential Access Road
- Exposure Unit
- FEMA Floodway
- OU-1/OU-2 Downgradient Floodplain
- Parcel Boundaries
- Completed Removal Area
- Residential < 1 (mg/kg)
- Principal Threat Waste Area
- Target Remedial Area - Alternatives NRS-2, NRS-3, NRS-4, NRS-5, and NRS-6
- Target Remedial Area – Alternatives GW-2, GW-3, and GW-4

0 75 150 Feet
Graphic Scale

Inner and outer circles reflect surface and subsurface PCB concentrations, respectively.

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Surface concentrations depicted represent the average of data from the 0- to 1-foot interval.
3. Subsurface concentrations depicted represent the average of data from the 0- to 4-foot interval.
4. Bridge location is not finalized.
5. FEMA: Federal Emergency Management Agency
mg/kg: milligrams per kilogram
ND: nondetect
OU: operable unit
PCB: polychlorinated biphenyl
PPIN: Property Parcel Identification Number

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Target Remedial Area in Exposure Unit 5 - T-11 Area

Solutia

Figure
9-10

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
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S-1-01		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10021	0-2	3.8
S10022	2-8	31

S-1-02		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10023	0-2	8.0

S-1-04		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10024	0-2	14
S10025	2-5	17

S-1-05		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10026	0-2	11

S-1-07		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10027	0-2	16
S10028	2-12	1.2
S10029	12-23	ND

S-1-08		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10030	0-2	32
S10031	2-12	12
S10032 [duplicate]	2-12	4.3
S10033	12-14.5	37

S-1-10		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10034	0-2	12
S10035	2-12	29
S10036	12-16.5	18

S-1-11a		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10037	0-2	2.2
S10038	2-12	ND
S10039	12-24	0.39

S-1-11b		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10040	0-2.5	12

S-1-12		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10041	0-2	0.67
S10042	2-5	2.1

S-1-01 S-1-02 S-1-03 S-1-04 S-1-05 S-1-06 S-1-07 S-1-08 S-1-09 S-1-10 S-1-11A S-1-11B S-1-12 S-1-13 S-1-14

Figure 9-11a
Figure 9-11b
Figure 9-11c
Figure 9-11d
Figure 9-11e
Figure 9-11f
Figure 9-11g
Figure 9-11h
Figure 9-11i
Figure 9-11j
202
78

Legend

- Sediment Sample Location
- Engineered Bank Stability Measures
- Natural Bank Stability Measures
- 11th Street Ditch
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain

Sediment Deposit
Average PCB Concentration (mg/kg)
- < 3
- ≥ 3 and < 10
- ≥ 10

Sediment Deposit
Estimated PCB Concentration (mg/kg) (see Note 4)
- ≥ 10

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Sediment sample locations are approximate.
3. Snow Creek deposits are based on field probing conducted in 1999.
4. Estimated PCB concentrations for sediment deposits with no sampling data were interpreted based on PCB data for nearby sediment samples.
5. in: inches
mg/kg: milligram per kilogram
ND: nondetect
OU: operable unit
PCB: polychlorinated biphenyl
RG: remediation goal

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 3 mg/kg

Solutia

Figure
9-11a

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-22AtoJ_SnowCreek_SedimentDeposits_WithData1.mxd 3/28/2016 8:39:36 AM

S-1-16		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10043	0-2	28
S10044	2-5	32

SED-A09		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
SED-A9	0-3	7.8

S-1-14
S-1-15
S-1-16
S-1-17
S-2

Figure 9-11a
Figure 9-11b
Figure 9-11c
Figure 9-11d
Figure 9-11e
Figure 9-11f
Figure 9-11g
Figure 9-11h
Figure 9-11i
Figure 9-11j
202
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Legend

- Sediment Sample Location
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain
- Sediment Deposit Average PCB Concentration (mg/kg) ≥ 10
- Sediment Deposit Estimated PCB Concentration (mg/kg) (see Note 4) ≥ 10

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Sediment sample locations are approximate.
3. Snow Creek deposits are based on field probing conducted in 1999.
4. Estimated PCB concentrations for sediment deposits with no sampling data were interpreted based on PCB data for nearby sediment samples.
5. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 3 mg/kg

Solutia

Figure
9-11b

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-22AtoJ_SnowCreek_SedimentDeposits_WithData1.mxd 3/28/2016 8:44:17 AM

S-1-17

CP-C-9		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
CP-C-9-0-4"	0-4	2.0

S-2-02		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10045	0-3.5	19

CP-C-10		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
CP-C-10-0-2"	0-2	2.9
CP-C-10-2-6"	2-6	3.6
CP-C-10-6-12"	6-12	12

S-2-01

S-2-02

SED-A10		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
SED-A10	0-3	6.9

S-2-3B

S-2-3A

CP-C-11		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
CP-C-11-0-2"	0-2	1.6
CP-C-11-2-6"	2-6	1.2
CP-C-11-6-12"	6-12	7.5

S-2-4A

S-2-4B

S-2-03a		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10046	0-3	3.8

S-2-05

S-MED-1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10134	0-8	60

S-2-05		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10048	0-2	5.4
S10049	2-5	6.4

S-2-06

S-2-06A		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10060	0-2	22
S10061	2-5	8.9

S-HIGH-1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10135	0-18	4.2
S10137 [duplicate]	0-18	2.3

S-2-06B		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10053	0-2	13
S10054	2-12	11
S10055	12-20.5	34
S10131 [duplicate]	12-20.5	60

S-2-07

S-2-08

S-2-09

S-2-08		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10050	0-2	20
S10051	2-12	20
S10052	12-16	4.0

S-2-06C		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10056	0-2	30
S10057	2-12	14
S10058	12-24	23
S10059	24-27	15

S-2-10

SED-A11		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
SED-A11	0-3	16

Figure 9-11a
Figure 9-11b
Figure 9-11c
Figure 9-11d
Figure 9-11e
Figure 9-11f
Figure 9-11g
Figure 9-11h
Figure 9-11i
Figure 9-11j
202
78

PECON-011		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PECON-011	0-3	4.3

S-2-11

S-2-12

S-2-13

S-2-14

PECON-012		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PECON-012	0-3	8.5

Legend

- Sediment Sample Location
- Natural Bank Stability Measures
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain
- Deposit with Metals Exceedance and PCB < 10 mg/kg

Sediment Deposit
Average PCB Concentration (mg/kg)
- ≥ 3 and < 10
- ≥ 10

Sediment Deposit
Estimated PCB Concentration (mg/kg) (see Note 4)
- ≥ 3 and < 10
- ≥ 10

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Sediment sample locations are approximate.
3. Snow Creek deposits are based on field probing conducted in 1999.
4. Estimated PCB concentrations for sediment deposits with no sampling data were interpreted based on PCB data for nearby sediment samples.
5. in: inches
mg/kg: milligram per kilogram
OU: operable unit
PCB: polychlorinated biphenyl
RG: remediation goal

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB PRG of 3 mg/kg

Solutia

Figure
9-11c

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
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S-2-15
S-2-16
S-3-01
S-3-02
S-3-03
S-3-04
S-3-05
S-3-06
S-3-07

S-3-01		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10064	0-2	3.3
S10065	2-8	4.8

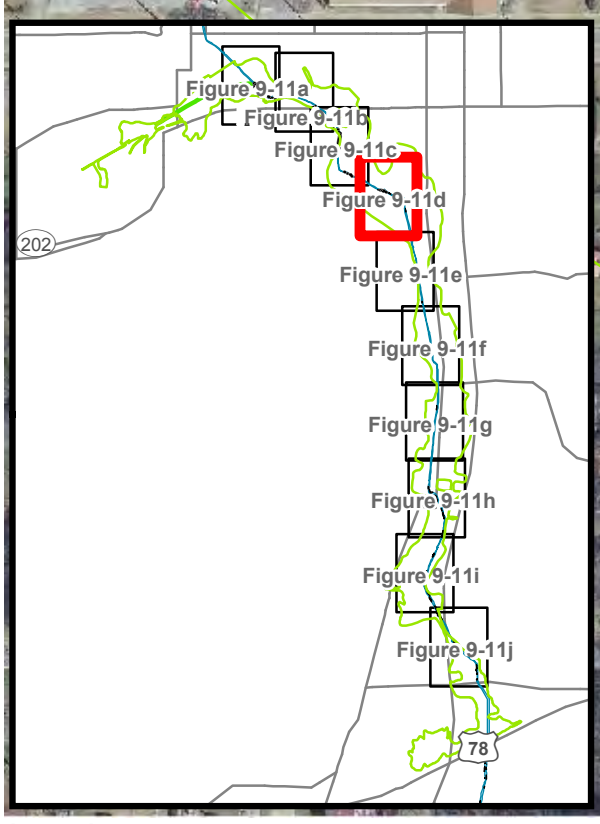
SED-A12		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
SED-A12	0-3	3.9

S-3-05		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10069	0-2	1.4
S10070	2-10.5	2.1

S-2-16		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10062	0-2	4.0
S10063	2-4	3.3

S-3-02		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10066	0-2	8.1
S10067	2-12	11
S10068	12-15.5	17

S-3-07		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10071	0-2	0.66
S10072	2-8	0.76



Legend

- Sediment Sample Location
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain

Sediment Deposit
Average PCB Concentration (mg/kg)
- < 3
- ≥ 3 and < 10
- ≥ 10

Sediment Deposit
Estimated PCB Concentration (mg/kg) (see Note 4)
- < 3
- ≥ 3 and < 10

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Sediment sample locations are approximate.
3. Snow Creek deposits are based on field probing conducted in 1999.
4. Estimated PCB concentrations for sediment deposits with no sampling data were interpreted based on PCB data for nearby sediment samples.
5. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 3 mg/kg

Solutia

Figure
9-11d

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
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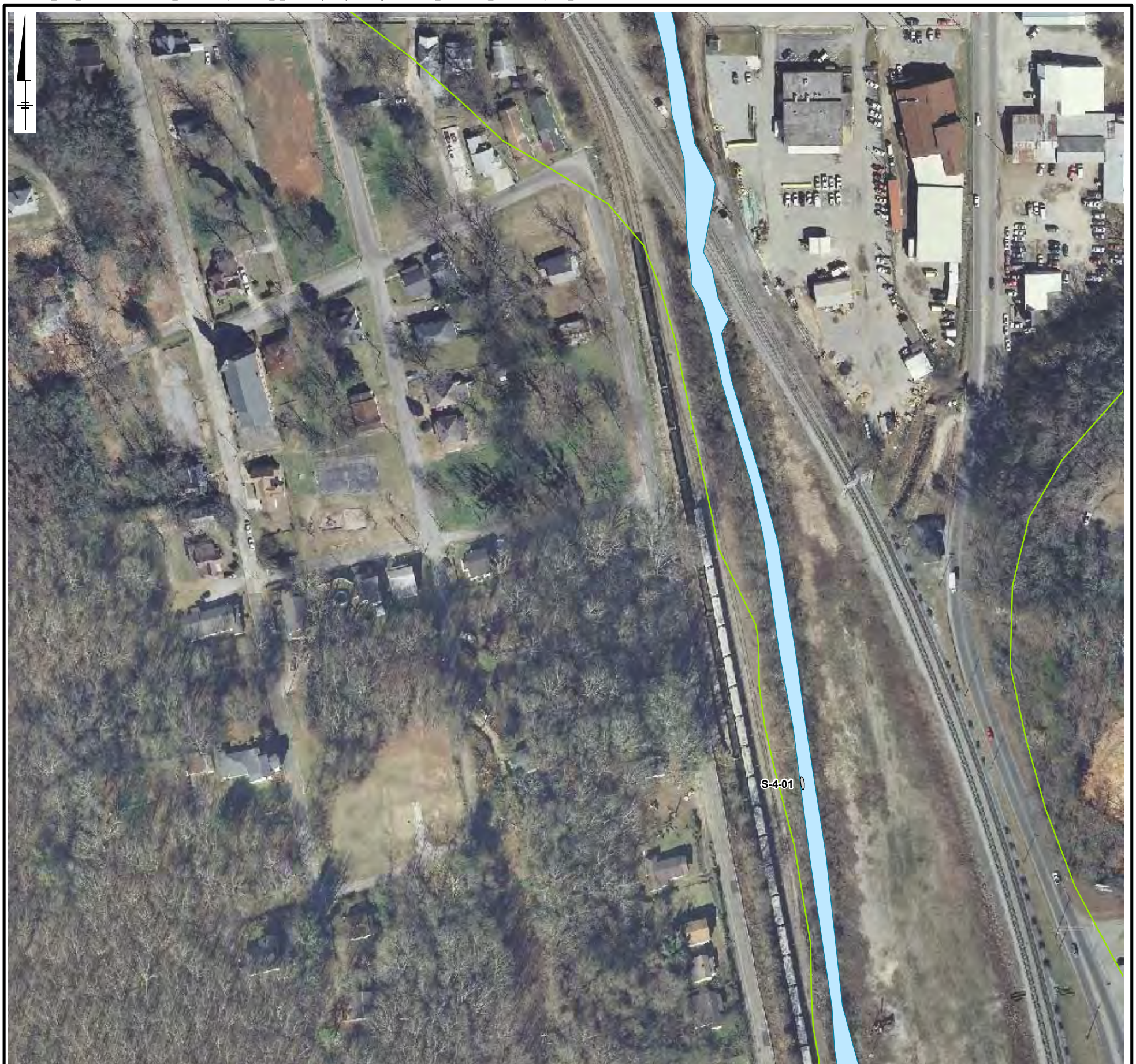

S-4-02		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10073	0-2	1.1
S10074	2-4	0.58

Legend

- Sediment Sample Location
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain

Sediment Deposit
Average PCB Concentration (mg/kg)
< 3
Sediment Deposit
Estimated PCB Concentration (mg/kg) (see Note 4)
< 3

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Sediment sample locations are approximate.
3. Snow Creek deposits are based on field probing conducted in 1999.
4. Estimated PCB concentrations for sediment deposits with no sampling data were interpreted based on PCB data for nearby sediment samples.
5. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

0 150 300
Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 3 mg/kg

Solutia

Figure
9-11e

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
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Legend

- Snow Creek
- OU-1/OU-2 Downgradient Floodplain

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal
3. No remedial areas shown on this figure. Figure included to provide complete view of Snow Creek.

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 3 mg/kg

Solutia

Figure
9-11f

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
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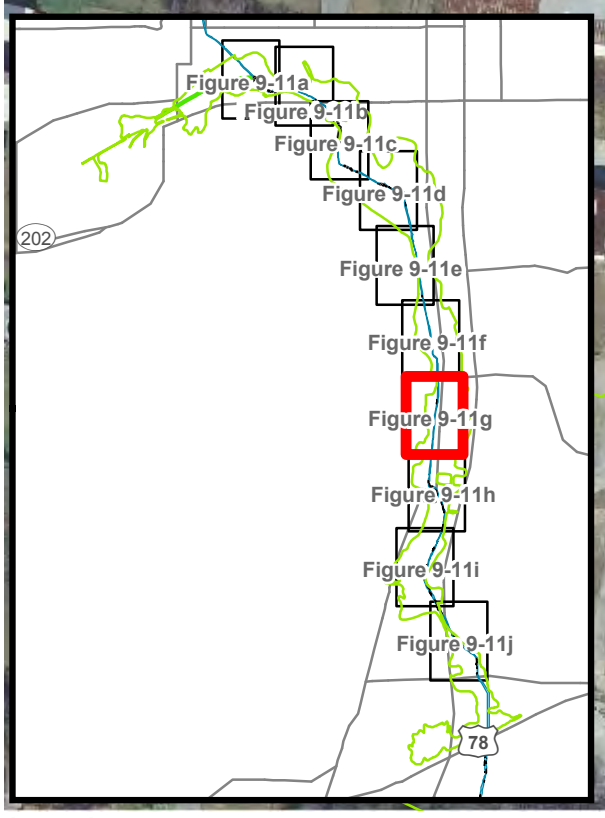
S-5-01		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10075	0-3.5	0.65
S10076 [duplicate]	0-3.5	0.76

S-5-01



Legend

- Sediment Sample Location
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain

Sediment Deposit
Average PCB Concentration (mg/kg)
- < 3

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Sediment sample locations are approximate.
3. Snow Creek deposits are based on field probing conducted in 1999.
4. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 3 mg/kg

Solutia

Figure
9-11g

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
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S-5-02		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10077	0-3.5	4.5

S-5-03		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10078	0-2	5.8
S10079	2-4	1.6

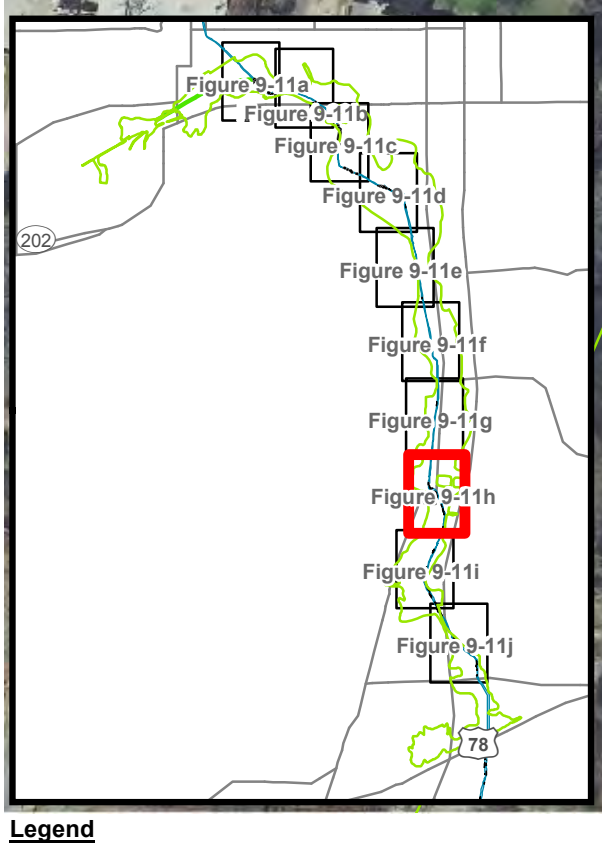
S-LOW-1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10136	0-6	1.7

S-5-04		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10080	0-2	1.8
S10081	2-6	1.9

S-5-05		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10082	0-2	1.2
S10083	2-4	1.9

S-5-06		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10084	0-2	2.7
S10085	2-5	2.3

S-5-03
S-5-04
S-5-05
S-5-06
S-5-07
S-5-08A
S-5-08B



Legend

- Sediment Sample Location
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain
- Deposit with Metals Exceedance and PCB < 3 mg/kg

Sediment Deposit
Average PCB Concentration (mg/kg)
- < 3
- ≥ 3 and < 10

Sediment Deposit
Estimated PCB Concentration (mg/kg) (see Note 4)
- < 3

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Sediment sample locations are approximate.
3. Snow Creek deposits are based on field probing conducted in 1999.
4. Estimated PCB concentrations for sediment deposits with no sampling data were interpreted based on PCB data for nearby sediment samples.
5. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 3 mg/kg

Solutia

Figure
9-11h

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
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S-5-08B
S-5-9
S-5-10
S-5-11A
S-5-11B
S-5-12A
S-5-12B
S-5-13
S-5-14
S-5-15
S-5-16

PECON-020		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PECON-020	0-3	0.75

CA-25-9999-90		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PCWASTE-004-A	0-3	11
S70746	6-12	0.76

FE2-001-C		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
FE2-001-C	0-3	2.5

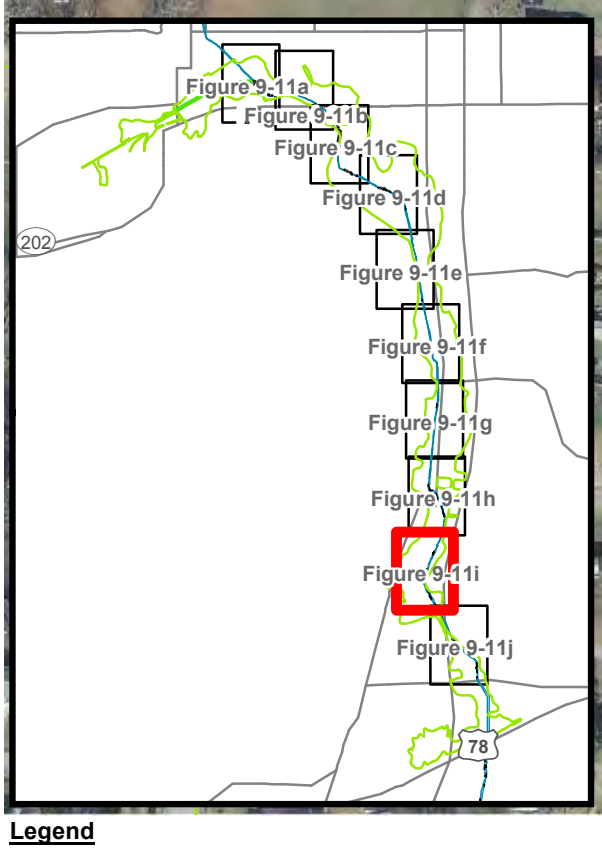
FE2-001-A		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
FE2-001-A	0-3	0.90

S-5-13		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10086	0-3.5	1.3

S-5-14A		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10087	0-2	1.5
S10088	2-5	0.92

S-5-14B		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10089	0-2	1.6
S10090	2-5.5	1.6

PCWaste-004-B		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PCWaste-004-B	0-3	1.2



Legend

- Sediment Sample Location
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain
- Deposit with Metals Exceedance and PCB < 3 mg/kg

Sediment Deposit
Average PCB Concentration (mg/kg)
- < 3

Sediment Deposit
Estimated PCB Concentration (mg/kg) (see Note 4)
- < 3
- ≥ 3 and < 10

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Sediment sample locations are approximate.
3. Snow Creek deposits are based on field probing conducted in 1999.
4. Estimated PCB concentrations for sediment deposits with no sampling data were interpreted based on PCB data for nearby sediment samples.
5. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 3 mg/kg

Solutia

Figure
9-11i

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Figure4-22AtoJ_SnowCreek_SedimentDeposits_WithData1.mxd 3/28/2016 8:44:17 AM

S-5-16
S-5-17
S-5-18
S-5-19
S-5-21
S-5-22
S-5-24
S-5-23
S-5-25

S-5-24		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10091	0-2	1.2
S10092	2-12	1.2

Figure 9-11a
Figure 9-11b
Figure 9-11c
Figure 9-11d
Figure 9-11e
Figure 9-11f
Figure 9-11g
Figure 9-11h
Figure 9-11i
Figure 9-11j
202
78

Legend

- Sediment Sample Location
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain

Sediment Deposit
Average PCB Concentration (mg/kg)
< 3
Sediment Deposit
Estimated PCB Concentration (mg/kg) (see Note 4)
< 3

Notes:
1. 2013 Aerial imagery provided by Calhoun County.
2. Sediment sample locations are approximate.
3. Snow Creek deposits are based on field probing conducted in 1999.
4. Estimated PCB concentrations for sediment deposits with no sampling data were interpreted based on PCB data for nearby sediment samples.
5. in: inches
   mg/kg: milligram per kilogram
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 3 mg/kg

Solutia

Figure
9-11j

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
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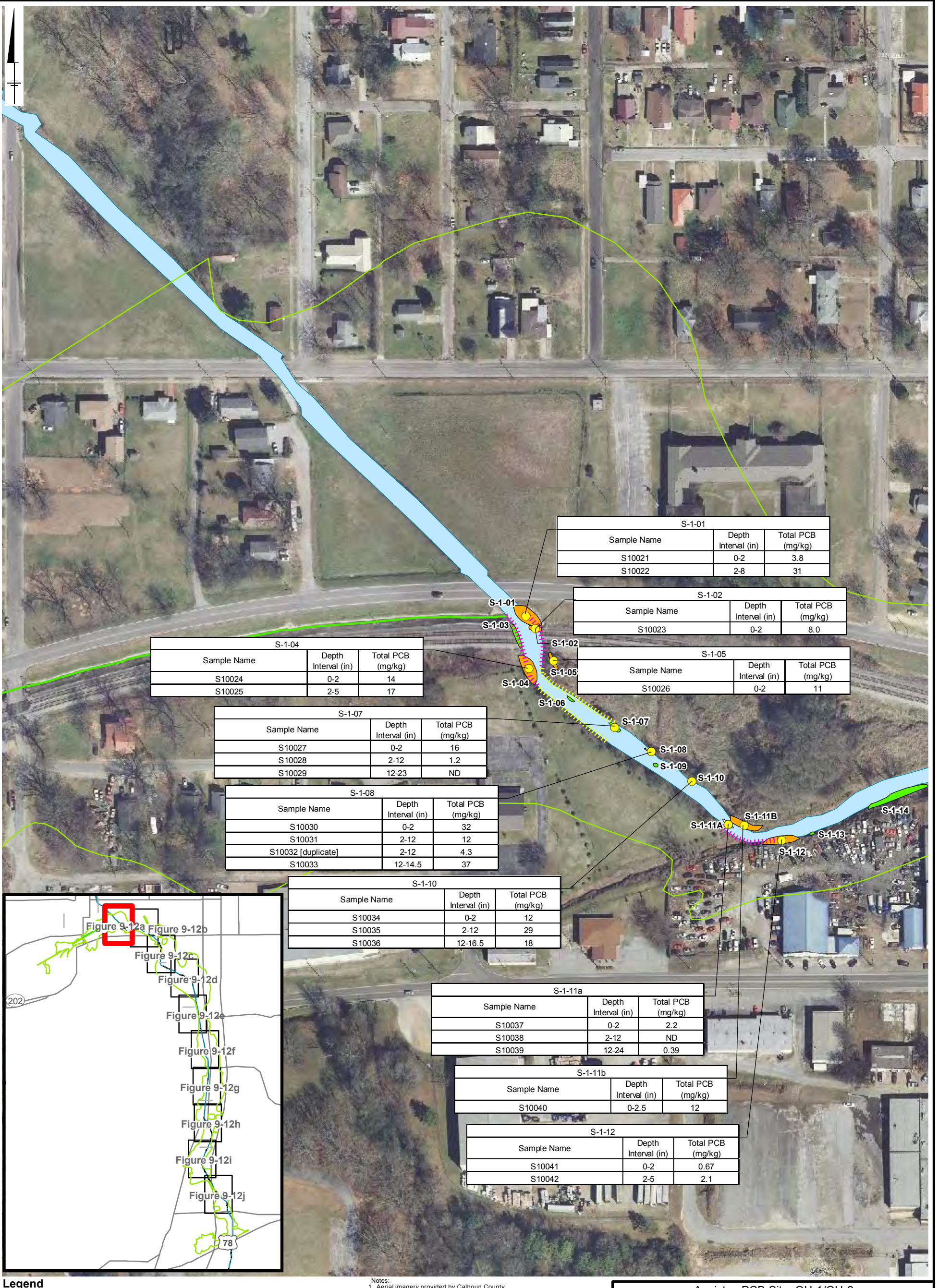

S-1-01		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10021	0-2	3.8
S10022	2-8	31

S-1-02		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10023	0-2	8.0

S-1-04		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10024	0-2	14
S10025	2-5	17

S-1-05		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10026	0-2	11

S-1-07		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10027	0-2	16
S10028	2-12	1.2
S10029	12-23	ND

S-1-08		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10030	0-2	32
S10031	2-12	12
S10032 [duplicate]	2-12	4.3
S10033	12-14.5	37

S-1-10		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10034	0-2	12
S10035	2-12	29
S10036	12-16.5	18

S-1-11a		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10037	0-2	2.2
S10038	2-12	ND
S10039	12-24	0.39

S-1-11b		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10040	0-2.5	12

S-1-12		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10041	0-2	0.67
S10042	2-5	2.1

Legend

- Sediment Sample Location
- Engineered Bank Stability Measures
- Natural Bank Stability Measures
- 11th Street Ditch
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain

Sediment Deposit
Average PCB Concentration (mg/kg)
- < 1
- ≥ 1

Sediment Deposit
Estimated PCB Concentration (mg/kg) (see Note 2)
- ≥ 1

Notes:
1. Aerial imagery provided by Calhoun County.
2. Estimated PCB concentrations for sediment deposits with no sampling data were interpreted based on PCB data for nearby sediment samples.
3. Sediment sample locations are approximate.
4. Snow Creek deposits are based on field probing conducted in 1999.
5. in: inches
mg/kg: milligrams per kilogram
ND: nondetect
OU: operable unit
PCB: polychlorinated biphenyl
RG: remediation goal

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 1 mg/kg

Solutia

Figure
9-12a

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
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S-1-16		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10043	0-2	28
S10044	2-5	32

SED-A09		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
SED-A9	0-3	7.8

S-1-14
S-1-15
S-1-16
S-1-17
S-2

Figure 9-12a
Figure 9-12b
Figure 9-12c
Figure 9-12d
Figure 9-12e
Figure 9-12f
Figure 9-12g
Figure 9-12h
Figure 9-12i
Figure 9-12j
202
78

Legend

- Sediment Sample Location
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain
- Sediment Deposit Average PCB Concentration (mg/kg) ≥ 1
- Sediment Deposit Estimated PCB Concentration (mg/kg) (see Note 2) ≥ 1

Notes:
1. Aerial imagery provided by Calhoun County.
2. Estimated PCB concentrations for sediment deposits with no sampling data were interpreted based on PCB data for nearby sediment samples.
3. Sediment sample locations are approximate.
4. Snow Creek deposits are based on field probing conducted in 1999.
5. in: inches
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   PG: remediation goal

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 1 mg/kg

Solutia

Figure
9-12b

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Appendix C\FigC-AtoJ_SnowCreek_SedimentDeposits_WithData1.mxd 3/3/2016 1:59:07 PM

S-1-17

CP-C-9		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
CP-C-9-0-4"	0-4	2.0

S-2-02		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10045	0-3.5	19

CP-C-10		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
CP-C-10-0-2"	0-2	2.9
CP-C-10-2-6"	2-6	3.6
CP-C-10-6-12"	6-12	12

SED-A10		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
SED-A10	0-3	6.9

CP-C-11		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
CP-C-11-0-2"	0-2	1.6
CP-C-11-2-6"	2-6	1.2
CP-C-11-6-12"	6-12	7.5

S-2-03a		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10046	0-3	3.8

S-2-05		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10048	0-2	5.4
S10049	2-5	6.4

S-MED-1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10134	0-8	60

S-HIGH-1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10135	0-18	4.2
S10137 [duplicate]	0-18	2.3

S-2-06A		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10060	0-2	22
S10061	2-5	8.9

S-2-08		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10050	0-2	20
S10051	2-12	20
S10052	12-16	4.0

S-2-06B		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10053	0-2	13
S10054	2-12	11
S10055	12-20.5	34
S10131 [duplicate]	12-20.5	60

SED-A11		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
SED-A11	0-3	16

S-2-06C		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10056	0-2	30
S10057	2-12	14
S10058	12-24	23
S10059	24-27	15

PECON-011		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PECON-011	0-3	4.3

PECON-012		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PECON-012	0-3	8.5

S-2-01
S-2-02
S-2-3A
S-2-3B
S-2-4A
S-2-4B
S-2-05
S-2-06
S-2-07
S-2-08
S-2-09
S-2-10
S-2-11
S-2-12
S-2-13
S-2-14

Figure 9-12a
Figure 9-12b
Figure 9-12c
Figure 9-12d
Figure 9-12e
Figure 9-12f
Figure 9-12g
Figure 9-12h
Figure 9-12i
Figure 9-12j
202
78

Legend

- Sediment Sample Location
- Natural Bank Stability Measures
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain
- Deposit with Metals Exceedance and PCB < 10 mg/kg
- Sediment Deposit Average PCB Concentration (mg/kg) ≥ 1
- Sediment Deposit Estimated PCB Concentration (mg/kg) (see Note 2) ≥ 1

Notes:
1. Aerial imagery provided by Calhoun County.
2. Estimated PCB concentrations for sediment deposits with no sampling data were interpreted based on PCB data for nearby sediment samples.
3. Sediment sample locations are approximate.
4. Snow Creek deposits are based on field probing conducted in 1999.
5. in: inches
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 1 mg/kg

Solutia

Figure
9-12c

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
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S-3-01		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10064	0-2	3.3
S10065	2-8	4.8

SED-A12		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
SED-A12	0-3	3.9

S-2-16		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10062	0-2	4.0
S10063	2-4	3.3

S-3-05		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10069	0-2	1.4
S10070	2-10.5	2.1

S-3-02		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10066	0-2	8.1
S10067	2-12	11
S10068	12-15.5	17

S-3-07		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10071	0-2	0.66
S10072	2-8	0.76

S-2-15
S-2-16
S-3-01
S-3-02
S-3-03
S-3-04
S-3-05
S-3-06
S-3-07

Figure 9-12a
Figure 9-12b
Figure 9-12c
Figure 9-12d
Figure 9-12e
Figure 9-12f
Figure 9-12g
Figure 9-12h
Figure 9-12i
Figure 9-12j
202
78

Legend

- Sediment Sample Location
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain

Sediment Deposit
Average PCB Concentration (mg/kg)
- < 1
- ≥ 1

Sediment Deposit
Estimated PCB Concentration (mg/kg) (see Note 2)
- ≥ 1

Notes:
1. Aerial imagery provided by Calhoun County.
2. Estimated PCB concentrations for sediment deposits with no sampling data were interpreted based on PCB data for nearby sediment samples.
3. Sediment sample locations are approximate.
4. Snow Creek deposits are based on field probing conducted in 1999.
5. in: inches
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 1 mg/kg

Solutia

Figure
9-12d

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
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S-4-02		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10073	0-2	1.1
S10074	2-4	0.58

Legend

- Sediment Sample Location
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain

Sediment Deposit
Average PCB Concentration (mg/kg)
< 1

Sediment Deposit
Estimated PCB Concentration (mg/kg) (see Note 2)
≥ 1

Notes:
1. Aerial imagery provided by Calhoun County.
2. Estimated PCB concentrations for sediment deposits with no sampling data were interpreted based on PCB data for nearby sediment samples.
3. Sediment sample locations are approximate.
4. Snow Creek deposits are based on field probing conducted in 1999.
5. in: inches
mg/kg: milligrams per kilogram
ND: nondetect
OU: operable unit
PCB: polychlorinated biphenyl
RG: remediation goal

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 1 mg/kg

Solutia

Figure
9-12e

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
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Legend

- Snow Creek
- OU-1/OU-2 Downgradient Floodplain

Notes:
1. Aerial imagery provided by Calhoun County.
2. Estimated PCB concentrations for sediment deposits with no sampling data were interpreted based on PCB data for nearby sediment samples.
3. Sediment sample locations are approximate.
4. Snow Creek deposits are based on field probing conducted in 1999.
5. in: inches
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal
6. No remedial areas shown on this figure.
   Figure included to providecomplete view of Snow Creek.

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 1 mg/kg

Solutia

Figure
9-12f

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
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Legend

- Sediment Sample Location
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain
- Sediment Deposit
- Average PCB Concentration (mg/kg)
  - < 1

Notes:
1. Aerial imagery provided by Calhoun County.
2. Estimated PCB concentrations for sediment deposits with no sampling data were interpreted based on PCB data for nearby sediment samples.
3. Sediment sample locations are approximate.
4. Snow Creek deposits are based on field probing conducted in 1999.
5. in: inches
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal
6. No remedial areas shown on this figure.
   Figure included to providecomplete view of Snow Creek.

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 1 mg/kg

Solutia

Figure
9-12g

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
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S-5-02		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10077	0-3.5	4.5

S-5-03		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10078	0-2	5.8
S10079	2-4	1.6

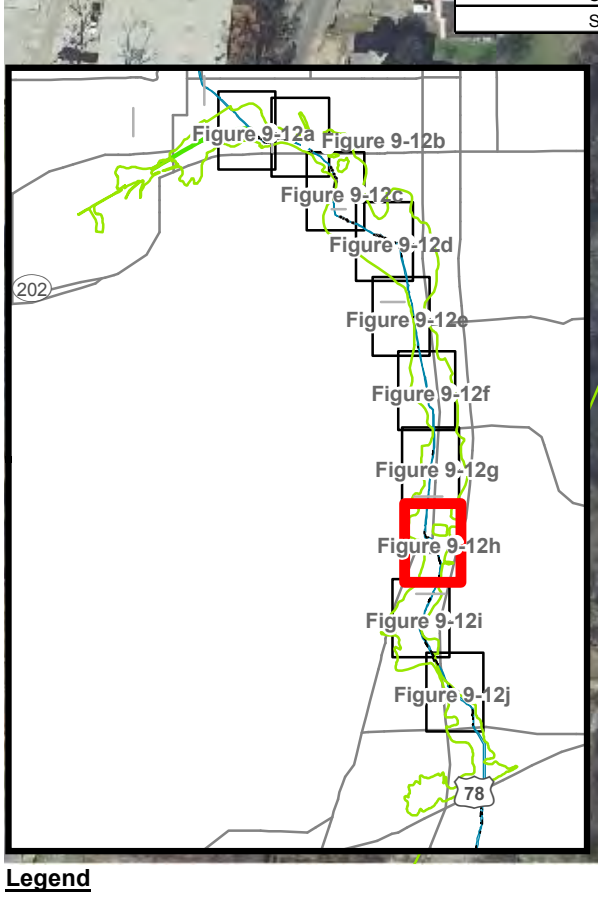
S-LOW-1		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10136	0-6	1.7

S-5-04		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10080	0-2	1.8
S10081	2-6	1.9

S-5-05		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10082	0-2	1.2
S10083	2-4	1.9

S-5-06		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10084	0-2	2.7
S10085	2-5	2.3

S-5-03
S-5-04
S-5-05
S-5-06
S-5-07
S-5-08A
S-5-08B



Legend

- Sediment Sample Location
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain
- Deposit with Metals Exceedance and PCB < 3 mg/kg

Sediment Deposit
Average PCB Concentration (mg/kg)
- ≥ 1

Sediment Deposit
Estimated PCB Concentration (mg/kg) (see Note 2)
- ≥ 1

Notes:
1. Aerial imagery provided by Calhoun County.
2. Estimated PCB concentrations for sediment deposits with no sampling data were interpreted based on PCB data for nearby sediment samples.
3. Sediment sample locations are approximate.
4. Snow Creek deposits are based on field probing conducted in 1999.
5. in: inches
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 1 mg/kg

Solutia

Figure
9-12h

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
Q:\Anniston_PCB_site\AnnistonAL\MXDs_Printfiles\Reports\OU1_2_FeasibilityStudy\mxd\Appendix C\FigC-AtoJ_SnowCreek_SedimentDeposits_WithData1.mxd 3/3/2016 1:59:07 PM

S-5-08B
S-5-9
S-5-10
S-5-11A
S-5-11B
S-5-12A
S-5-12B
S-5-13
S-5-14
S-5-15
S-5-16

PECON-020		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PECON-020	0-3	0.75

CA-25-9999-90		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PCWASTE-004-A	0-3	11
S70746	6-12	0.76

FE2-001-C		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
FE2-001-C	0-3	2.5

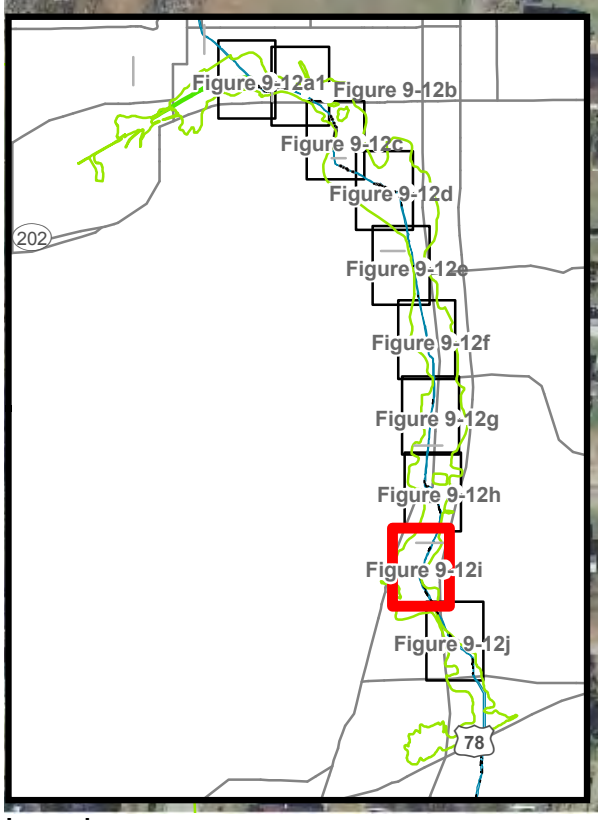
FE2-001-A		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
FE2-001-A	0-3	0.90

S-5-13		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10086	0-3.5	1.3

S-5-14A		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10087	0-2	1.5
S10088	2-5	0.92

S-5-14B		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10089	0-2	1.6
S10090	2-5.5	1.6

PCWaste-004-B		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
PCWaste-004-B	0-3	1.2



Legend

- Sediment Sample Location
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain
- Deposit with Metals Exceedance and PCB < 3 mg/kg
- Sediment Deposit Average PCB Concentration (mg/kg) ≥ 1
- Sediment Deposit Estimated PCB Concentration (mg/kg) (see Note 2) ≥ 1

Notes:
1. Aerial imagery provided by Calhoun County.
2. Estimated PCB concentrations for sediment deposits with no sampling data were interpreted based on PCB data for nearby sediment samples.
3. Sediment sample locations are approximate.
4. Snow Creek deposits are based on field probing conducted in 1999.
5. in: inches
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   RG: remediation goal

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 1 mg/kg

Solutia

Figure
9-12i

City: SYR Div/Group: SWG Created By: KIVES Last Saved By: jbistrovich
ANNISTON
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S-5-24		
Sample Name	Depth Interval (in)	Total PCB (mg/kg)
S10091	0-2	1.2
S10092	2-12	1.2

Legend

- Sediment Sample Location
- Snow Creek
- OU-1/OU-2 Downgradient Floodplain
- Sediment Deposit Average PCB Concentration (mg/kg) ≥ 1
- Sediment Deposit Estimated PCB Concentration (mg/kg) (see Note 2) ≥ 1

Notes:
1. Aerial imagery provided by Calhoun County.
2. Estimated PCB concentrations for sediment deposits with no sampling data were interpreted based on PCB data for nearby sediment samples.
3. Sediment sample locations are approximate.
4. Snow Creek deposits are based on field probing conducted in 1999.
5. in: inches
   mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyl
   PRG: remediation goal

0 150 300 Feet
Graphic Scale

Anniston PCB Site: OU-1/OU-2
Anniston, Alabama

OU-1/OU-2 Record of Decision

Candidate Remedial Areas for Sediment/ Creek Banks with a PCB RG of 1 mg/kg

Solutia

Figure
9-12j

APPENDIX C

Comment Letters

REDACTED

ANNISTON PCB SUPERFUND SITE PUBLIC COMMENT

You may send in comments or use the space below to write your comments, then fold and mail. A response to your comment will be included in the Responsiveness Summary.

[redacted]

Comment:

Will I Ever Be Able To Grow vegtables on my land

City of Anniston Appraisel on My House And Land For 14000 Their Has Been 2 Empty House's That Won't Sell For $000' of Coure The Wireing Has Been Stolen out of one of The 2 House's

Is There Any Way To lower The Pcb's in My Body ??

Anniston is Ranked #1 in people Leaving The Area and Jacksonville is #2 in The State. is Pcb the Reason OR is it Job's I Had To Find Employment out of Calhoun County.

11066570

U.S.
EPA.
Region 4
ATLANTA Federal CENTER
61 FORSYTH STREET S.W.
ATLANTA GEORGIA 30303 8960

Name _____
Address _____
City _____
State _____ Zip _____

Stamp
Here

Pam Scully, Remedial Project Manager
U. S. EPA, Region 4
Superfund Restoration and Sustainability Branch
61 Forsyth St., SW
Atlanta, GA 30303

REDACTED

ANNISTON PCB SUPERFUND SITE PUBLIC COMMENT

You may send in comments or use the space below to write your comments, then fold and mail. A response to your comment will be included in the Responsiveness Summary.

[redacted]

Comment:

My property at [redacted] St ANNISTON, AL 36201, A Residential property which has A drainage ditch running (open) next to the property, has been identified as A property with high Levels of Polychlorinated biphenyls (PCB) and Lead.
There has been A Top Soil removal action on the Land but not under the Structure.

The Plan to determine the remedial actions needed to protect human health and the environment At the PCB sites in ANNISTON IS welcome And needed.

My property At [redacted] IS not safe to live in or safe due to the high Level of PCB around and under the house.
This property has no value to me, Every year I pay high taxes that drain my income, and there is no future in doing anything productive with this property.

I suggest people like me, in my situation be Compensated for Structure removal while making it possible for the responsible party to continue Clean-up. Also request Compensated for Past And future potential of property.

Please review my proposal with great Concern

[redacted]

11066571

[redacted]

State _____ Zip _____

BIRMINGHAM ALA

16 MAR 2017 PM 3 L

U.S. EPA - Region 4

MAR 23 2017

Atlanta, GA 30303

Pam Scully, Remedial Project Manager
U. S. EPA, Region 4
Superfund Restoration and Sustainability Branch
61 Forsyth St., SW
Atlanta, GA 30303

30303-896099

REDACTED

ANNISTON PCB SUPER FUND PUBLIC COMMENT

NAME [redacted]
ADDRESS
STATE & ZIP ALABAMA, 36201

COMMENTS;

I FEEL NRS-6 IS THE BEST REMEDIAL ACTION RECOMMENDED. I DO NOT LIKE THE CONTAINMENT AND CONTROL OF PCB OR ANY OR OTHER DANGEROUS CHEMICALS. MONTSANTA STOPPED PRODUCING PCB IN 1971. THAT WAS 46 YEARS AGO. SIX YEARS AGO (2010/2011/ SOLUTIA ENTERED INTO AN AGREEMENT TO ADDRESS THE PCB AND OTHER CHEMICAL PROBLEMS ON SOLUTIA PROPERTIES. THUS, THIS IS NOT TO BE ADDRESSED TODAY. HOWEVER, I STRONGLY DISAGREE. THE PCB ARE STILL PRESENT ON SOLUTIA PROPERTIES TODAY. DO THEY EXPECT THE CITIZENS OF CALHOUN COUNTY TO WAIT ANOTHER 46 YEARS FOR THE PROPERTY TO BE CLEANED. OR, MAYBE, IF THEY WAIT LONG ENOUGH WE WILL FORGET ABOUT THE PROBLEM.

I OWN A LOT THAT JOINS SOLUTIA'S PROPERTY ON TWO SIDES. THE LOT ON THE OTHER SIDE IS OWNED BY [redacted] NONE OF THESE LOTS HAVE BEEN CLEAN OF PCB'S. WE GET A NOTICE EVERY YEAR STATING THAT WE CAN NOT DISTURBURE OUR SOIL IN ANY MANNER OR CLEAR OUR LOTS WITHOUT APPROVEL FROM THE EPA. SOLUTIA STATES THAT THEY CAN NOT CLEAN THE LOT BECAUSE IT IS WOODED. THE ROOTS WOULD HAVE TO BE REMOVED TO PROPERLY CLEAN THE CONTAIMED SOIL. JUST GETTING THE CONTAINMENTED SOIL ON YOUR HANDS AND EATING AN APPLE OR SANDWICH WITH OUT A COMPLETE SANTITION OF YOUR HANDS AND FACE COULD ALLOW PCB TO ENTER YOUR BODY AND CAUSE CANCER. WELL, WHAT ABOUT NEIGHBOR KIDS PLAYING IN THE WOODS AND TRYING TO DIG A RABBIT OUT OF A HOLE, OR SOMEONE DIGGING UP A PLANT TO PUT IN THEIR YARD, OR JUST SOME DIRT TO FILL UP A HOLE OR SOME GOOD TOP SOIL. HOW ABOUT SOME HOMELESS PERSON SLEEPLING AND EATING ON THE GROUND. THESE CONTAIMNATED LOTS MUST BE CLEANED!

IT IS IMPORTANT TO TAKE ACTION ON SNOW CREEK AND CHOCCOLOCCO CREEK. BUT, WE MUST REMEMBER WHERE THE CONTAIMNATION CAME FROM AND HOW IT GOT THERE. IT CAME FROM SOLUTIA'S PROPERTY. WE ARE TOLD THAT THE RAIN WILL NOT WASH PCB OFF CONTAIMNATED WOODED PROPERTIES. WELL, I TOTALLY DISAGREE WITH THAT

11066572

ATEMENT. THAT IS HOW WE DISCOVERED THE PROBLEM IN FISH IN CHOCCOLOCCO CREEK. IT WAS CARRIER THERE BY RAIN WATER.

IT RAINED THIS WEEKEND AND I COLLECTED SOME RAIN WATER THAT DRAINED OFF OF SOLLUTIA'S PROPERTY LOCATED BETWEEN ZINN PARKWAY DRIVE AND CLYDEDALE'S AVE. IT WAS CLEAR AS CITY TAP WATER WHEN COLLECTED. HOWEVER AFTER A COUPLE A DAYS SEDIMENT BEGAN TO FORM ON THE BOTTOM OF THE JARS. I BELIEVE A TEST BY THE EPA WOULD FIND PCB'S AND OTHER CHEMICALS IN THIS WATER. I ESTIMATE ABOUT 54 WOODED LOTS IN THE FENCED AERA OF THIS PROPERTY. OUTSIDE THE FENCED AREA, SOLUTIA OWNS 15 LOTS NEAR ZINN PARKWAY DRIVE. I WOULD LIKE TO KNOW HOW MANY OF THE 175 ACRES OWNED BY SOLUTIA HAVE NOT BEEN CLEANED.

I DO NOT KNOW WHY SOLUTIA BUYS SOME PROPERTIES ON ZINN PARKWAY DRIVE AND DECLINES OTHERS. MY FAMILY HAS OWNED MY PROPERY OVER 50 YEARS. I HAVE ASKED SOLUTIA MANY TIMES TO BUY MY LOT AND EVERY YEAR THEY HAVE REFUSED. THE OWNER OF THE LOT NEXT TO MINE IS IN THE SAME POSITION. I HAVE INCLOSED A COPY OF A LETTER FROM CENTURY 21 REAL ESTATE BROKER. THEY DECLINED TO EVEN LIST MY PROPERTY FOR SALE! SOLUTIA HAS DESTROYED MY PROPERY AND REFUSES TO COMPENSE ME IN ANY MANNER. INFACT, MY PROPERY IS A LIABILITY INSTEAD OF AN ASSET. DORTHY WOODARD HAS TWO LOTS AND CAN NOT SELL THEM!

I FEEL THIS SUBJECT SHOULD BE A CONCERN TO ALL CALHOUN COUNTY CITIZENS. I RECEIVED A FACT SHEET WITH 9 PAGES AND 2 SUGGESTED REMEDIAL ALTERNATIVES. MY NEIGHBOR RECEIVED NOTHING. ANOTHER FRIEND RECEIVED A FACT SHEET WITH 28 PAGES AND 6 SUGGESTED REMEDIAL ALTERNATIVES. WHY?

I WAS PLEASED WITH THE CLEAN UP ON [redacted], ANNISTON, AL 36201 HOWEVER, THE PROBLEMS CREATED AT THE CLEAN UP ON [redacted] STREET, ANNISTON, AL 36201 ARE TOTALLY UNACCEPTABLE!

SINCERELY,

[redacted]

HARRIS-MCKAY REALTY

P.O. Box 2550, 123 S. Quintard Avenue, Anniston, Alabama 36202
HarrisMcKay.com 256-237-8100 Since 1958

March 20, 2017

[redacted]

RE: [redacted] Property located at Zinn Parkway Drive, Anniston, Alabama

Dear Mr. [redacted]

Thank you for your interest in having Century 21 Harris – McKay Realty market your property for sale. After our discussion and reviewing your letter from Solutia dated December 12, 2014 on the reference property unfortunately we will not be able to market the property for you. With the environmental issues with the property cited in the letter and possibly surrounding properties our company would have extreme difficulty marketing the property. There would be legal liability concerns with the condition of the property as well as other factors. The ability to sell property and its marketability as well as the sale price is based on supply and demand. With the conditions of the property stated in the letter I feel we would not be able to sell the property. In real estate, the company must spend money marketing the property and if the property does not sell the real estate company does not get paid.

Thank you for your interest and we hope to have your business on other real estate in the future.

Respectfully,

Keith Kelley

Keith Kelley

President

CLYDESDALE AVE

REDACTED

ANNISTON PCB SUPERFUND SITE PUBLIC COMMENT

NAME [redacted]
ADDRESS [redacted] PHONE [redacted]
CITY ANNISTON
STATE & ZIP ALABAMA 36201

COMMENTS;

THE ALABAMA POWER FACILITY SEPARATES MY HOME FROM THE SOLUTIA PLANT. ~~THE~~ THEY SIT ON A HILL ABOVE MY HOME. THUS, ALL THE RAIN WATER OFF THEIR HILL FLOWS BY MY PROPERTY. WE HAD DITCHES TO TAKE CARE OF THIS UNTIL THE INVIROMENTAL CLEAN UP OF OUR PROPERTY OCCURRED.

1.) DITCHES WERE FILLED OR MADE TOO SHALLOW TO HANDLE THE DRAIN WATER. ONE OF MY DRAIN PIPES WAS ALMOST CLOSED.
2.) MY NEIGHBOR ACROSS THE STREET HAD HER DRIVE WAY DRAIN PIPE REMOVED AND FILLED IN WITH SOIL AND NO DITCH AT ALL. WHEN, THE SUPERVISOR WAS ASKED TO PUT THE DRAIN PIPE BACK, HE DENIED THAT THE PIPE WAS THERE.
3.) THEY RAISED THE LEVEL OF MY YARD ~~AT~~ ONE POINT 4" UPON MY CHAIN LINK FENCE.
4.) THEY DID NOT WANT TO REPLACE THE SAME TYPE OF GRAVEL OR GRASS. THE TOP SOIL FOR MY GARDEN IS WORTHLESS (SAND & GRAVEL)
5.) I DID NOT GIVE MY APPROVAL OF THE JOB THEY DID. NOW, I HAVE TO COPE WITH NO GARDEN, 2" OF WATER ON MY FRONT PORCH & 4" OF RAIN ON MY BACK PATIO WHEN WE HAVE HAVE A HEAVY RAIN. WATER

I DO NOT UNDERSTAND WHY I received A FACT SHEET WITH 28 PAGES AND SIX SUGGESTED PLANS OF ACTIONS. WHILE OTHER CITIZENS RECEIVED A FACT SHEET WITH 9 PAGES AND TWO SUGGESTED PLANS OF ACTIONS. MONTSANTO STOPPED PRODUCING PCB AND OTHER HARMFUL CHEMICAL IN 1971, A SEPARATE PLAN AND RECORD OF DECISION IN 2010/2011 ADDRESSED THE 175 ACRES OF LAND OWNED BY SOLUTIA. YOU MAY FEEL THAT THIS HAS SOLVE THE PROBLEM WITH SOLUTIA'S PROPERTY. HOWEVER, WE ARE TALKING ABOUT 46 YEARS SINCE MONTSANTO STOPPED PRODUCING PCB'S AND SIX YEARS SINCE YOU ENTERED INTO A PLAN TO CLEAN UP SOLUTIA'S PROPERTY. WHY DO YOU STILL HAVE PCP'S ON YOUR PROPERY? THE PCB WERE DISCOVERED IN FISH IN CHOCCOLOCCO. THE PCB GOT THERE BY TRAVELING SEVERAL MILES IN WATER. THE SOURCE WAS THE SOLUTIA PROPERTY. NOW WE ARE BEING TOLD THAT WATER WILL NOT WASH THE PCB OFF THE SOLUTIA PROPERTY. HOWEVER, THE OWNERS OF PROPERTY ADJOING SOLUTIA CAN NOT BE DISTURBED IN ANY WAY WITH OBTAINING PERMISSION FROM THE EPA. WHAT ABOUT THE CHILDREN , PETS, HOMELESS AND OTHER PEOPLE WHO TAKE A WHIM TO WALK THRU THE WOODS NEXT TO THEIR HOMES. MAYBE DIG UP A WILD PLANT FOR THEIR YARD. OR A DOG OR CHILD WHO TRIES TO DIG A RABBIT OUT OF A HOLE IN THE GROUND. PROPERTY BEING BEING WOODED IS NO EXCUSE FOR CONTINUED ENDANGERMENT OF THE CITIZENS OF THIS COUNTY. THE TREES AND ROOTS MUST BE REMOVED. SOLUTIA IS RESPONSIBLE AND THEY MUST PAY THE COST FOR THE CLEAN UP. JUST BECAUSE SOLUTIA OWNS THE PROPERTY IS NO EXCUSE FOR NOT REMOVING THE DANGEROUS CHEMICALS. SOLUTIA,S PROPERTY SHOULD HAVE BEEN THE FIRST PROPERTY TO BE CLEANED. I DO NOT LIKE CONTAINING AND MANAGING THE PCB RISK!

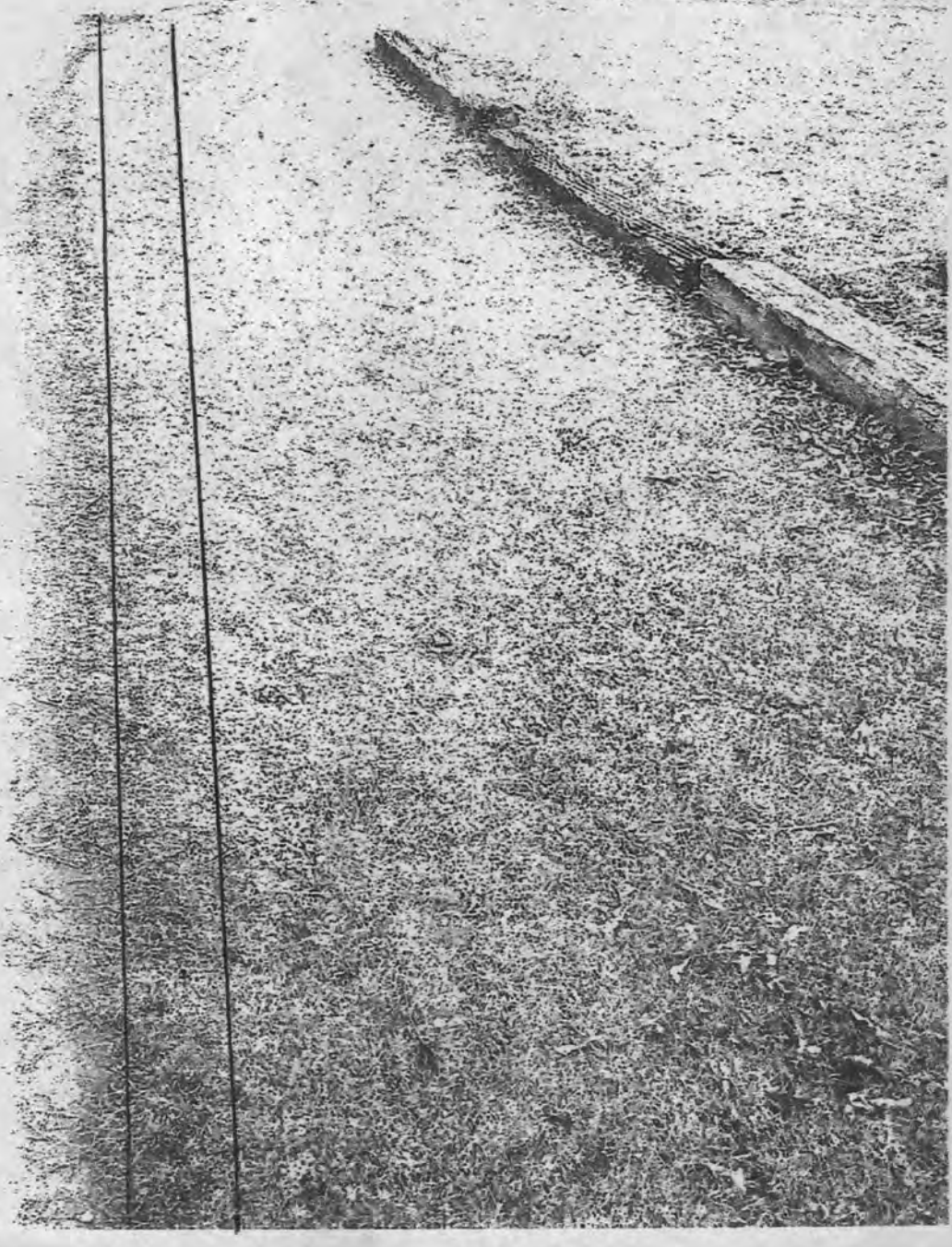
MY EXPERIENCE WITH SOLUTIA HAS BEEN VERY POOR. I FEEL FOLLOW UP ON THE REMAINURE OF THEIR CLEAN UP IS VERY CRITICAL!

SINCERELY,

[redacted]

11066573

NEIGHBORS DRIVEWAY
DRAIN PIPE REMOVED →



PIPE ALMOST COVERED
DITCH

304

NO DITCH

REDACTED

ANNISTON PCB SUPERFUND SITE PUBLIC COMMENT

You may send in comments or use the space below to write your comments, then fold and mail. A response to your comment will be included in the Responsiveness Summary.

[redacted]

[redacted] Alabama [redacted]

Comment:

My name is [redacted] I am concerned about the PCB contamination in the Anniston area. In the area where I live I have witnessed animals fall dead after coming from the woods after a rainstorm. The think contamination can be seen throughout this town. Many life long citizens are dying from lupus, cancer, breast cancer, brain cancer and many other forms of cancer associated w/ PCB contamination. It is said that some families did not receive ~~contamination~~ compensation and others who only lived here for a short while received more than 50,000.00 in damages. I am asking for retesting of soil samples, Retesting of citizens, Research of PCB related dinth rate and compensation to those who deserve to be compensated for being exposed to the PCB in the toxic town.

ATTY, MR BOB Fellow ~~WAS~~ LAW Tested 35'6 AND Test 50 Ppm AND HE WAS ALSO IS DOAD. From PCB AT 1625 WEST 6TH ST (1625) AND MISTER HARRIS BUSINESS NEVER WAS RELOCATED BEST SOLUTION IS MOVING THE PEOPLE WAS SUPPOST TO SEEK WITH ATORB CAST AND WAH NEVER SETTLED

11066574

[redacted]

Stamp
Here

Pam Scully, Remedial Project Manager
U. S. EPA, Region 4
Superfund Restoration and Sustainability Branch
61 Forsyth St., SW
Atlanta, GA 30303

REDACTED

I am appalled at the action of the Environmental Protection Agency (EPA). I bought this property in the 1970's as an investment. There were no restrictions on the property at that time. But now the property has been ruled as contaminated. I have really no control of my own investment nor can I get any compensation. We all know who contaminated the property – Mansanto.

I will use this as an example. If someone hits and damages my car, am I supposed to fix the damage or is the one who did the damage responsible? Ms. Pam Sully seems more interested in making sure Monsanto does not owe for the contaminated property. Does the EPA work for Monsanto? To me, the one who contaminated my property should pay for all of the clean up and make me whole at a fair price. I cannot sell my property. At this point, I lose all around.

This cleanup is a MUST for all of the citizens of Anniston, Alabama. The cancer rate is very high for Anniston vs the state of Alabama. Ms. Sully gave me a report that confirmed that my property was very contaminated over the limits. Now, I am told that I must clean it up. But, who is to pay?

When I bought the land as an investment, there were no restrictions on it. But now that it has been contaminated, I have been told that I am responsible to pay for the cleanup.

Monsanto should pay for the cleanup and pay me and others that are hurt by the contamination of property.

11066575

ANNISTON PCB SUPERFUND SITE PUBLIC COMMENT

You may send in comments or use the space below to write your comments, then fold and mail. A response to your comment will be included in the Responsiveness Summary.

[redacted]

Comment: Please see attached

[redacted]

FL 335
SAINT [illegible] BURG FL
27 [illegible] PM 3 1

Remedial

Pam Scully, Remedial Project Manager
U. S. EPA, Region 4
Superfund Restoration and Sustainability Branch
61 Forsyth St., SW
Atlanta, GA 30303

30303-896099

Scully, Pam

From: Christy Hiett <chiett@cleburneschools.net>
Sent: Wednesday, March 29, 2017 10:01 AM
To: Scully, Pam
Subject: Anniston, Alabama

Good Morning!

I have the information that was given out at a meeting in Anniston about Monsanto and the removal of PCBs in the Anniston area. I have a few questions about some of the information:

Where are the landfills located that were "adjacent to" or near t he "former Monsanto facility" that is mentioned in the introduction (in the information that was handed out at the meeting), that were addressed in a "separate Proposed Plan?"

What is the address of the landfill used in Piedmont, Alabama - Three Corners Landfill?

What are the addresses of the "two unapproved waste disposal areas" that were "auto fluff disposal areas?"

Operable Unit 4 covers a large amount of land and Choccolocco Creek. I understand that Choccolocco Creek was contaminated with PCBs. The information given at the meeting states "A more complete and complex baseline assessment of ecological risk is being conducted for the downstream waterway, Choccolocco Creek (OU4), which is located in a more rural, less developed setting." Is there a specific portion of CHoccolocco Creek that is being assessed or is it the entire creek?

Are there routine water tests conducted to check for PCBs in the water supply since groundwater contamination took place near OU3?

I greatly appreciate the time it will take to answer these questions and I would love to have any more information that you can give. I am currently reading the information on the EPA website.

Dr. Christy Hiett
Principal
Fruithurst Elementary School
256-579-2232

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REDACTED

ANNISTON PCB SUPERFUND SITE PUBLIC COMMENT

You may send in comments or use the space below to write your comments, then fold and mail. A response to your comment will be included in the Responsiveness Summary.

[redacted]

Comment:

To whom it may [redacted] was not given any information before I purchased [redacted] Anniston Al. 36201. Had I been told of the problem I would of not have moved here. No way to know. I had to have the water line replaced, and yard was dug up. All that dust flying around caused me to have a bad sinus + breathing problem. If that wasn't bad enough. They had to dig out the storm drains which lasted for days. I've been on meds since that time. I've got enough Health problems. I know if I had known about the PCB's I wouldn't be here now. I want my opinion the whole thing should have been torn down to the ground. I've called your number [redacted] no one returned my call. My number is [redacted]

Truly
Donya Wilson

P.S. I'm not from Anniston I moved here from another State. I was duped.

DW

11066577

REDACTED

[redacted]

16 APRIL 2017

THE ONLY REASON THAT I'M COMMENTING ON THIS ISSUE IS BECAUSE I RECEIVED A COPY OF THE PROPOSED PLAN FROM PAM SCULLY AND IT'S THE SAME AS ALWAYS BEEN. MAKING THINGS UP AS THEY PROCEED. THE ORIGINAL CLEAN AIR ACT AMENDMENTS OF 1990 LIST OF HAZARDOUS AIR POLLUTANTS 1336363 POLYCHLORINATED BIPHENYLS (AROCLORS). 1993 WAS THE YEAR THAT A LARGE MOUTH BASS WITH BLISTERED SCALES GOT THE ATTENTION OF REGULATORS BECAUSE IT HAD HIGH LEVELS OF (PCBs). TWO UNLINED LANDFILLS WERE DISCOVERED TO BE THE CAUSE WHICH WERE TRACED BACK TO COBB TOWN SWEETVALLEY AREA. OCTOBER 1995 MONSANTO PRESENTED A PROPERTY PURCHASE PROGRAM FOR PRIVATELY OWNED LOTS AND RESIDENTIAL PROPERTIES. MRS. DOROTHY HAMMOCK MY NOW DEACEASED MOTHER WAS OFFERED 30,925.00. THE LYTHCOTT COMPANY WAS HIRED TO DO A RELOCATION STUDY IN MARCH 1995. MONSANTO THEN PROCEEDED TO DO WHAT IT WANTED INSTEAD OF FOLLOWING HIS SUGGESTIONS. MR. HARRIS BUSINESS HAS BEEN CLOSED. THE AMERICAN LEGION POST 312 THE OLDEST BLACK BUSINESS HAS BEEN TREATED DIFFERENTLY THAN THE OTHER BUSINESSES LOCATED IN THE SAME AREA. MRS. SYGRID CAUDLE SAID THAT HER FAMILY NEVER RECEIVED AN OFFER TO SELL. MR. GENE LONG WHOSE IN HOUSE DUST SAMPLES IN THE FLOOR OF THE LIVING AREA IS 140.0 PPM. ALTHOUGH EPA LIST THE LEVEL OF CONCERN FOR PCBs IN DUST AS 1.0 PPM. FEBURARY 2001 ASTDR (AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY) ISSUED A FACT SHEET WITH THE MOST FREQUNTLY ASKED HEALTH QUESTIONS ABOUT PCBs. PCBs DO NOT READILY BREAK DOWN IN THE ENVIROMENT AND THUS REMAIN THERE FOR LONG PERIODS OF TIME. PCBs CAN TRAVEL LONG DISTANCES IN THE AIR . PCBs ALSO BIND STRONGLY TO SOIL. HOW MIGHT I BE EXPOSED TO PCBs? EATING CONTAMINATED FOOD. THE MAIN DIETRY SOURCES OF PCBs ARE FISH (THERE HAS BEEN A FISHING BAN FOR COCOLOCCOTE CREEK SINCE 1994). BREATHING AIR NEAR HAZARDOUS WASTE SITES. IN 2003 ATSDR ISSUED HEATH CONSULTATION REPORT. ON THE BASIS OF THE DATA REVIEWED, ATSDR CONCLUDED THAT: COMMUNITY MEMBERS WHO RESIDE NEAR THE SOLUTIA INC. FACILITY ARE LIKELY EXPOSED TO PCBs VIA INHALATION. BECAUSE OF LIMITIED AIR SAMPLING DATA IN THE RESIDENTIAL AREAS, THE MAGNITUDE OF THESE EXPOSURES CANNOT BE DETERMINED; THEREFORE, COMMUNITY MEMBER PCB EXPOSURES VIA INHALATION POSE AN INDETERMINATE HEALTH HAZARD. PCBs ARE PRESENT IN THE AMBIENT AIR BOTH ON AND OFF THE PERIMETER OF THE SOLUTIA INC. PROPERTY AT HIGHER LEVELS THAN THOSE FOUND IN LARGE US URBAN CITIES. NOW THIS CITY (ANNISTON) HAS TAKEN TAX PAYERS MONEY AND PROMOTING THE COLDWATER BIKE TRAIL. WITHOUT TELLIN THE CITIZENS THAT WOULD BE USING THIS AREA THAT THEIR ARE HAZARDOUS AIR PARTICLES. COMPARISN FOR CANCER MORTALITY RATES FOR ALABAMA AND CALHOUN COUNTY BY GENDER, 2005-2009, ALL RACES, FOR SELECTED SITES. CANCER GROUP WITH KNOWN ASSOCIATION WITH EXPOSURE TO POLYCHLORINATED BIPHENYLS (PCBs). THE RATE RATIO FOR LEUKEMIAS IS SIGNIFICANTLY DIFFERENT RATE FOR ALABAMA (EXCEPT CALHOUN COUNTY). FEB. 2014 I WROTE JUDGE BOWDRE A LETTER EXPRESSING MY CONCERN FOR THE HEALTH AND SAFETY OF THE CITIZENS OF CALHOUN COUNTY. MAY 21 2015 ACCORDING TO THE U.S. CENSUS BUREAU CALHOUN COUNTY POPULATION SHRANK BY THOUSANDS DURING THE PAST FOUR YEARS. THE REPORT SHOWS ANNISTON HAD THE THIRD LARGEST PERCENTAGE LOSS OF RESIDENTS AMONF THE 62 CITIES IN THE STATE WITH MORE THAN 10000 PEOPLE. IT HAS BEEN PREDICTED THAT CALHOUN COUNTY POPULATION WILL CONTINUE TO DECREASE FOR THE NEXT 20 YEARS. CALHOUN WILL NOT SURVIVE WITHOUT CLEAN AIR. IN 2012 EPA HAD THE AIR TESTED FOR PCBs AND THE RESULTS HAVE NOT CHANGED. ALL OF THE MONEY THAT HAS BEEN SPENT ON THE CLEANUP HAS NOT CHANGED THE FACTS OR OUTCOME. NOW THE EPA WANTS INSITUTIONAL CONTROLS PLACED ON PRIVATE PROPERTY WITHOUT PROPERTY OWNERS CONSENT. THEY'VE TAKEN THE LAWSUIT SETTLEMENT AND MADE IT ALL

11066578

INCLUSIVE. NO ONE WINS WHEN THINGS ARE DONE IMPROPERLY. I'M A FORMER MEMBER OF THE RESTORATION ADVISORY BOARD. EPA SENT INCINERATORS CONTRACTORS TO GIVE AN UPDATE. INCINERATION WOULD DESTROY 99.9% OF THESE PCBs. MY IDEA WAS NOT TO DIG THEM UP AND HAUL THEM AWAY BUT TO BUILD THE INCINERATOR ON SITE AND USE THE SEPTIC PUMP APPROACH AND PUMP PCBs DIRECTLY FROM THE LAND FILL INTO THE INCINERATOR.

REDACTED

FROM

[redacted]

To Pam Scully
U.S. Environmental Project Manager
I was at the meting in Oxford on March 24, 2017, I wanted to know why the propity next to my propert on Teague Strut in Oxford was cleand up but not 230 Teague wasn't. I was told they would talk to me after the meting. I thought all buisness was to be conducted during the meting. I have 4 lots 40 ft by 160 ft. They are in the Oxford city limits, let me know what I nud to do in order to get the help I need. They HAVE PCB ON THE[redacted]

11066579

REDACTED

Saskowski, Ronald

From: Scully, Pam
Sent: Monday, May 15, 2017 8:19 AM
To: R4_SEMS_Records
Subject: FW: Per The Anniston PCB Site propposal

From: [redacted]
Sent: Wednesday, May 3, 2017 9:56 AM
To: Scully, Pam <scully.pam@epa.gov>
Subject: Per The Anniston PCB Site propposal

The purpose of the proposed plan is to facilitate public involvement in the remedy selection process. As part of this process, EPA communicates existence of the proposed plan, via the local newspaper, to the public so that the public can access and review the plan. However, all of this assumes that the community not only is able to access the plan but is also able to understand the plan and provide comment. The importance of a community's ability to understand government documents has been underscored by the Plain Writing Act of 2010, which requires that federal agencies write "clear government communication that the public can understand and use."

Unfortunately, it appears that the Proposed Plan Fact Sheet is too technical for the average citizen to understand with little if any attempt at making information understandable to the average person. This fact is at least evidenced by readability test results. For example, reading ease of the proposed plan document is 29.5, which indicates that the document is very difficult to read and would be best understood by those who have graduated from college. Further, readability results reveal that the Proposed Plan is written at an approximate 13 grade level, which seems fairly inappropriate given that less than 20% of the target population would be able to understand the material.

While individuals can contact EPA if they have difficulty understanding any documents, pages on their website, or if a document isn't written in plain language, this information seems to exist solely on EPAs Plain Language page within its website and is not accompanied with any of the material within the proposed plan fact sheet and would therefore require a user to have advanced knowledge and understanding of this federal Act or accidentally stumble upon the webpage in order to utilize this method of communication. Further, given that 42.7% of Anniston residents either do not have a computer or do not have an Internet subscription in their household, it is unlikely that a community member would be able to readily access this information.

In addition, given that EPA regulatory requirements for public participation in association with a Proposed Plan only requires that the lead agency communicate an announcement within the newspaper, its own guidelines state that "…notice of the Proposed Plan should be sent directly to the citizens and PRPs via the community relations or enforcement mailing list for the site." While it is noted that this is not a statutory or regulatory requirement, this is suggested so that timely participation from citizens and PRPs outside the circulation area of the local newspaper can be obtained. While this method may not always be feasible or cost effective, at minimum the newspaper publication should include the webpage address to obtain a copy of the documents and an option to request a copy of the documents to better ensure that all interested parties are able to access and review the documents.

Recommendations:

Use plain language and clear communication, distribute using multiple low cost methods, pilot test documents with target audience to assess understanding and obtain feedback, assess reach of documents, and allow for longer period of time to review documents prior to the public meetings.

Thank You

[redacted]

REDACTED

Saskowski, Ronald

From: Scully, Pam
Sent: Monday, May 15, 2017 7:22 AM
To: R4_SEMS_Records
Subject: FW: Comments from CAG on Proposed Plan OU1 OU2 May 4 2017
Attachments: CAG Coments to EPA for Proposed Plan OU1 Ou2 May 4 2017.pdf

From: Community Advisory Group [mailto:cag_cd@annistoncag.org]
Sent: Thursday, May 4, 2017 3:33 PM
To: Scully, Pam <scully.pam@epa.gov>
Cc: Cynthia Calix <ccalix@annistoncag.org>
Subject: Comments from CAG on Proposed Plan OU1 OU2 May 4 2017

Hi Pam,

CAG comments are attached. Please let me know that you have received them, as well as comments from [redacted]

I hope you have a great weekend,
Cindy

--

Cynthia Calix

Administrator
Community Advisory Group For The Consent Decree
1812 Wilmer Avenue

Suite B
Anniston, AL 36201
Voice: 256*741*1429
FAX: 256*741*3224
EMail: ccalix@annistoncag.org
Website: www.annistoncag.org

Community Advisory Group (CAG) is an advisory group of citizens who exists to serve as a place for the exchange of information and input from the community in the affected area and advise those individuals and organizations charged with carrying out the actions described in the Consent Decree in an effective and well-managed manner.

This electronic mail message is intended exclusively for the individual or entity to which it is addressed. This message, together with any attachment, may contain Community Advisory Group For The Consent Decree privileged information. The recipient is hereby put on notice to treat the information as confidential and privileged and to not disclose or use the information except as authorized by Community Advisory Group. Any unauthorized review, printing, forwarding, retention, copying, disclosure, distribution, retransmission, dissemination or other use of, or taking of any action in reliance upon, this information by persons or entities other than the intended recipient is prohibited. If you received this message in error, please immediately contact the sender by reply email and delete all copies of the material from any computer. Thank you for your cooperation.

May 4, 2017

Anniston PCB Site Community Advisory Group
For The Consent Decree (CAG)
1812 Wilmer Avenue Suite B
PO Box 487
Anniston, AL 36202

Ms. Pamela J. Langston Scully, P.E.
Remedial Project Manager
United States Environmental Protection Agency, Region IV
Atlanta Federal Center
61 Forsyth Street S.W.

Atlanta, GA 30303-8960

RE: Comments of the *Proposed Plan for Operable Unit 1 and Operable Unit 2 of the Anniston PCB Site, Anniston, AL.*

Dear Ms. Scully,

Please find enclosed comments from the Anniston PCB Site Community Advisory Group Board of Directors, on the above referenced document.

Sincerely,

Cynthia Calix
Administrator
CAG

Comment 1:

Remedial Alternative for Residential Soil

The CAG prefers RS-3. Excavate PCBs ≥ 1mg/kg at all depths and manage PCB residuals, in order to remove restrictions from properties without residuals. If the EPA chooses RS-2, the CAG recommends a readily available resource containing all residential sampling data for public access. Following all instances of excavation there should be confirmation sampling.

Comment 2:

Remedial Alternative for Special Use Properties

The CAG prefers SU-4. Excavate PCBs ≥ 1mg/kg in high and low activity areas and manage PCB residuals. This will provide unrestricted property to which the community is entitled. Following all instances of excavation there should be confirmation sampling.

Comment 3:

Remedial Alternative for Interim Measures

The CAG prefers IM-4. Excavate around existing interim measures to meet non-residential goals; excavate any principal threat waste found within interim measures if leaching to groundwater. Following all instances of excavation there should be confirmation sampling.

Comment 4:

Remedial Alternative for Dredge Spoil Piles

The CAG prefers DSP-4. Excavate all dredge spoil piles and dispose offsite. Following all instances of excavation there should be confirmation sampling.

Comment 5:

Remedial Alternative for Unapproved Waste Disposal Areas

The CAG prefers UWDA-3 Resource Conservation and Recovery Act subtitle-D, cap both locations.

Comment 6:

Remedial Alternative for Non-Residential Soil

The CAG prefers NRS-4a. Excavate to ≥ 21 mg/kg, dispose all contaminated soil offsite and manage PCB residuals. Provided routine sediment monitoring occur to insure goals are achieved. Following all instances of excavation there should be confirmation sampling.

Comment 7:

Remedial Alternative for Groundwater at T-11

The CAG prefers GW-4. This remedy will remove high concentrations of PCBs in the soil. Provide a low permeability CAP to prevent further groundwater contamination. The remedy will also, require pumping and treating groundwater to drinking water standards. Following all instances of excavation there should be confirmation sampling.

Comment 8:

Remedial Alternative for Snow Creek Sediment and Creek Banks

The CAG prefers SED-4a. Excavate to ≥ 3mg/kg, dispose all contaminated soil offsite and provide routine monitoring to insure all goals are meet. After the Creek is clean, the community would like to have 50% of residential property adjacent to the Creek resampled to ensure that they are still protected.

Comment 9:

Air Monitoring

The air remains a health concern for the community. The community would like to guarantee air monitoring occurs with each five-year review of the remedy. The community also request results of air monitoring during all construction activities.

Comment 10:

The CAG recommends funding to the Anniston Community Education Foundation, to continue their mission and vision of assisting children of West Anniston and the impacted area.

REDACTED

Saskowski, Ronald

From: Scully, Pam
Sent: Monday, May 15, 2017 7:13 AM
To: R4_SEMS_Records
Subject: FW: Comments
Attachments: COMMENTS FOR OPERABLE UNITS 1AND 2 ALTERNATIVES saved.docx

From: Shirley Carter [mailto:msabccarter[redacted]
Sent: Monday, May 8, 2017 2:44 PM
To: Scully, Pam <scully.pam@epa.gov>; Shirley Carter <msabccarter[redacted]
Subject: Comments

Pam attached are the comments from my Organization and myself. Please let me know that you received them
Thanks
Shirley

Pam Scully EPA Region 4

61 Forsyth St SW

Atlanta GA 30303

RE: Comments for Operable Units 1 and 2

Pam,

I am submitting these comments on behalf of Mothers and Daughters Protecting Children`s Health (MADPCH) and myself so you can count them twice.

Attached are the commits that I wish to have submitted for the Operable Units 1 & 2 Alternatives

COMMENTS FOR OPERABLE UNITS 1AND 2 ALTERNATIVES

As a community representative for the Anniston Al PCB Superfund Site I am writing these comments regarding the proposed alternatives for the site. One of the criteria`s for the alternatives is Community Acceptance. The alternatives that EPA has proposed does not have Community Acceptance below are some comments regarding the proposed alternatives.

Comment 1 Residential Soli

Residual Properties the community would rather RS 3 be selected as this would leave no restriction on properties and would monitor properties without residuals. If RS 2 is picked the community would recommend a readily accessible web site that is community friendly with all sampling data available

Comment 2 Special Use Properties

Recommending SU 4 Excavating hi and low activity areas to residual soil levels to provide for unrestricted use.

Comment 3 Interim Measures Areas

IM 4 is fine paying special attention to any leaching issues that come up.

Comment 4 Dredge Spoil Piles

DSP 4 is ok

Comment 5 Unapproved Waste Disposal Areas

UWDA 3 with both sites having a RCRA Subtitle Cap

Comment 6 Non-Residual Soil

NRS 4 ok routine monitoring is needed to make sure that goals are being met.

Comment 7 Groundwater at T 11

GW 4 is ok providing that the pumping and treating of groundwater is bringing it to drinking standards

Comment 8 Snow Creek Sediment and Creek Bank Soils

SED 4 A with monitoring provided to make that all goals are being met. We recommend that after cleaning of the creek that at least 50 % of the properties along side the creek be resampled to ensure that they are still safe.

NOTE: The community feels that after all excavation of soil and sediment there needs to be confirmation sampling done to ensure that goals are being met

Some other Issues that need to be addressed are as follows:

1. Air Sampling

The Community is recommending that there be a baseline air sampling campaign next year and each five years after that with a report by the air department from EPA to the community. We feel that the sampling needs to be done at the plant site and within a 3 mile area surrounding the plant as PCB`s were found in the bark of trees further out. We also need random sampling by EPA as well.

2 Unsuitable Properties

The Community feels deeply that we have not been treated fairly when it comes to properties that Solutia has deem "unsuitable". We feel that cleaning of those properties should be the sole responsibility of Solutia. Presently the owners must clean the property (cut the tree top, high grass etc. then Solutia will come in and remove the stump and roots) you cannot clean the property without disturbing the soil regardless if you only clean the top part of the over grown areas. The owners are not qualified to deal with the contaminated soil. Their properties are then deemed non saleable by realtors in the areas so the owners are then left with a piece of property that he/she cannot use or sell.

3 Crawl Spaces Underneath Houses

This has always been an issue within the community that the explanation given by EPA has never satisfied the community.

4 Institutional Controls

The community as a whole are not aware of the two that are mentioned. There has not been any outreach to the community nor has there been any community education of neither of these two institutional controls measures. **Therefore they cannot be acceptable to the community.** The community feels that there needs to be a community friendly single

database of all sampling results (not just properties that have residual PCB's on them) housed somewhere that the community has access to and is able to use at any time as we have a very fluid community.

5 Funding for the Anniston Community Education Foundation (ACEF)

The community feels that Solutia should provide funding for ACEF to continue its mission and vision for enhancing the educational needs of the children in West Anniston and the surrounding impacted areas. Despite Solutia stopping its funding in 2015. The foundation continues to provide grants to non-profits that address the educational needs of the children in the PCB impacted area, they continue to give out schlorships , take the children on college tours of their choosing, They have a youth coalition program that has students involved from all the high schools in the area giving back to their community and becoming leaders in their communities as well. The have a PAL program partnering with Head Start Parents, and a Geer Up Your Career Project with Daniel Foundation as a partner. We as a community feel that Solutia should provide Financial funding to assist this foundation in continuing its mission of assisting the educational need of children in the PCB impacted area as The Foundation was set up to do in the Consent Decree. Although the Foundation has impacted the lives of many of the children there are still many more than need assistance. We would like to thank you for your consideration in this area especially. We feel that what we are asking is nothing compared to the damaged that has been done to our community by Monsanto/Solutia and the PCB contamination. We as a community has paid a devastating price with our health (both physically and mentally), which in many cases has cost us our wealth.

We as a community feel that considerable consideration should be given to these comments and all others that are received from our community members.

Respectfully Submitted

Shirley Carter, Concerned Citizen,
President & CEO MADPCH

REDACTED

Anniston Community Education Foundation
818 Leighton Ave, Suite A
P.O. Box 1026 * Anniston, AL 36202
(256) 741.1630 * (256) 741.1631 Fax
www.annistoncef.org

May 2017

Dear Ms. Scully,

Thank you for the opportunity to comment on the negotiations regarding Operable Unit 1 and 2 of the Anniston PCB Site. As you know, the Anniston Community Education Foundation was established in January 2004 to receive funds from the defendants in *U.S. v. Pharmacia Corp. and Solutia Inc.* "to provide special education, tutoring, or other supplemental educational services for the children of west Anniston that have learning disabilities or otherwise need additional educational assistance."

Since the entry of the Consent Decree for OU3 in 2013, human exposure to toxins has continued in the OU1 and OU2 areas. As we are sure you aware, medical studies have shown negative effects to children from their exposure (directly or *in utero*) to PCBs. See

- Emory University School of Medicine, Department of Pediatrics, *Polychlorinated Biphenyls (PCBs),* https://goo.gl/Pp765E (last checked 12 April 2017)
- Gradjean et al, *Neurobehavioral deficits associated with PCB in 7-year-old children prenatally exposed to seafood neurotoxicants,* Neurotoxicology and Teratology 23 (2001) 305–317, https://goo.gl/wZdaCI (last checked 12 April 2017)

Thus, additional cohorts of children have been exposed to the negative effects of PCBs, and they are likely to have educational problems.

We request that the EPA consider the incremental impact of OU1 and OU2 on the children of west Anniston and advocate for an additional contribution from the defendants to the Foundation to remediate the potential educational problems created by the PCB contamination of the community. The Foundation operates under the belief that every child can and will succeed with the proper educational resources. The following pages detail the importance of our ongoing services and the costs of operating the Foundation. We will be happy to consult further with the EPA during the negotiations as to a reasonable amount of additional funding.

Sincerely,

C V Helms

Cassie Helms
Executive Director
chelms@annistoncef.org

Our Mission

"To **BUILD** a collaborative network of diverse stakeholders to **IMPROVE** the quality of education in our targeted communities."

Our Vision

"Empowering youth in the designated area with need-based Educational Resources

11066580

Anniston Community Education Foundation
818 Leighton Ave, Suite A
P.O. Box 1026 * Anniston, AL 36202
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In any venture, the difference between success and failure is often a matter of inches—perhaps the gap between fingertips and the bottom rung of a ladder. Everyone who approaches with the intent to climb does so with variables that may help or hinder success. Some can stretch or jump to catch hold and pull themselves up. Others able to reach the first rung may lack the strength to hold on. Still others may need a block to stand on and steady themselves—or a boost from behind and maybe a hand from above. At the Anniston Community Education Foundation (ACEF), the staff, volunteers, and board of directors fully embrace the uniqueness of each student served and fully understand that a holistic approach to addressing student needs means there is no one path forward, no single metric of attainment.

Well into its second decade, the ACEF remains passionately dedicated to its mission ("to build a collaborative network of diverse stakeholders to improve the quality of education in our targeted communities") and its vision ("to empower the youth in the designated areas with need-based educational resources"). That dedication manifests itself in a complex array of services and programs that reflect the foundation's core adaptability to the needs of those they serve. The belief that "every child can and will learn with the proper educational resources" drives ACEF to offer a variety of programs to benefit children and families in Anniston and other targeted areas.

The Parents-as-Leaders Program (PALS) seeks to bridge the gap between home and school by offering workshops and materials to parents of students in impacted area Head Start programs. Participating parents are given guidance in stages of child development and access to a wide array of materials that will help them maintain and nourish the academic foundation necessary for their children's success in kindergarten and beyond. Also covered in these workshops are budgeting and finance, job readiness training, behavior management techniques, and health and wellness awareness. PALS fosters positive interaction, physical development, family language and literacy, and family numeracy, all of which are fundamental to learning and may help strengthen family cohesion. Beginning in 2017, PALS will expand its reach to include parents of Anniston K-12 students.

The Youth-Family Summit is an annual summer event that focuses on Science, Technology, Engineering, and Mathematics (STEM) for children in grades one through six and their families. The ACEF understands that a technology gap will hinder the eventual success of students and believes the Summit is only the beginning of efforts to expand the

use of rapidly changing technology among students and families. It is ACEF's plan to develop a STEAM camp (Science, Technology, Engineering, Arts, and Mathematics) where middle school aged participants begin to understand the interconnectedness of various "subject areas" and derive benefits from integrated learning.

Perhaps the crown jewel of ACEF is the **Youth Coalition**, which began in 2010 to reach sophomores through seniors in the impacted area. Participants learn to develop leadership skills, effective problem-solving skills, and a sense of civic responsibility as they plan and execute volunteer service to the community. In addition to college tours, ACEF youth take part in college prep and career prep workshops. ACEF hopes to expand even further with a ninth grade initiative and a *Gear Up Your Career Project* designed to target 11th-graders and keep them in school and on a path to college and/or career through ACT preparation, financial preparation workshops, and exposure to real-world careers and employers.

In addition to addressing student needs in its own programming from preschool through secondary school, ACEF partners with other not-for-profit entities in the Anniston area on programming to reach targeted students. ACEF offers competitive grants to organizations that provide direct service to students in math and science, humanities and language, and the arts. Also, ACEF offers a variety of scholarships: the **ACEF Scholarship Fund Program**, which provides scholarships to graduating high school seniors from Anniston, Oxford, Saks, and Wellborn who will attend a two-year or four-year college; the **Kevin Thompson Fund**, for those wishing to pursue a career in music or education; and, in collaboration with the **Calhoun Power Company**, the Calhoun Power Company Scholarship.

The power, passion, and scope of the Anniston Community Education Foundation are best illustrated by the words of those who have benefited from the foundation's work.

> "Timothy is nine … and will attend third grade in the fall. [H]e is unable to read without assistive devices…. He was recently diagnosed with Bardet– Biedl syndrome... The central part of his retina is degenerating…Timothy received an Optelec Multiview EVM for his home on July 23, 2014, thanks to Anniston Community Education Foundation's generous support during our 2013/2014 program year…Timothy's mother his hoping his new EVM will help improve his reading and grades in school."
>
> —Sight Savers America, 2015 ACEF Small Grant Recipient

"ACEF's Youth Coalition is more than a simple resource or organization to me. It's a community of support, care, and aid. It's an embodiment of love, opportunities, and achievements. IT means so much to me to be able to come to the ACEF office, or an event hosted by ACEF, and volunteer to help out my hometown and community that I adore so much."

—Tianjalyse Coleman, Anniston High School class of 2017, rising ACEF Scholarship Recipient, Youth Coalition Member since June 2015

"The Youth Coalition has and always will mean a lot to me. It helped me get out in the community and do something good."

—Mikayla Ludwig, Wellborn High School class of 2016, ACEF Scholarship Recipient, Youth Coalition Member from June 2015-May 2016

"I thought of the fourth grade Jaleel when I selected education as my career choice… Even today I see a kid that wants nothing more than to change the world...When I received the scholarship, it affirmed that my goal would prevail…"

—Jaleel Burton, Wellborn High School class of 2014, ACEF Scholarship Recipient.

"I want to start off first by saying thank you. Being a recipient of your scholarship has truly been a blessing in my life. It has helped me obtain my goals and dreams of being a mechanical engineer… I am grateful fro all of the help the scholarship was able to provide for me and I will most definitely give back…"

—Darius Cottingham, ACEF Scholarship Recipient

When ACEF thrives, its students prevail.

Anniston Community Education Foundation Programs and Services Cost Estimates

Anticipated Costs of Operating ACEF – 10 Years	
• Anniston Community Education Foundation is currently focused on creating sustainable growth, both in terms of the programs offered and the number of students reached by these programs. A program-specific breakdown of these costs is provided below.	Estimated Average Cost Per Year: $343,600 Total: $3,436,000

ACEF Administration	Estimated Average Cost Per Year: $230,000
• In addition to the day to day administrative costs of running the Foundation, ACEF currently operates with a Board of Directors, an Executive Director, and an Administrative Assistant. ACEF has identified the following additional staffing needs. o Community Outreach Coordinator: This position is responsible for helping to develop and maintain relationships within the community, oversee volunteer coordination, and assist in the development and oversight of new and established programs and services. o ACEF Fellows/Interns (2): This paid position is responsible for being on-site during Resource Room evening hours, providing tutoring, and assisting with day-to-day programs operations. This is an opportunity for students and recent graduates to gain experience in the nonprofit world.	

STEAM Camp	Estimated Cost Per Year: $17,675
• In June 2017, ACEF will pilot a STEAM (Science-Technology-Engineering-Arts-Mathematics) program for middle school girls. This will begin as a week-long Coding camp in partnership with Jacksonville State University. Each year, ACEF will add an additional week long module, until five modules are carried out each summer. After the pilot year, these modules are planned to be open to 25 girls. Technology will be a primary focus, with the entire STEAM ideology influencing the modules; these will include such topics as animation and music mixing.	

Anniston Community Education Foundation Programs and Services Cost Estimates

Youth Coalition and College Initiative	Estimated Average Cost Per Year: $18,475

- Currently, this program aims to reach 100 tenth through twelfth grade students from the impacted area. Students plan and participate in volunteer activities around the community, including mentoring and tutoring younger students; attend college and career prep workshops; and take part in college tours. These tours include HBCUs as well as other public and private colleges, primarily around the state of Alabama. In the Fall of 2017, school and ACT tutoring will be incorporated into this program.
- In November 2016, ACEF piloted a "mini" college fair. In 2017, this program will expand to include colleges and universities from across Alabama. ACEF will work with local high school counselors and principals to make this fair primarily accessible to Juniors and Seniors, as well as other interested students identified by the schools.
- ACEF will work with Anniston High School and Middle School to pilot a 9th Grade Initiative in the 2017/18 academic year to build leadership skills, civic awareness, and academic success with the goal of reducing drop-out rates. This program will target incoming 9th graders who have been identified as "at risk" by the school system.

Family Summit and Winter Supply Drive	Estimated Cost Per Year: $17,250

- Each summer, ACEF provides a day of fun and education for students in grades 1-6. Since 2015, we have turned our focus to STEM programming (Science, Technology, Engineering, and Mathematics). Parents are invited to take part in activities with their students, as well as visit workshops (such as healthcare and financial literacy) and booths provided by our partnering organizations. Free lunch and school supplies are provided to the attendees.
- Based on feedback from students, parents, and the community, ACEF plans to implement a fun, educational day on or near MLK day, beginning January 2018, that will include a school supply give away.

Anniston Community Education Foundation Programs and Services Cost Estimates

Parents As Leaders (PALs)	Estimated Average Cost Per Year: $9,200

- ACEF brings guests to the four local Head Starts (Ayers, Hobson City, Constantine, Norwood) each month (August through May). These community representatives share information about resources, educational opportunities, &c that help build parents' skills and knowledge for supporting and advocating on behalf of their children. ACEF helps to build the relationships and act as a liaison between Head Start parents, family advocates, and community representatives.
- Beginning in the Fall of 2017, ACEF will pilot a program to parents of K-12 children in the Anniston public schools. This once-a-month evening program will focus on helping parents develop the skills and knowledge needed to best advocate for their children and navigate the public school system. Parents will have a time to discuss school matters with one another followed by a speaker from a school or related advocacy group.

ACEF Scholarship Fund	Estimated Average Cost Per Year: $32,500

- The **ACEF Scholarship Fund Program** provides scholarships to graduating high school seniors from the impacted area who will pursue a course of study at either a two-year or four-year educational institution. These scholarships are renewable for up to 4 years. For 2017, the ACEF Scholarship Fund's award ceiling was $27,000 and the individual maximum award was $1,750. ACEF awards scholarships, ranging in amounts from $500 - $2,000 per award, based on strength of application and college/university choice. In 2017 alone, 33 students received funding for college. Each year, ACEF hosts a celebration honoring its scholarship recipients and graduating Youth Coalition members.

ACEF Small Grants	Estimated Average Cost Per Year: $25,000

- **Grants are awarded on yearly basis in amounts of $1,000 to $5,000 per year.** All programs/events must provide a direct service to children from the impacted area of the targeted communities. Funds must directly impact the youth and create a positive outcome that is measurable.
- The funding initiatives are the following:
  - Math and Science
  - Language and Humanities
  - Arts

CITY OF ANNISTON
P.O. Box 2168 ANNISTON, AL 36202

OFFICE OF THE MAYOR
JACK DRAPER

TELEPHONE (256) 236-7691
EMAIL: JDRAPER@ANNISTONAL.GOV

May 8, 2017

Pam Sully
USEPA Region 4
61 Forsyth Street, SW
Atlanta, Georgia 30303

Dear Ms. Sully:

The Anniston Community Education Foundation (ACEF) is dedicated to helping youth in the targeted communities of Anniston, Alabama attend and succeed in the educational arena. The belief that "every child can and will learn with the proper educational resources" is echoed throughout the Foundation's work. ACEF has partnered with the city of Anniston on a number of occasions, as well as other community members and organizations, in their efforts to increase academic achievement of youth in the targeted communities.

The Foundation focuses on the whole learner, beginning by offering programming and resources to parents of children in the local Head Starts. Each year, the Foundation provides a summer Summit for elementary aged children and their families that includes STEM education, free school supplies, and parent workshops. Beginning in June, ACEF will offer a STEAM Camp to middle school girls. The Youth Coalition targets students in grades ten through twelve, providing opportunities for community engagement and college/career preparation. In addition to these programs, the Foundation offers competitive grants and scholarships to the community. In 2017 alone, 33 students were awarded scholarships.

The City is grateful for the continued programs and services ACEF provides to the children of West Anniston and the surrounding communities. Continued financial support would allow the Foundation to continue and even expand upon these essential services.

Sincerely,

Jack Draper
Mayor

Anniston City Schools

OFFICE OF THE SUPERINTENDENT

Building a Foundation for Excellence

May 1, 2017

To Whom It May Concern:

Since my arrival as superintendent of Anniston City Schools in 2014, the Anniston Community Education Foundation (ACEF) has been a vital partner. In fact, the school district and the foundation share commonalities—a love for the children of this community and a passion for ensuring they are prepared for the world beyond high school. I am happy to write this letter of support as they kickoff this year's fundraising efforts.

In the summer of my first year as superintendent, I learned of the tremendous impact ACEF had on the students served in the school district. The school district partnered with ACEF to offer a family summit in our high school auditorium. The summit provided entertainment, self-esteem enhancement activities, parent support, and various learning activities for parents and students. Similar activities are planned for the upcoming summer—a Coding Camp, STEM/STEAM activities, etc. I know that the ACEF staff will focus on academic achievement as they facilitate each program.

The Youth Coalition sponsored by ACEF offers high school seniors an opportunity to participate in college and career readiness programs and attend college tours. These activities are very important for seniors since many of them would not get this experience otherwise. In addition to exposing students to the college environment, ACEF provides scholarships to many of our college ready seniors. In 2017 the foundation awarded 21 scholarships to students within Calhoun County.

During the 2017-2018 school year, ACEF plans to offer a parent support program for parents of students enrolled in Anniston City Schools. This program will be helpful to parents who want to develop skills and knowledge that allows them to better advocate for their child. It will also serve as a bridge building effort between the school district and the parents.

I am thankful to have ACEF as a partner. My staff and I are grateful for the unyielding support we have received over the last few years. Despite the up and down nature of a foundation's financial support, they continue to provide services that are essential to our students. Please do not hesitate to contact me if you would like to know more about how ACEF supports our needs.

Educationally yours,

Darren Douthitt

4804 McClellan Blvd. • P.O. Box 1500 • Anniston, AL 36202
(256) 231-5000 • (256) 231-5100
Web site: www.annistonschools.com

ANNISTON HIGH SCHOOL
1301 WOODSTOCK AVENUE
ANNISTON, ALABAMA 36207
TELEPHONE (256) 231-5010
FAX (256) 237-2213

OFFICE OF THE INTERIM PRINCIPAL

Charles D. Gregory Sr., Ed.S.
Interim Principal

Phillip Posey
Transitional Administrator

Edward J. Sturkie, Sr.
Career Tech Administrator

May 4, 2017

To Whom It May Concern:

The purpose of this communiqué is to provide a document of my support for the Anniston Community Education Foundation. ACEF has been instrumental in supporting our efforts to prepare all students to continuously learn to be ready to earn. Many of our students have availed themselves to opportunities ACEF has provided them to go on college tours. As a result of the college tours, our students were able to make more informed choices of where to further their education.

ACEF has also been instrumental in helping Anniston High School to reduce disciplinary incident rates. This was accomplished with the aid of two discretionary grants that I personally wrote that were funded by the foundation to support our Positive Behavior Support Initiative. The funds received from the grant allowed us to provide incentives to students for good behavior, and consequently, we were able to reduce our disciplinary incidents by 63%. Research of course reveals that there is an undeniable link between discipline and academic progress.

Also, we had the wonderful opportunity to host one of ACEF's Family Summits. It was an exciting day of fun for the students, as well as informative seminars for parents and students that stressed the value of a good education. All students in attendance certainly benefitted from the free school supplies that were passed out during the event.

Finally, it is always rewarding for us to witness our deserving students receive scholarships during the Senior Awards Day ceremony. ACEF has consistently provided such scholarships to students who have met their criteria, and consequently greatly assisted students beginning their collegiate careers.

It is for these reasons and others too numerous to mention, that I without reserve support ACEF and the work they continue to do for our community. I am confident that any assistance that individuals or organizations can provide to facilitate the continuance of ACEF's valuable work will be very beneficial to students. If I may be of any assistance, please feel free to contact me.

Best Regards,

Charles D. Gregory Sr.

Charles D. Gregory Sr., Ed.S.

<u>Our Vision</u>: Preparing students to continuously learn to be ready to earn.

<u>Our Mission</u>: Parents, educators, and community members working together to help students maximize their life potential through education in a nurturing environment.

RANDOLPH PARK ELEMENTARY SCHOOL

2200 West 17th Street
ANNISTON, ALABAMA 36201
TELEPHONE (256) 231-5080 FAX (256) 231-5082
Teresia J. Hall, Ed.S. Principal
Email: hallter@anniston.k12.al.us

OFFICE OF THE PRINCIPAL

May 9, 2017

To Whom It May Concern:

As principal of Randolph Park Elementary School, I write this communiqué in support of the Anniston Community Education Foundation. The Anniston Community Education Foundation is a great agency. The service and support rendered, has benefited many students, most of which have been impacted throughout the West Anniston Area and the surrounding County. We strongly support this agency because their focus in bringing awareness in health and educational disparities among a targeted population by continuing to foster grants for several at-risk youth in various schools.

I am so fortunate to have had the opportunity to partner with the Anniston Community Education Foundation, setting an example of leadership and working hard to close the achievement gaps of many. As a school with a free and reduced lunch program of 100%; this agency has fostered much support to our students. Through this letter, we acknowledge the partnership that we have formed, a long lasting relationship. We look forward to working with you in eliminating educational disparities in our community and achieving a solid foundation for all students and families.

If additional information is needed, please do not hesitate to contact the office at 256-231-5080.

Sincerely,

Teresia J. Hall, Ed.S.
Principal

"Keeping the main thing the main thing, teaching and learning"

OFFICE OF THE PRINCIPAL

Saks Elementary School

31 Watson Street
Anniston, AL 36206
256/741-6800

April 24, 2017

Pam Sully

USEPA Region 4

61 Forsyth Street, SW

Atlanta, Georgia 30303

Dear Pam Sully,

The Anniston Community Education Foundation (ACEF) is dedicated to helping youth in the targeted communities of Anniston, Alabama attend and succeed in the educational arena. The belief that "every child can and will learn with the proper educational resources" is echoed throughout the Foundation's work. Anniston Community Education Foundation facilitates partnerships with key stakeholders to increase academic achievement of youth in the targeted communities. They start out early, by offering programming and resources to parents of children in the local Head Starts.

Each summer, their Family Summit provides a fun day of STEM programming, parent workshops, and free school supply bags. Their Youth Coalition plans and serves in volunteer activities, attends college tours, and participates in college and career readiness programs. In the future, they plan to expand the reach of each of these programs, as well as develop a summer STEAM camp for middle school girls. They also award scholarships to many graduating seniors; in 2017 they had 21 new recipients. They work closely with many community partners to make their vision a success, including the public schools, housing authority, other nonprofits, and city officials.

Saks Elementary School has been blessed to partner with ACEF since 2010 and we are extremely grateful for this opportunity.

Sincerely,

Amber Ray

Amber Ray

Principal

"Students Achieving Knowledge & Self-Worth"

Anniston Housing Authority

Willie "Sonny" McMahand, Jr.
Executive Director

May 8, 2017

Pam Sully
USEPA Region 4
61 Forsyth Street, SW
Atlanta, Georgia 30303

Dear Ms. Sully:

The Anniston Community Education Foundation (ACEF) is dedicated to helping youth in the targeted communities of Anniston, Alabama attend and succeed in the educational arena. The belief that "every child can and will learn with the proper educational resources" is echoed throughout the Foundation's work. ACEF has collaborated with Anniston Housing Authority on numerous occasions, as well as other community members and organizations, in their efforts to increase academic achievement of youth in the targeted communities.

The Foundation focuses on the whole learner; beginning by offering programming and resources to parents of children in the local Head Starts. Each year, the Foundation provides a summer Summit for elementary aged children and their families that includes STEM education, free school supplies, and parent workshops. Beginning in June, ACEF will offer a STEAM Camp to middle school girls. The Youth Coalition, many of whose members over the last several years have been Housing Authority residents, targets students in grades ten through twelve, providing opportunities for community engagement and college/career preparation. In addition to these programs, the Foundation offers competitive grants and scholarships to the community. In 2017 alone, 33 students were awarded scholarships.

Continued financial support would allow the Foundation to remain and even expand upon these essential services. The Housing Authority is grateful for the constant programs and services ACEF provides to the children of West Anniston and the surrounding communities. Should additional information be needed, please contact me at (256) 237-4644 or Sharon Dunson at (256) 236-1575 ext. 135.

Sincerely,

Willie B. McMahand Jr.

Willie B. McMahand, Jr.
Executive Director

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NORTHEAST ALABAMA COMMUNITY DEVELOPMENT CORPORATION, INC.
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ANNISTON, AL 36201
PHONE (256) 235-8018
FAX (256) 235-8003
www.northeastalabamacdc.org

April 9th, 2017

Pam Scully
U.S. EPA Region 4
61 Forsyth Street S.W.
Atlanta, Ga. 30303

Pam Scully,

The Anniston Community Education Foundation (ACEF) is dedicated to helping youth in the targeted communities of Anniston, Alabama attend and succeed in the educational arena. The belief that "every child can and will learn with the proper educational resources" is echoed throughout the Foundation's work. Anniston Community Education Foundation facilitates partnerships with key stakeholders, through granting funds and offering services to increase academic achievement of youth in the targeted communities. They start out early, by offering programming and resources to parents of children in the local Head Starts. Each summer, our Family Summit provides a fun day of STEM programming, parent workshops, and free school supply bags. Their Youth Coalition plans and serves in volunteer activities, attends college tours, and participates in college and career readiness programs. They give scholarships to many graduating seniors and; in 2017 they had 21 new recipients. They work closely with many community partners to make our vision a success, including the public schools, housing authority, other nonprofits, and city officials.

On behalf of Northeast Alabama Community Development Corporation, we wholeheartedly support the continued success of ACEF. ACEF is an asset to our Anniston community. NACDC understands and share the value of investing earlier in the life of a child. NACDC mission is to provide safe, clean, and affordable housing, economic and youth development for low to moderate income residents of Northeast Alabama. Our affordable housing program efforts are primarily throughout Calhoun County with emphasis in Anniston and the impacted area. Through our project developments over the years, we have discovered the lack of clean, safe, and sanitary housing and the effect it has on our children social, mental, and academic progress. The lack of affordable housing impedes on the success of our children in the 3 areas of focus. We take abandoned and blight properties and make them safe, clean, and sanitary which leads to a higher quality home environment, improved test scores in children by as much as 9% in math and 7% in reading, and reduced behavioral problems by as much as 3%. Children who live in

bad housing have lower educational attainment and a greater likelihood of being impoverished and unemployed as adults. Children in bad housing have a greater chance of suffering mental health and behavioral problems. Housing deprivation leads to an average of 25% greater risk of disability or severe ill health across a person's lifespan. Those who suffer housing deprivation as children are more likely to suffer ill health in adulthood, even if they live in non-deprived conditions later in life.

If we can be of any further assistance please do not hesitate to contact us.

Respectfully Submitted,

Baron T. Sandlin, JD
Executive Director
Northeast Alabama CDC

Davia Palmer

[redacted]

April 20, 2017

To Whom It May Concern:

The Anniston Community Education Foundation (ACEF) was established in 2003 to help youth in targeted areas of Anniston, Alabama. One of the foundations main goals is to help all the children that it can to learn. I am a member of one of those targeted areas of Anniston and ACEF has helped me.

My name is Davia Palmer and I am a freshman at The University of Montevallo in Montevallo, AL. I moved to Anniston, West Anniston, at the age six. I attended school at Randolph Park Elementary, Anniston Middle School and graduated from Anniston High School. I have always wanted to attend college and was determined to do so but I needed help. ACEF was there for me.

The ACEF Scholarship Fund Program provides scholarships to graduating high school seniors from Anniston and its surrounding communities. Yes, I did have to completed the application and provide all the necessary paperwork but it was ACEF that had to see that I was deserving of a scholarship. Being a recipient of an ACEF Scholarship for the 2016-2017 helped tremendously with the financial aspect of my education. It also helped me on a volunteering level. In order to complete the requirements of an ACEF scholarship you must obtain a certain number of volunteer hours. ACEF provides a day of fun and education known as the Youth-Family Summit in which I was able to volunteer. That experience influenced me to become a Big Brothers Big Sisters mentor in Montevallo at Montevallo Elementary School.

The 2017-2018 school year will be upon us soon and I am a returning ACEF scholarship recipient. I sincerely appreciate the compassion the Anniston Community Education Foundation has shown for the city of Anniston and the care and support they have shown me.

Sincerely,

Davia Palmer

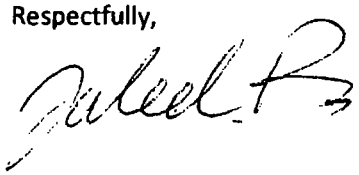
Davia Palmer

April 14, 2017

To Whom It May Concern:

I believe the Anniston Community Education Foundation has and will continue to greatly benefit my community through the eyes and hearts of our adolescents and am writing to express my full support. Coming from a family that would not be able to afford college without the help from this organization I can honestly say that they have been a huge part of my success throughout my college tenure. The Anniston Community Education Foundation has not only aided me through the financial struggles by awarding scholarships to deserving low-income teens like myself, but have also played a vital role in making sure that the scholarship recipients continue to prosper as productive citizens. I have participated in many of their events and service projects that benefit many age ranges within our communities.

Respectfully,



Jaleel Burton

To whom it may concern:

My name is Mikayla Ludwig and I joined the Anniston Community Education Foundation Youth Coalition in my junior year of high school. Through ACEF I was able to be a part of something bigger than myself. ACEF is a group that truly works to better the community and that is one of the many reason I love ACEF. While being a part of ACEF I volunteered at several places, including Salvation Army, STEM day and MLK day at the Anniston City Meeting Center, Sarrell Dental, at the ACEF office, and so much more. I was able to be helpful in my community and that is such a wonderful feeling.

Through ACEF I have made many memories and met so many wonderful people. The events are always fun, and a great thing to be a part of. ACEF also helps so many graduates by awarding them a scholarship. For me, moving out of state and living on my own away from all my family was hard but the ACEF scholarship helped pay for my school which took so much stress off of my shoulders. The people who work for ACEF are some of the most kind hearted people I have ever met and I am so thankful I had the opportunity to meet them and be a part of such a great organization!

ACEF also has given me the opportunity to meet high school peers that wanted to improve the community, and adults willing to give their time to help us. Whether it be with school, or just needing someone to talk to the ACEF workers have always been there for us.

I can only describe ACEF as a blessing and something I will forever be thankful for being a part of.

Sincerely,

Mikayla Ludwig

Mikayla Ludwig

Alpha Kappa Alpha Sorority, Incorporated

IOTA MU OMEGA

May 8, 2017
Mrs. Pam Scully Region 4
61 Forsyth Street
Atlanta, Georgia 30303

Dear Mrs. Scully,

Subject: Proposed Plan for OUI/OU2 of the Anniston PCB Site

Iota Mu Omega Chapter of Alpha Kappa Alpha Sorority ,Inc. And Rep. Barbara B. Boyd Alabama House of Representatives, District 32 support the students of the West Anniston Community in their educational endeavors. We are asking for funding to be continued to support the students, their families, and the community. Many of these students were originally and /or still impacted by PCB contamination.

Your cooperation and consideration is gratefully appreciated.

Respectfully,
Barbara B. Boyd, Ed.D.
Rep. Barbara B. Boyd, Ed.D.

P.O. Box 2243 · Anniston, AL 36202

Subject: Proposed Plan for OU1/OU2 of the Anniston PCB Site

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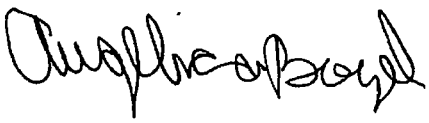

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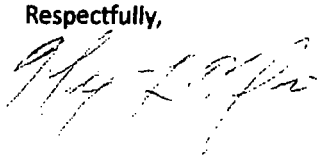

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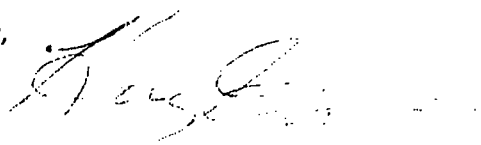

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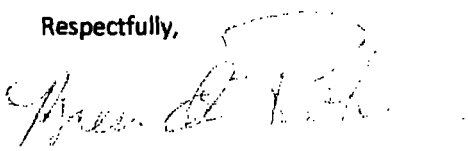

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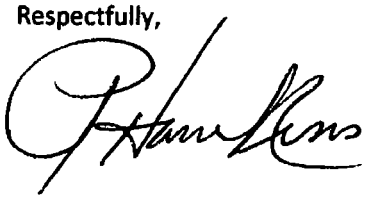

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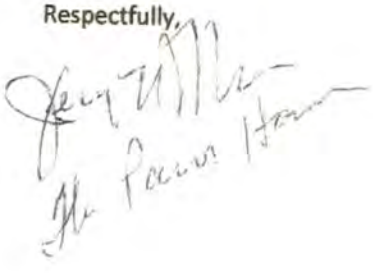

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Respectfully,

Gwen Reed.

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Gerald Smith Sr.

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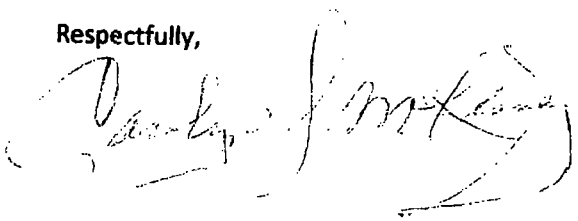

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Respectfully, Bettye M White

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Carrie A. Williams

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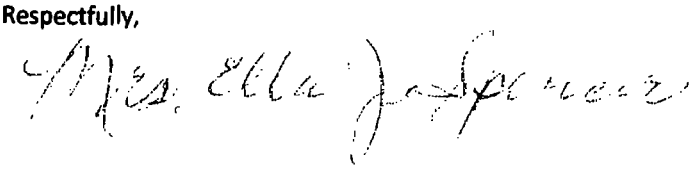

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Respectfully, Angel Emerald

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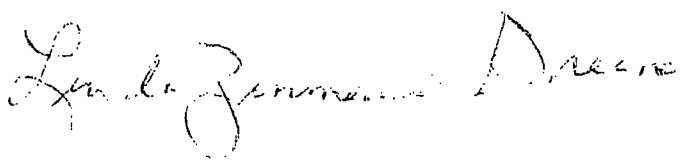

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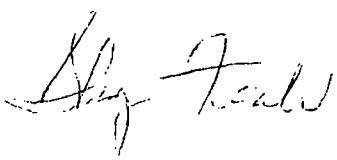

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Patricia Murray

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Janet Rouse

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Gayle McClellan

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Jacqueline Brown
Annie Storey

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Anniston Community
Education Foundation

(256) 741-1630

818 Leighton Ave #A
Anniston, AL 36202

acef@annistoncef.org

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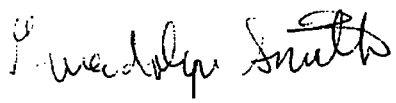

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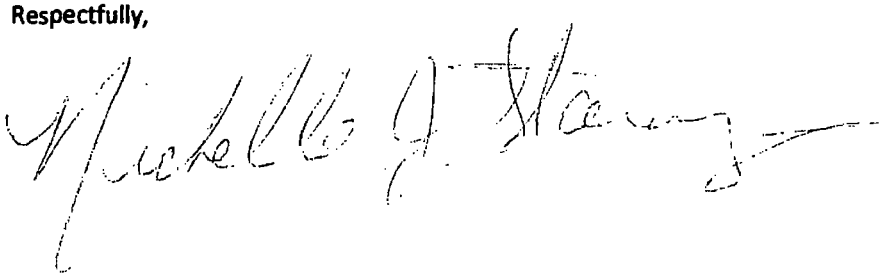

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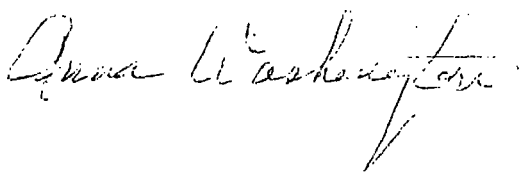

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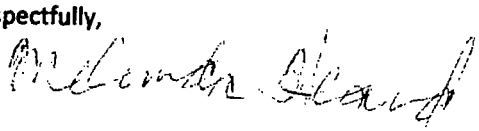

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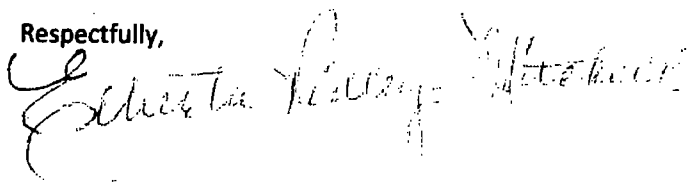

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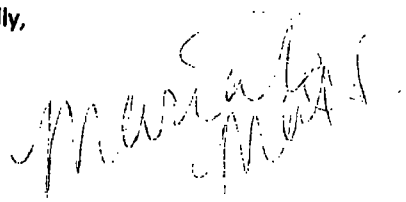

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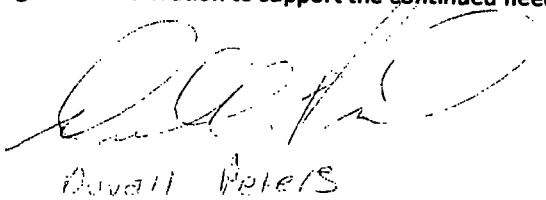


May 2017

Subject: Proposed Plan for OU1/OU2 of the Anniston PCB Site

Anniston Community Education Foundation (ACEF) facilitates partnerships with key stakeholders to increase academic achievement of youth in the impacted West Anniston area. Programming focuses on the whole student, from pre-school to college. The Foundation works closely with many community partners to make their vision a success, and as a member of this community, I believe the Foundation should receive ongoing funding to support their vision.

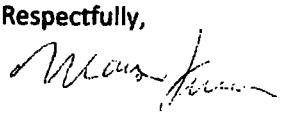
Respectfully, Lynn B. Thompson

May 2017

Subject: Proposed Plan for OU1/OU2 of the Anniston PCB Site

Anniston Community Education Foundation (ACEF) supports the students of the West Anniston community in their educational endeavors. Continued funding of ACEF would support the much-needed services that the Foundation provides to these students and their families, many of whom were originally and/or still are impacted by PCB contamination. I encourage continued funding of the Foundation.

Respectfully,



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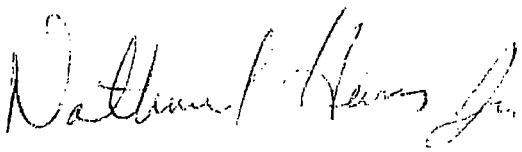

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Respectfully, KEVIN COOPER

May 2017

Subject: Proposed Plan for OU1/OU2 of the Anniston PCB Site

The Anniston Community Education Foundation (ACEF) is dedicated to helping youth in the targeted communities of Anniston, Alabama attend and succeed in the educational arena. The belief that "every child can and will learn with the proper educational resources" is echoed throughout the Foundation's work. As a concerned member of the West Anniston community, I believe that the OU1/OU2 plan should include continued funding of the Foundation to support the continued needs of the students in the community.

Respectfully,

May 2017

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Respectfully,

Jacqueline F. Carter

May 2017

Subject: Proposed Plan for OU1/OU2 of the Anniston PCB Site

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Respectfully,
Connie E. Miller

May 2017

Subject: Proposed Plan for OU1/OU2 of the Anniston PCB Site

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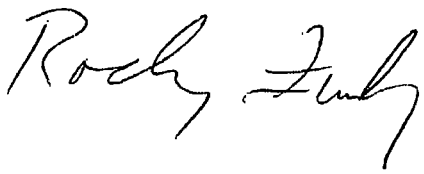

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Respectfully,

Ms. Mary Tipton

May 2017

Subject: Proposed Plan for OU1/OU2 of the Anniston PCB Site

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Respectfully, Vera M. Mason

Anniston Community
Education Foundation

818 Leighton Ave #A
Anniston, AL 36202

(256) 741-1630

acef@annistoncef.org

May 2017

Subject: Proposed Plan for OU1/OU2 of the Anniston PCB Site

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Respectfully,

Frank Boyd, Jr.

May 2017

Subject: Proposed Plan for OU1/OU2 of the Anniston PCB Site

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Respectfully,

Cynthia C. Whatley

Anniston Community
Education Foundation

(256) 741-1630

818 Leighton Ave #A
Anniston, AL 36202

acef@annistoncef.org

May 2017

Subject: Proposed Plan for OU1/OU2 of the Anniston PCB Site

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Respectfully,

Janice C. Lauderdale

CITY OF ANNISTON
P.O. Box 2168
Anniston, AL 36202

TELEPHONE (256) 231-7750
FAX (256) 231-7748

May 9, 2017

Ms. Pam Scully
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, Georgia 30303

Re: **Anniston PCB Remediation**
COA Comments

Dear Ms. Scully:

The City of Anniston is in receipt of the EPA fact sheets related to the Anniston OU1/OU2 PCB sites and is pleased that the cleanup efforts will be continuing. Upon my initial review of the fact sheets, it is apparent that it would be beneficial for the City of Anniston to be included in the design phase of the project. There are multiple components of the project that have the potential to impact the floodplain, city assets, city maintenance responsibilities, etc. Therefore, the City of Anniston is requesting to be involved during these key decisions as the project is designed and continues toward construction.

If you have any questions, please do not hesitate to contact me.

Lance Armbrester, P.E.
Anniston City Engineer

REDACTED

Saskowski, Ronald

From: Scully, Pam
Sent: Monday, May 15, 2017 7:14 AM
To: R4_SEMS_Records
Subject: FW: WAF Comments and concerns by the community on the OU 1 2 Proposed Plan
Attachments: Revised OU 1 2 Comments on the EPA (22) (1) (1).odt

From: Bertrand Thomas [mailto:bertrandthomas10[redacted]]
Sent: Tuesday, May 9, 2017 11:49 AM
To: Scully, Pam <scully.pam@epa.gov>
Cc: Thomas Dahl <todahl@[redacted]t>; Community Advisory Group <cag_cd@annistoncag.org>
Subject: WAF Comments and concerns by the community on the OU 1 2 Proposed Plan

Hello Pam, On behalf of the Community and the WAF, I am submitting the following concerns on the EPA Proposed Plan, blt

Comments on the EPA's Proposed Plan

One of the main concerns from the community is the high concentrations of PCBs under the bridge of Highway 202 where PCB soils were detected in sediment and children were seen playing in the Snow Creek Ditch; In the April, 2017 WFA's Forum, the EPA proposed to remove all the sediment under highway 202. The community thanked the EPA for addressing this issue. To give some background on this concern:

> At the December, 2015 WAF Forum, the TA opened the floor to the community to hear their ideas and alternatives to the remediation of the eight categories. The TA spoke with a resident, Ms. Judie Pointer, who lived behind Snow Creek and approximately 50 yards from a five-way culvert that passes under Highway 202. This location has one of the highest concentrations of PCBs. Ms. Pointer wanted the City or Solutia to install a fence along Snow Creek because her granddaughter fell into the creek and other children have been seen playing in and near the creek. The TA spoke of another lady who wanted to introduce an IC program that would teach the youth about the dangers of PCBs.
>
> Mr. Baker, a community leader in Anniston, added that he also visited this neighborhood and talked with the residents and witnessed children playing in the creek. In past CAG meetings, he brought this issue before the CAG and suggested that a fence with warning signs attached could be instrumental in keeping the children out of the creek and safe.
>
> One man raised the issue that the drainage ways belong to the City of Anniston and the elected officials should be the ones taking on the issues about the Creeks around Anniston.

Ms. Sully presented the community with a new proposal for the PCB Sediments under highway 202 which was:

> The EPA has decided to ***remove all the Sediment from the culvert under Highway 202***. All other Sediments will have a Remedial Goal of 3 (mg kg or parts per million (ppm)) as stated in the Proposed Plan SED-4a.

The West Anniston Foundation's (WAF) conducted two (2) forums on the EPA Proposed Plan for Operable Unit (OU) 1 and 2 on March 22nd and April 11, 2017. The Speaker for those Forums was EPA Remedial Project Manager (RPM) Ms. Pamela Langston Scully, P.E.. From those meetings and meetings from past WAF's Forums moderated by WAF's Technical Advisor (TA) Mr. Bertrand Thomas, P. G., the Community brought forth the following concerns to be addressed by the EPA for the EPA Proposed Plan:

(1) **Citizen concern**: How does the Proposed Plan protect me from planting a garden or planting a tree when there are only 12 inches of clean soil cover and no marker bed to let me know when I have passed the 12 inches of clean soil? Do I have to call Solutia to have access to my yard when I am planting a tree approximately 1 ½ feet deep? How do these options protect me when there is not a marker bed to distinguish new soil from old soil?

(2) **Citizen concern**: What if I see my neighbor, who is renting the property, digging and they have not been informed of the contamination on the property by their landlord who lives in another state? Perhaps the landlord did not receive or did not share the letter about the contamination and therefore, did not inform the tenant. Children have played in the yard the entire year and had been exposed to high concentrations over the year. How does options 2 or 3 of the Residential Proposed Plan protect these children? The children were crawling underneath the house playing in the high concentration of PCBs all year; the parents are unaware of the PCBs in the soils, does Solutia inform new tenants or property owners personally?

(3) **Citizen concern**: The Remedial Goal for sediment was done under the Ecological Risk Assessment, but **not** for children playing in Snow Creek. Did the EPA disregard the community's concern about children playing in Snow Creek even though it had been stated in a number of CAG meetings about children playing in the ditch and in the culvert at Highway 202? The RI report states that the highest concentration of PCBs are located near culverts (S-2-08=20.3 ppm S-2-06b=12ppm S-2-06c=30.1ppm and on the north side of the bridge S10134=60ppm). It is also stated that storm water movement during high water flow increases the distribution of PCBs in sediment. The backyards of many residential homes have direct access to Snow Creek. Can we put up a fence or a sign as a preventive measure?

(4) **Citizen concern**: The Proposed Plan states that property notices would be voluntary. If I am buying a house, does the Seller have to inform me that contamination is still on the property? And, if I am the Seller with contamination still left on my property (under the house or in the

yard), do I have to inform the buyer? In all options of the Proposed Plan, "disclosing is an option"; however, what if I am a renter?

(5) **Citizen concern**: This concern is in reference to the TH Agriculture Pesticides Site (THAN) located in Montgomery, Alabama, which was a Super Fund Site. A local businessman bought a building located on the property and was unaware that the property was contaminated with Pesticides. The sale of the property went through as usual. The property is now a vacant lot.

If someone was buying property with Residual PCB left on the property, in accordance to the Plan, the seller does not have to inform the buyer that Residual PCB is on the property or reveal the location where the PCB residual contamination exist on the property. However, if the contamination was LEAD, the Seller of the property would have to disclose that LEAD contamination was on the property. The sale of the property would fall under the Lead Residential Lead-Base Paint Disclosure Program (Section 1018 of Title X). The Lead Disclosure Rule was enacted to protect potential home Buyers. If the EPA can enact a Ruling to protect potential home buyers from Lead, why can't the EPA enact a Ruling to protect potential home buyer from the contamination of PCBs on property as well as other toxic chemicals that are located on properties?

Lead and PCBs are both recognized by ATSDR and TSCA as being a toxic substance and can cause adverse health issues in humans.

(6) **Citizen concern**: Can the sale of any property with PCB residuals found on the property be overturned in Court from not disclosing the hidden dangers of toxic chemical residue left on properties?

(7) **Citizen concern**: The Proposed Plan stated that information will be located in the Carver Library branch. Will the librarian be available to answer questions concerning the Anniston PCB Site, or will there be someone from the community a citizen can call to find out pertinent information such as a plumber who is trained to handle contaminated waste? In the Proposed Plan under Other Management Controls, who will be trained or educated to share this information with the public? These two topics are not a part of either option 1, 2, or 3, nor is there a cost for training or education. How will training and education be funded and how much money will available for these programs? Throughout the document there is the concern of recontamination. One way to avoid recontamination is to train and educate. As part of the IC Program, could a one shop office, staffed with a local presence, be developed to work within the community to provide pertinent information to citizens and new tenants in the area? The workers would know firsthand the tenant turnovers as well as ownership

turnovers. The worker would also relate to members in the community on a personal level and be able to convey what actions need to be taken. When community members are involved in the day to day operation of an IC Program, the program works.

(8) **Citizen concern**: One of the recommendations from the Board was to conduct air monitoring while remediation is being done to protect workers and the community. Will air sampling be a part of the five-year-review?

(9) **Citizen concern**: The EPA calls for a Five Year Review. When will the Review process start? Who will be part of the review process? Who will review the reports? Who will be responsible to keep the community informed on the progress or failure of a remediation task? What do I do if my neighbor, whose yard was contaminated with PCBs, was dug-up, it rained and all that soil is on my property, who should I call? And how will it be determined if a five year review is successful?

(10) **Citizen concern**: I want to add a room to my house. This means digging a pilling 4 feet deep and calling 811 (call before you dig). How are they going to help me when all they do is locate utility lines?

(11) **Citizen concern**: Who do I call to remove a pile of soil that was excavated and how long do I have to wait for someone to manage or remove the contaminated soil? Am I responsible for bringing in clean soil?

(12) **Citizen concern**: How does the Proposed Plan address the 19 properties that owners have denied access? Especially when one of the properties is next door to me and I am unaware that the owner denied access? How does the Proposed Plan address property owners that deny access? Isn't it the goal to clean-up all residential properties?

(13) **Citizen concern**: My property has trees on it. My property has been tested and contamination was found on the property. My property value has declined and according to a Duke study, land values decreased around remediation sites by 14% (Gamper-Rabindran & Timmins, February 2012). What recourse do I have through the Proposed Plan when no one wants to buy my property with PCB contamination on the property and I am losing money because of the contamination? Where is the equity?

(14) **Citizen concern**: The Proposed Plan states that Solutia will address my property with trees only if I cut the trees and clear the land. Why do I have to cut the trees and clear the land when I did not contaminate my property? Also, I do not have the training or the people who I can employ with training to work in a contaminated environment. Is Solutia or the EPA going to provide the training for the workers? And what will be my liability to the workers? Who would

be responsible for the cost of both medical and training to work in a contaminated environment?

(15) **Citizen concern**: I am not a plumber and my water pipe burst at 3 am underneath my house or in the yard where the 12 inches of clean soil was placed. My first thought is, I have to repair that pipe before morning. I have a pregnant wife and kids to get off to school. Are you saying that I have to call Solutia before I can repair the leak? A response from Solutia may take days and the water bill is continually adding up. I do not have the training nor the protective clothing that the City worker or utility worker has. I was not informed by the previous owner that contaminated dirt was in the crawl space or that contaminated dirt was still on the property. Now I have contaminated dirt that I have brought into my house. How does either one of these options protect me and my family? When the risk for a worker is approximately 56 ppm and the risk for a resident is below 1ppm, wouldn't option 3 (remove all accessible soils to below 1ppm) provide the most protection for my family?

(16) **Citizen concern**: If the goal is to remediate residential properties, why leave PCB(s) in reach of residents' underground pipes? For example, if a water pipe burst and the protective cover is only 12 inches, and the residents' pipes are buried in the ground 48 inches wouldn't it be prudent to remove 60 inches of soil, 48 inches to reach the pipe, and 12 inches of separation so that any worker or plumber can repair the pipes without the fear of being in contaminated soil? I don't see where the EPA or Solutia will have a list of professionals to call.

(17) **Citizen concern**: For Special Use Properties, there are 19 special use properties with PCB concentration above 1 ppm in low activities areas. Why weren't low activities cleaned up under the NTC since some Special Use Properties are located in areas where children can and do wander off and play? The Proposed Plan option SU-3 calls for all of these properties to be treated as residential properties.

(18) **Citizen concern**: The new administration is calling for cuts in the EPA budget. How will the budget cut affect the Consent Decree?

(19) **Citizen concern**: What is auto fluff? Where are these Unapproved Waste Disposals Areas located? Are they going to be dug-up?

(20) **Citizen concern**: Where is T-11 located and is T-11 located in an open area where children walk or play?

(21) **Citizen concern**: How many Dredge Spoil Piles are there?

(22) **Citizen concern**: How many Non-Residential properties are there and where are they located?

(23) **Citizen concern**: The Proposed Plan proposed to remediate by excavation the Dredge Spoil Piles, Snow Creek Sediments, and shore-up Snow Creek Banks. What impact, if any, will there be on OU-4 from these activities, removal and working in Snow? Will the EPA have to resample OU-4 sediment locations, since there are hot spots with high concentration of PCBs trapped within Snow Creek Sediment where the proposed work will be done?

(24) **Citizen concern**: What educational programs will there be for the children of Anniston to educate them of the dangers playing in and around PCB soils? This question pertains more to the children being educated on hygiene in schools and homes, and playing in neighbors' yards. One way of doing this is by having sound educational and management training available within the IC Program. The educational piece should include educating the children in hygiene since literature on PCB(s) states that the PCB(s) change is hard to break down. Also, the program could provide management training for those properties where PCB(s) are left in place on individual's properties?

(25) **Citizen concern:** Why can't the EPA post signs to warn citizens of the on-going dangers in Snow Creek as well as other properties adjacent to Snow Creek which contains PCBs in the soils? There are neighborhoods adjacent to commercial properties or across the street.

(26) **Citizen concern:** Is the EPA proposing the use of tree logs to help with creek stabilization? If this is the case, the trees will decay and rot away, therefore, losing the ability to stabilize the banks.

(27) **Citizen concern**: Will the community be a part of this clean-up?

(28) **Citizens concern**: will the heavy rains wash away the top soil covering what was laid down in yards? Who will re-sod the yard if a heavy rain washes away the cover, or will the citizens be responsible for the care of the top 12 inches of cover?

(29) **Citizen concern**: It is written that a property owner is responsible for the complete ownership of his land; which includes being able to dig, plant, and build on his property without the oversight of another. In the entire Plan, the owner of the property is only in control of the top 12 inches of his property with PCB residual left on the property. Solutia is responsible for all residual PCB left on the property. Since Solutia is responsible for any residual left on the property, this would mean that Solutia is part owner of the property. Why shouldn't Solutia be responsible for part of the property taxes for that property since ownership is defined by complete control of the property?

(30) **Citizen concern**: Those Properties that the City has slated to be demolished may not have been sampled underneath the structure itself and children have been playing on these properties. Was P S sampling done underneath the structures after demolition, or before demolition? If this has not been done, there is a need for fencing around the property to keep the children away from the site until sampling can be confirmed. This was also a cross over issue for the lead site.

(31) **Citizen concern**: Will there be an opportunity for local community businesses to be a part of the contracting process to transport clean soil? This opportunity to involve local contractors will elevate the community and tell a story that a chemical company and a community can work together to solve community problems.

(32) **Citizen concern**: It is still believed that there are other areas that have not been investigated because the soil may have been transported to an area outside of the investigated target area and used to build-up a low topographical area. What assurance does the community have that if new locations are found, the EPA will address these new locations? If in the future, another area comes into play after the ROD for OU-4 or OU-1 OU-2, who will be responsible for the investigation, EPA or Solutia?

(33) **Citizen concern**: Is the groundwater contaminated? Although the community is on potable water, if a community member wishes to install a groundwater well, will this water affect the plants and vegetables?

(34) **Citizen concern**: There were people who use to live in the community but have moved away and were not concerned about the clean-up. What steps are being done to address the abandoned properties that we know have PCBs and children playing on them for ball fields? Currently, there are no signs warning about the contamination.

(35) **Citizen concern**: Recommendation from the Region 4 Board (#6): The package included information on the un-remediated residential properties, which fall into several categories: property access not granted; unsuitable for removal due to overgrown vegetation, which is currently preventing exposure; properties where remediation has been performed but structures are present underneath. The Board recommends that ICs be monitored and enforced. Office of Solid Waste and Emergency Response Directive No. 9355.0-89, Dec 2012, Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing ICs at Contaminated Sites. If the five-year review reveals that the ICs do not lead to protectiveness, the Board recommends a contingency plan be included in the proposed plan to allow for meaningful public participation. This question is also related to question (9).

(36) **Citizen concern**: If Solutia fails in their obligation in a five year review to maintain residential properties, what action will be taken?

(37) What role is the community going to play in the OU-1 OU-2 clean-up? If an IC program is to be effective, the program should incorporate some aspect of the community's involvement. The question is, who will address a three o'clock winter call when a pipe has burst?

(38) Solutia's IC program includes: (1) public meetings and or meetings to be held as needed. In addition, the Plan would include public mail outs to keep the citizens informed; however, transient residents may not be knowledgeable of the Program or that the property they occupy now or has occupied in the past, had been remediated. The citizens wanted to know how would new tenants be informed when there is a constant turnover in residential occupancy and it becomes questionable if the owner or landlord has informed them whether or not the property had been remediated. What activities are not to be performed on the property? Should owner leasing agreements include the condition of the property as an IC? The P S IC program suggests a mail out; however, in some homes, there may be a problem with understanding the information in the package. What considerations or steps have been taken for those residents who cannot read or understand the IC Program?

(39) **Citizen concern**: What is the next step for Solutia after the completion of the FS?

(40) Where are the ICs for a Green Remediation Strategy?

The Remedial Alternatives did not have a section on Green remediation strategy. The TA explored options that may be employed through the ICs process. Many of these strategic actions can be addressed through policy and guidance development, resource development, and a series of near-term initiatives:

- Maximize use of renewable energy with a goal of 100 percent renewable energy to power site operation and identify methods for increasing energy efficiency.
- Incorporate green remediation factors as part of the remedy optimization evaluations.
- Pursue ways to reduce the use of natural resources and energy during remedial action and when developing cleanup alternatives.
- Integrate clean, renewable and innovative sources and advanced diesel technologies.
- Help communities establish networks and training programs that enable local workers to gain proficiency and expertise needed for green cleanup.

The TA reviewed sections of superfund and would add the following ICs:

1. Since a cap will be placed over the CSSMA and the Northside Area, why not construct a solar farm on the properties? A portion of the proceeds from the savings could be used to power the plant and for community projects in the City of Anniston.
2. Set-up environmental educational programs in local schools. A multi-disciplinary approach to learning about environmental issues that enhances knowledge, builds critical thinking skills and helps students make informed and responsible decisions.
3. With all the vacant land, a park could be designed around neighborhoods with trees and could be used for teaching nature classes.

Redevelopment:

TA: When an area is impacted by a Super Fund Site, there is more than one impact on the community, remediation of the people properties. The community also is impacted economically: loss of property, loss of jobs, loss of community. Everyone wants redevelopment; however, redevelopment comes with an attraction for developers. There are two attractions that could fit into this area - one is to create a partnership with P S and construct a world class softball or little league baseball field that could host the regional championship. An example is the former Spellman Engineering site in Orlando, Florida, which now hosts a local school's sports and recreation complex. Some jobs would be seasonal but large sums of tourist dollars would boost the economy.

(41) How will The EPA participate in the Redevelopment of this area? Please identify programs and grants that the community can participate in.

May 10, 2017

Delivered via FedEx

Ms. Pam Scully
U.S. EPA, Region 4
61 Forsyth Street, SW
Atlanta, Georgia 30303

Subject: **Comments on Superfund Proposal Plan**
Anniston PCB Site (OU1 / OU2)
Calhoun County, Alabama

Dear Ms. Scully:

HSW Engineering, Inc. (HSW) is submitting the enclosed comments on the Anniston PCB Site Proposal Plan on behalf of MRC Holdings, Inc.

Please let me know if you have any questions regarding our submittal.

Sincerely,
HSW Engineering, Inc.

Joel Balmat
Senior Technical Consultant

Enclosure:

Comments on Proposed Plan for the Anniston PCB Site (OU1/OU2)
Calhoun County, Alabama
May 10, 2017

MRC Holdings, Inc. is submitting these comments on the Superfund Proposed Plan for Operable Units 1 and 2 ("OU1/OU2") of the Anniston PCB Site, issued by the U.S. Environmental Protection Agency, Region 4, dated March 2017 ("Proposed Plan"). These comments also address, as appropriate, supporting documents for the Proposed Plan, such as the OU1/OU2 Feasibility Study Report ("Feasibility Study"; Ramboll-Environ 2016) and the Alternative Removal Action Work Plan (Solutia 2013). Furthermore, these comments concentrate on two areas referred to in the Proposed Plan as the Unapproved Waste Disposal Areas ("UWDAs"), consisting of the Ashley Street and Legrande area and the Wilborn Property area.

The Proposed Plan describes the UWDAs as areas that had been used for unapproved disposal of solid waste materials over time, which includes auto fluff (i.e., non-ferrous debris from the auto recycling process). The Ashley Street and Legrande area is described as consisting of three residential parcels, with waste covering an estimated area of 1.7 acres to an estimated average depth of 4 feet. The Wilborn Property area is described as two non-residential parcels with waste covering an estimated area of 3.2 acres to an estimated average depth of 18 feet.

The following comments, divided into four sections, request changes in the Proposed Plan to be included in the Record of Decision (ROD). Section I presents our comments regarding the selection of the preferred remedy. Section II presents our comments regarding the extent of the remedy. Section III addresses flexibility in selecting the final remedy. Section IV includes three general comments that do not fall within the other sections.

I. **Neither the Proposed Plan nor the Feasibility Study Report offer a technical rationale for selecting a Subtitle D RCRA Cap (UWDA-3) as the preferred remedy over a Soil Cap with Marker Layer (UWDA-2). A Subtitle D cap as the preferred remedy is not supported by the findings in the Proposed Plan or Feasibility Study and, by the Feasibility Study's own admission, is not cost effective. Given that both capping alternatives satisfy the Threshold Criteria of (1) Protectiveness and (2) Compliance with ARARs and are equal for the Balancing Criteria of: (1) Long-term effectiveness and permanence; (2) Reduction of toxicity, mobility, or volume through treatment; (3) Short-term effectiveness; and (4) Implementability, the significant cost differential supports the soil cap as the appropriate remedy based on "Cost", the fifth Balancing Criterion. Accordingly, the ROD should identify the Soil Cap with Marker Layer (UWDA-2) as the selected remedy for the UWDAs. The ROD should also provide for flexibility in the remedy design as outlined in Section IV below.**

    1. The Description of Alternatives section in the Proposed Plan describes two alternatives for capping the wastes (pages 64-65). The first capping alternative is a soil cap with a marker layer (UWDA-2, or "soil cap") consisting of a geotextile marker layer and a 12-inch layer of clean soil. The other capping alternative is a RCRA Subtitle D multi-layer cap (UWDA-3, or "Subtitle D cap"), consisting of a geomembrane layer, a geocomposite drainage layer, and an 18-inch layer of clean soil. The Subtitle D cap description indicates that a "more stringent Subtitle D cap is appropriate for waste disposal areas [compared to a soil cap]" even though, as the alternative description also states, "groundwater contamination is not a concern in these areas." The alternative description provides no technical details to substantiate the appropriateness of the

Subtitle D cap over the soil cap. Since a geomembrane liner and associated geocomposite drainage layer would be applicable if needed to minimize infiltration for the protection of underlying groundwater, the need for such a design appears to be inconsistent with EPA's statement that groundwater contamination is not a concern.

2. The Comparative Evaluation of Alternatives sections in the Proposed Plan (pages 91-92) and the Feasibility Study (pages 8-7 to 8-9) indicate that both the soil cap and the Subtitle D cap would have similar short-term effectiveness, would achieve preliminary remedial goals immediately upon completion, are equally implementable, and are proven technologies that have been implemented at other Anniston PCB areas.

3. Table 23 in the Proposed Plan further summarizes the comparative evaluation, but shows two differences between the soil cap and the Subtitle D cap, which are described and then responded to with our analysis below:

   - Under the long-term effectiveness and permanence criterion, Table 23 states that the soil cap would be "effective but not as permanent over the long term as the other alternatives", and further that the Subtitle D cap would be "effective and permanent over the long term if [the] cap remains in place." This disparity between the permanence of the two alternatives does not appear, however, in the Feasibility Study, which states that the alternatives "would provide similar long-term effectiveness and permanence" and, further, that the soil cap "has been shown to be effective and permanent throughout the Site" (page 8-8). Also, Table 8-1e in the Feasibility Study (Comparative Analysis of Remedial Alternatives for Unapproved Waste Disposal Areas) shows parity between the soil cap and Subtitle D cap for all the remedy evaluation criteria, particularly that both are "Effective and permanent over the long term."

   - The above inconsistencies between the Proposed Plan and Feasibility Study notwithstanding, the distinction between the permanence of the two capping alternatives in Table 23 of the Proposed Plan is not justified because the permanence of both alternatives would rely on a cap remaining in place and being properly maintained. There is basically no difference in the erosion (i.e., vegetative) layer specified for the two alternatives (Figure 26) and therefore no reason to question why the permanence of both alternatives would not be equal if the caps are similarly maintained.

   - Under the cost criterion, the estimated cost of the Subtitle D cap is $1.2 million higher than the estimated cost of the soil cap. The evaluation of cost in the Feasibility Study (page 8-8) states that "UWDA-3 [Subtitle D cap] would cost ($2.8M) almost twice as much as UWDA-2 [soil cap] ($1.6M) with little added level of effectiveness or permanence."

II. The extent of the capping remedy as depicted in the Proposed Plan is not consistent with the estimated extent of the unapproved waste disposal and is based on limited sampling data. The ROD should acknowledge that the estimated extent of the remedy described or otherwise displayed in the Proposed Plan is based on limited data and that the final remedy footprint (capped area) will be defined pending further detailed investigations.

1. The extent of the remedy shown in the Proposed Plan for the Ashley Street and Legrande area (Figure 16(a)) does not correspond to the estimated area of unapproved waste disposal. Figure

16 (a) is based on the results of soil sampling and subsurface investigations conducted from 2005-2010 as presented in the 2013 Alternative Removal Action Work Plan. The extent of the remedy shown in Figure 16(a) corresponds to areas referred to as "Impacted Areas" in Figure 2 of the Alternative Removal Action Work Plan, where soil sampling indicated the presence of PCBs in surface soil at 1 part per million or greater. Further review of Figure 2 shows that two of the "Impacted Areas" lie outside of the area reportedly containing unapproved waste. Accordingly, those two areas appear on Figure 16(a) of the Proposed Plan as part of the remedy based solely on surface soil sampling results and not the presence of unapproved waste. Likewise, there is a portion of the estimated unapproved waste disposal area (dashed line) on Figure 16(a) that is not indicated as part of the remedy. The extent of the capping remedy for the UWDAs should coincide with the extent of the unapproved waste disposal in those areas, not with other criteria.

2. Except for the Alternative Removal Action Work Plan, the Proposed Plan and Feasibility Study only refer generically to investigations of the UWDAs (i.e., no references provided). For example, the Feasibility Study refers to a "very limited investigation" conducted for the Wilborn Property area and further that "a more detailed investigation would be required to delineate the full nature and extent of waste material present at the site."

III. The ROD should provide flexibility in the remedial approach.

Flexibility should be provided in the ROD to allow uncertainties regarding the type and coverage of the preferred remedy and the nature and extent of wastes at the UWDAs to be addressed, including:

- Ability to conduct additional field investigations at the UWDAs to better define the nature and extent of the disposal areas and waste materials contained therein;
- Ability to consolidate materials within a given UWDA to allow for a smaller cover footprint and/or to contour the site for better drainage;
- Ability to dispose of some or all of the wastes off site from a given UWDA to reduce or eliminate capping requirements and long-term remedy maintenance; and
- Ability to implement a hybrid of the remedies included in the Proposed Plan as long as the hybrid approach meets the applicable Remedial Action Objectives.

IV. Other Comments.

1. The Proposed Plan (page 91) states that the two capping alternatives (UWDA-2 [soil cap] and UWDA-3[Subtitle D cap]) would take about the same amount of time to implement. Further, Table 13 indicates that the soil cap construction would take 2 months and the Subtitle D cap construction would take 3 months. Those implementation timeframes appear to be too short and also do not agree with the estimated timeframes provided in the Feasibility Study of 6-12 months for the soil cap (page 7-32) and 1-2 years for the Subtitle D cap (page 7-34).

2. The Ashley Street and Legrande area description (page 4-23) in the Feasibility Study states "A review of historical aerial photographs showed a machine used to segregate ferrous and nonferrous materials ***located on the property*** [emphasis added]." There is no reference provided for the source of the historical photographs. If a machine was located on the Ashley

Street and Legrande property itself, it could have been the source of the fill material on the property.

3. The Ashley Street and Legrande area description in the Proposed Plan (page 19) states that the unapproved waste is estimated to cover 1.7 acres and the Wilborn Property area waste is estimated to cover 3.2 acres, for a total of 4.9 acres. However, the estimated combined area of the two sites elsewhere in the Proposed Plan (Table 13) and in the Feasibility Study (Tables 7-13 and 7-14) is 4.5 acres.

REDACTED

Saskowski, Ronald

From: Scully, Pam
Sent: Monday, May 15, 2017 6:33 AM
To: R4_SEMS_Records
Subject: FW:
Attachments: EPA CLEAN UP 2017.pdf

From: [redacted]
Sent: Friday, May 12, 2017 1:54 PM
To: Scully, Pam <scully.pam@epa.gov>
Subject:

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ANNISTON PCB SUPERFUND SITE PUBLIC COMMENT

Name: [redacted], Williams Scrap Metal, Inc.
Address: [redacted]

Comment #1: Remedial activities appear to be based on "dated" analytical data. Given the passage of time, remediation of these sites may be moot due to contaminant levels below remedial levels. Will preliminary surface soil samples be collected and analyzed for each remedial area prior to execution of remedial activities to confirm or deny the need for the remedial activity?

Comment #2: Should business operations be interrupted due to surface soil removal from the candidate removal area in EU24 (Figure 3h), will the business be compensated for any lost revenue to ensure the business is ongoing?

Comment #3: If remedial activity is executed in any candidate remedial area, once removal of the constituent of concern is confirmed to the preliminary remediation goal, will the candidate remedial area be restored to its pre-remediation state, to include any gravel, concrete, etc. that may have been disturbed?

Comment #4: If the remedial cleanup goal is 21 mg/kg, it does not seem rational that soil containing <50 mg/kg PCB would then be deposited onsite for disposal. Shipment offsite for landfill disposal or for existing offsite treatment would seem more logical and thorough. Why would onsite disposal of soil <50 mg/kg be an option?

Comment #5: With the understanding that Monsanto Company is the PRP for the Anniston PCB Site and will provide the funding for the PCB remedial activities, will the removal of other contaminants found in industrial areas and identified for remediation in this proposed plan require the identification of other local PRPs or will the remedial activities and associated costs for these isolated hot spots be provided by the USEPA and/or Monsanto as the primary PRP for the Anniston PCB Site?

Comment #6: With regard to Institutional and/or Management Controls following the remediation activities for non-residential soil at OU1/OU2, will long-term remedial area management, testing, monitoring, permitting, etc. be the responsibility of the established PRP (Monsanto) or the property owner? For PCB remediation? For non-PCB remediation?

REDACTED

Saskowski, Ronald

From: Scully, Pam
Sent: Monday, May 15, 2017 6:35 AM
To: R4_SEMS_Records
Subject: FW: Final Version of P/S Comments on the OU-1/OU-2 Proposed Plan Related Documents
Attachments: DOC051017-05102017130309.pdf; OU-1_OU-2 FS RTC 051217.pdf; NRRB Recommendation_ 051217.pdf; Comments on Proposed Plan 051217.pdf

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From: Macolly Harris, Gayle [mailto:egmaco@eastman.com]
Sent: Friday, May 12, 2017 3:39 PM
To: Scully, Pam <scully.pam@epa.gov>
Cc: vhc@adem.state.al.us; Doug Jones <djones@joneshawley.com>; Tom Dahl <todah[redacted]>; Community Advisory Group <cag_cd@annistoncag.org>; Bertrand Thomas [redacted]>; Buddy Cox <wcox@lightfootlaw.com>; Bumb, Cathleen S <csbumb@eastman.com>
Subject: Final Version of P/S Comments on the OU-1/OU-2 Proposed Plan Related Documents

Hi Pam,

Comments from Pharmacia LLC/Solutia (P/S) on the Proposed Plan for the Operable Unit 1/Operable 2 (OU-1/OU-2) portion of the Anniston PCB Site (the Site) are provided in the attached documents. P/S, as parties to the Partial Consent Decree (PCD; August 4, 2003), are providing comments to the United States Environmental Protection Agency (USEPA) as part of the public comment process initiated on March 13, 2017 and closing on May 12, 2017. In addition to comments on the Proposed Plan document, P/S are responding to three separate documents that the USEPA provided to P/S as part of releasing the Proposed Plan for public comments. These three documents and the associated comments/responses from P/S are listed below and should be part of the Administrative Record for the Site.

- Letter from the USEPA to P/S dated March 7, 2017 with the subject, Residential Properties with Residual PCBs in Soil, and the associated comments from P/S dated May 12, 2017
- Letter from the USEPA dated March 7, 2017 with the subject, Feasibility Study Report Approval with Comments and the associated responses from P/S dated May 12, 2017
- Memorandum from USEPA Region IV dated March 10, 2017 responding to recommendations from the USEPA National Remedy Review Board (NRRB), and the associated responses from P/S dated May 12, 2017

The documents from the USEPA listed above include critical information regarding the USEPA's Proposed Plan and the comments/responses that were submitted by P/S under separate cover require written responses from the USEPA. These responses are incorporated into these comments as if fully set forth herein and should be included in the Responsiveness Summary portion of the forthcoming Record of Decision (ROD) to ensure the completeness of the Administrative Record.

Please contact me with any questions.

Take care,
Gayle

May 12, 2017

SENT VIA E-MAIL AND FEDERAL EXPRESS

Ms. Pamela J. Langston Scully, P.E.
Remedial Project Manager
United States Environmental Protection Agency, Region IV
Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960

Re: **Operable Unit 1/Operable Unit 2**
Comments on the Proposed Plan
Anniston PCB Site (Docket No. 1:02-cv-0749-KOB); Anniston, Alabama

Dear Ms. Langston Scully:

This letter provides comments from Pharmacia LLC and Solutia Inc. (P/S), as parties to the Partial Consent Decree (PCD; August 4, 2003) on the Proposed Plan for the Operable Unit 1/Operable Unit 2 (OU-1/OU-2) portion of the Anniston PCB Site (the Site). The Proposed Plan was issued for public comment by the United States Environmental Protection Agency (USEPA) on March 13, 2017. Comments from P/S are included as a series of Attachments, listed as A through C, as described below:

Attachment A: General comments are provided in this attachment and are organized by the eight categories of remedial alternatives that were presented in the Proposed Plan. The eight categories of general comments include:

- Residential properties
- Special use properties
- Interim measures (IMs)
- Dredge spoil piles
- Unapproved waste disposal areas (UWDAs)
- Nonresidential properties
- Groundwater at T-11
- Snow Creek Sediment and Creek Banks

Attachment B: Specific comments on the Proposed Plan are provided in this attachment, and many of these comments are consistent with the themes presented in the general comments. The specific comments also provide citations to pages within the Proposed Plan to further describe the source(s) of the comments.

Attachment C: Editorial and consistency comments on the Proposed Plan are provided in this attachment.

Please contact me if you have any questions.

Sincerely,

E. Gayle Macolly Harris
Manager, Remedial Projects
Solutia Inc.

Attachments

cc: Mr. Chip Crockett (ADEM)
Mr. G. Douglas Jones, Esq.
Mr. Thomas Dahl
Mr. David Reddick, CAG
Mr. Bertrand Thomas, TA

ATTACHMENT A

General Comments on the Proposed Plan

Attachment A
Anniston PCB Site: Operable Unit 1/Operable Unit 2
Pharmacia LLC/Solutia Inc. General Comments on the Proposed Plan

Preamble

This document provides comments from Pharmacia LLC/Solutia Inc. (P/S) as parties to the Partial Consent Decree (PCD; August 4, 2003) on the Proposed Plan for the Operable Unit 1/Operable 2 (OU-1/OU-2) portion of the Anniston PCB Site (the Site) issued by the United States Environmental Protection Agency (USEPA) for public comment on March 13, 2017. The comments from P/S include general comments provided in Attachment A, specific comments in Attachment B, and editorial/consistency comments in Attachment C. In addition to the Proposed Plan, the USEPA sent three separate documents to P/S as part of releasing the Proposed Plan for public comments. These three documents and the associated comments/responses from P/S are listed below and should be part of the Administrative Record for the Site.

- Letter from the USEPA to P/S dated March 7, 2017 with the subject, Residential Properties with Residual PCBs in Soil, and the associated comments from P/S dated May 12, 2017
- Letter from the USEPA dated March 7, 2017 with the subject, Feasibility Study Report Approval with Comments and the associated responses from P/S dated May 12, 2017
- Memorandum from USEPA Region IV dated March 10, 2017 responding to recommendations from the USEPA National Remedy Review Board (NRRB), and the associated responses from P/S dated May 12, 2017

The documents from the USEPA listed above include critical information regarding the USEPA's Proposed Plan and the comments/responses that were submitted by P/S under separate cover require written responses from the USEPA. These responses are incorporated into these comments as if fully set forth herein and should be included in the Responsiveness Summary portion of the forthcoming Record of Decision (ROD) to ensure the completeness of the Administrative Record.

General Comments

Residential Properties

1. The USEPA proposed, in a letter dated March 7, 2017, that P/S assume responsibility for 59 Anniston Lead Site properties with PCB residuals. These properties do not meet the definition of the Anniston PCB Site and, therefore, the PCB residuals on these Anniston Lead Site properties are not the responsibility of P/S. These residential properties were separately addressed by the USEPA and a group of Responsible Parties (RPs) under a Removal Order (RO) to which P/S are not party. Since P/S are not the source of contamination on these for the Anniston Lead Site properties, the letter should not have been addressed to P/S.

2. The USEPA recently issued a Desk Statement Regarding Lead Contamination in Soil (Desk Statement; USEPA September 2016). The USEPA should consider the implications on the upper threshold concentration for lead in soil (400 mg/kg) that was used to trigger removal actions for the Anniston

Lead Site properties under the RO. Specifically, residential properties with lead concentrations less than 400 mg/kg may have unacceptable risks, including the 59 properties discussed in general comment no. 1.

3. While the text and tables of the Proposed Plan are footnoted to explain the number of properties associated with the Anniston Lead Site and the Anniston PCB Site, the remedial alternatives presented in the Proposed Plan do not include costs for soil management and long-term operation and maintenance (O&M) for the Anniston Lead Site properties that the USEPA is attempting to transfer to P/S.

Special Use Properties

1. The PCB Preliminary Remedial Goal (PRG) for the low activity portions of the special use areas should be consistent with the PCB PRG used for the other nonresidential potions of OU-1/OU-2 (21 mg/kg). Thus, the selected remedy for the special use properties should be remedial alternative SU-2, not SU-3. The proposed remediation of low activity portions of the special use areas to support school/daycare exposures is inconsistent with current land use, the Stipulation and Agreement (Stipulation) to the PCD, and the human health risk assessment (HHRA) prepared for OU-1/OU-2 by the USEPA.

2. The comparative analysis presented in Table 20 of the Proposed Plan supports the selection of SU-2, not SU-3 as recommended in the Proposed Plan. SU-2 and SU-3 are rated the same in the comparative analysis table with the exception that SU-3 costs significantly more while providing no additional protectiveness. SU-4 is appropriately noted as having more short-term negative impacts while providing no additional protectiveness (and costing more).

Interim Measures

1. The recommended remedial alternative presented in the Proposed Plan for the IM areas (IM-4) is more disruptive to the community than the two other active remedial alternatives (IM-2 and IM-3); and based on the comparative analysis table in the IM Fact Sheet (Table 3; page 8), both IM-3 and IM-4 are "effective and permanent." Based on this, IM-3 should be the recommended remedial alternative, not IM-4.

2. The Proposed Plan Fact Sheet incorrectly lists PRGs for non-Site related constituents for surface and subsurface soils located in the IM areas (IM Fact Sheet page 5). The list of non-PCB constituents includes: arsenic, chromium, polycyclic aromatic hydrocarbons (PAHs) as benzo(a)pyrene equivalents (BaPE), and toxic equivalents (TEQ). As stated in the Proposed Plan (p. 40): "There is substantial data to link these contaminants to multiple industrial operations in the area, even some still operating in the floodplain.

3. Including dioxin-like PCBs (DL-PCBs) with the polychlorinated dibenzo-p-dioxin/ dibenzofuran (PCDD/DF) component of TEQ is not necessary or appropriate. The cleanup of total PCBs in soils for

the IM expansion areas is consistent with the conclusions of the OU-1/OU-2 HHRA prepared by the USEPA, and there is no need to separately assess the risks from DL-PCBs because there is no relationship between PCDD/DFs and total PCBs on this Site. If PCDD/DFs are of concern, they should be addressed separately by other parties.

4. The subsurface soil PRG for PCBs of 97 mg/kg is not directly applicable to the IM expansion areas (page 56 of the Proposed Plan). This subsurface PRG was developed to protect receptors (construction and utility workers) whose exposure was evaluated on an OU-wide basis and not an EU, area or location basis. The OU-1/OU-2 RI and OU-1/OU-2 HHRA documented that the subsurface soil PCB exposure point concentration (EPC) of 99 mg/kg was equivalent to the subsurface PRG (97 mg/kg) and thus remediation of subsurface soils is not required.

5. The Proposed Plan inconsistently and incorrectly describes how the presence of a Principal Threat Waste (PTW) in soil is identified. The Proposed Plan (pages 56, 57 and 58) correctly includes the use of groundwater impacts at concentrations exceeding the maximum contaminant level (MCL) in the process to identify PTW. However, there are other portions of the Proposed Plan (pages 33 and 34) that incorrectly refer to a PCB concentration threshold value in soil to define PTW (e.g., 500 mg/kg). The Proposed Plan is also inconsistent and incorrect in identifying the remedial approach to address PTW, if present. In many locations (e.g., pages 55 through 58), the Proposed Plan incorrectly defaults to a removal approach if PTW is present versus the correct approach of assessing a range of remedial approaches as presented on page 34.

6. The key applicable or relevant and appropriate requirements (ARARs) listed on page 54 of the Proposed Plan include elements of the Toxic Substances Control Act (TSCA) and incorrectly refer to remediation wastes. The specific statement of concern is "Regulations at 40 Code of Federal Regulations (C.F.R.) Part 262.11 (a)-(d) for the "management and disposal of remediation wastes." It is undisputed that PCB residuals from the Site being addressed within OU-1/OU-2 are associated with waste placed or releases which occurred prior to 1978. Based on this, the PCBs in OU-1/OU-2 are not subject to TSCA and its implementing regulations except when materials with PCB concentrations greater than or equal to 50 mg/kg are removed for remediation.

Dredge Spoil Piles

1. Only one of the four dredge spoil piles proposed for removal in the Proposed Plan has PCB concentrations above the PRG for nonresidential soils. Of the three remaining dredge spoil piles, one has yet to be sampled for PCBs, and the other two piles have PCB concentrations below the nonresidential PRG. The Proposed Plan (and ROD) should not require removal of dredge spoil piles with PCB concentrations below the PRG.

2. PRGs for constituents other than PCBs (Dredge Spoil Piles Fact Sheet, page 5) should not be applied to the dredge spoil piles. These non-PCB constituents include arsenic, chromium, PAHs (as BaPE) and PCDD/DF TEQ, and are associated with naturally occurring background conditions or non-P/S

industrial sources. As stated in the Proposed Plan (page 40): "There is substantial data to link these contaminants to multiple industrial operations in the area, even some still operating in the floodplain. In addition, the locations and footprints of the four dredge spoil piles were established based on field surveys, and additional delineation of the dredge spoil piles for non-Site related constituents is not necessary or applicable."

3. The subsurface soil PRG for PCBs of 97 mg/kg (Table 6 of the Proposed Plan and page 5 of the Dredge Spoil Piles Fact Sheet) is not applicable to the dredge spoil piles as these features were constructed above the existing ground surface. If the dredge spoil piles are removed as part of the OU-1/OU-2 remedy, then post-removal surface soil conditions in the footprint of the dredge spoil pile will be considered as part of evaluating nonresidential surface soil conditions in the respective EU. The subsurface soil PRG for PCBs was developed to protect receptors (construction and utility workers) whose exposure was considered on an OU-wide basis and not an EU, area or location basis. The OU-1/OU-2 RI and OU-1/OU-2 HHRA documented that the subsurface soil PCB EPC of 99 mg/kg was equivalent to the subsurface PRG (97 mg/kg) and thus, remediation of subsurface soils is not required.

4. USEPA has chosen off-site disposal instead of on-site disposal with little discussion about the rationale behind that decision. Although in some cases the USEPA cites concerns expressed by local residents, it is not clear that the USEPA has fully evaluated the balances between the primary balancing criteria and modifying criteria. On-site disposal would be easier to implement, have fewer short-term negative impacts to local residents than off-site disposal, and be a significantly lower cost.

5. The key ARARs listed on page 58 of the Proposed Plan include elements of TSCA and incorrectly refer to remediation wastes. The specific statement of concern is "Regulations at 40 Code of Federal Regulations (C.F.R.) Part 262.11 (a)-(d) for the "management and disposal of remediation wastes." It is undisputed that PCB residuals from the Site being addressed within OU-1/0U-2 are associated with waste placed or releases which occurred prior to 1978. Based on this, the PCBs in OU-1/OU-2 are not subject to TSCA and its implementing regulations except when materials containing PCBs with concentrations greater than or equal to 50 mg/kg are removed for remediation.

Unapproved Waste Disposal Areas

1. The responsibility for implementing remedial cleanup actions at the unapproved waste disposal areas (UWDAs) rests with parties other than P/S. The UWDAs should not be included in the ROD for OU-1/OU-2. The UWDAs are not part of the Site based on the definition of the Site presented in the PCD which establishes specific conditions that must be present for an area to be considered part of

the Site. If the UWDAs are included in the ROD, the USEPA should pursue parties other than P/S for the implementation of that portion of the remedy.

2. Although not included in the Proposed Plan, a third UWDA was identified in the OU-1/OU-2 RI. This third UWDA is located west of EU1 and land ownership records for this property clearly identify it as dump site for a local industry (MeadWestvaco).

3. Given that the UWDAs are former disposal areas that were constructed with no regulatory approvals, there is uncertainty regarding the materials (beyond auto fluff) that may be present in these three areas. Based on this, it is speculative to identify the list of constituents (UWDA Fact Sheet page 5) that could be applicable recognizing that remedial responsibility for these areas falls to parties other than P/S.

4. The subsurface soil PRG for PCBs of 97 mg/kg (UWDA fact Sheet page 5) is not applicable to the UWDAs. The subsurface soil PRG for PCBs was developed to protect receptors (construction and utility workers) whose exposure was evaluated on an OU-wide basis and not an EU, area or location basis. The OU-1/OU-2 RI and OU-1/OU-2 HHRA documented that the subsurface soil PCB EPC of 99 mg/kg was equivalent to the subsurface PRG (97 mg/kg) and thus, remediation of subsurface soils is not required.

5. The key ARARs listed on page 63 of the Proposed Plan include elements of TSCA and incorrectly refer to remediation wastes. The specific statement of concern is "Regulations at 40 Code of Federal Regulations (C.F.R.) Part 262.11 (a)-(d) for the "management and disposal of remediation wastes." It is undisputed that PCB residuals from the Site being addressed within OU-1/0U-2 are associated with waste placed or releases which occurred prior to 1978. Based on this, the PCBs in OU-1/OU-2 are not subject to TSCA and its implementing regulations except when materials with PCBs concentrations greater than or equal to 50 mg/kg are removed for remediation.

Nonresidential Soils

1. PRGs for constituents other than PCBs should not be applied to the nonresidential soils (page 66 of the Proposed Plan). These non-PCB constituents including arsenic, chromium, PAHs (as BaPE) and PCDD/DF TEQ, which are associated with naturally occurring background conditions or non-P/S industrial sources. As stated in the Proposed Plan (page 40): "There is substantial data to link these contaminants to multiple industrial operations in the area, even some still operating in the floodplain. Appendix G in the OU-1/OU-2 Feasibility Study (OU-1/OU-2 FS) includes an exhaustive review of data compared to background concentrations and geographic distribution. The end result is a determination that the Facility is not likely the only or even primary contributor to the concentrations detected in OU1/OU2."

2. There are inconsistencies regarding proposed cleanup of nonresidential soil with PCDD/DF and DL-PCBs in the Proposed Plan. The OU-1/OU-2 HHRA previously determined that further assessment and cleanup of DL-PCBs was not necessary and while the PRG was lowered slightly by the USEPA

from 1 µg/kg to 0.73 µg/kg since the OU-1/OU-2 HHRA was approved, this change does not support a change in approach to now include DL-PCBs as part of TEQ. In addition, the one location where TEQ based on PCDD/DF exceeded the PRG is a former industrial area where the total PCB concentrations are very low (0.062 mg/kg). An additional consideration is that since the publication of the current toxicity equivalent factors (TEFs) in 2006, there has been considerable research in this area that supports lowering the human-TEF for PCB126 by a factor of 30.

3. The subsurface soil PRG for PCBs of 97 mg/kg (page 68 of the Proposed Plan) is not applicable to the nonresidential portions of OU-1/OU-2. The subsurface soil PRG for PCBs was developed to protect receptors (construction and utility workers) whose exposure was evaluated on an OU-wide basis and not an EU, area or location basis. The OU-1/OU-2 RI and OU-1/OU-2 HHRA documented that the subsurface soil PCB EPC of 99 mg/kg was equivalent to the subsurface PRG (97 mg/kg) and, thus, remediation of subsurface soils is not required.

4. USEPA has chosen off-site disposal instead of on-site disposal with little discussion about the rationale behind that decision. Although in some cases the USEPA cites concerns expressed by local residents, it is not clear that the USEPA has fully evaluated the balances between the primary balancing criteria and modifying criteria. On-site disposal would be easier to implement, have fewer short-term negative impacts to local residents than off-site disposal, and be a significantly lower cost.

5. The Proposed Plan (page 37) identifies the potential for additional remediation of the floodplain following the completion of the baseline ecological risk assessment (BERA) for the OU-4 portion of the Site. The ecological risk assessments prepared for OU-1/OU-2 documented that cleanup of terrestrial habitat in OU-1/OU-2 was not necessary due to habitat limitations. In addition, the OU-4 BERA and its conclusions will have no bearing on terrestrial or aquatic habitat conditions in OU-1/OU-2.

6. The key ARARs listed on page 67 of the Proposed Plan include elements of TSCA and incorrectly refer to remediation wastes. The specific statement of concern is "Regulations at 40 Code of Federal Regulations (C.F.R.) Part 262.11 (a)-(d) for the "management and disposal of remediation wastes." It is undisputed that PCB residuals from the Site being addressed within OU-1/0U-2 are associated with waste placed or releases which occurred prior to 1978. Based on this, the PCBs in OU-1/OU-2 are not subject to TSCA and its implementing regulations except when materials with PCB concentrations greater than or equal to 50 mg/kg are removed for remediation.

Groundwater at T-11

1. The subsurface soil PRG for PCBs of 97 mg/kg is not applicable to the T-11 area (page 74 of the Proposed Plan). The subsurface soil PRG for PCBs was developed to protect receptors (construction and utility workers) whose exposure was evaluated on an OU-wide basis and not an EU, area or location basis. The OU-1/OU-2 RI and OU-1/OU-2 HHRA documented that the subsurface soil PCB

EPC of 99 mg/kg was equivalent to the subsurface PRG (97 mg/kg) and thus, remediation of subsurface soils is not required.

2. The comparative analysis table for the groundwater at T-11 (Table 24) inconsistently and incorrectly evaluates the long-term effectiveness and permanence of the active remedial alternatives (GW-2 through GW-4). The cap system used for all three of these alternatives has been proven effective over the long-term and if there are concerns in this regard (as indicated for GW-2 and GW-3 on the table), these concerns would also apply to GW-4. If the cap systems are considered comparable in effectiveness for each alternative, then the only difference between the alternatives would be cost, and the results of evaluation support GW-2 as the appropriate remedial alternative.

3. PRGs for constituents other than PCBs should not be applied to groundwater at T-11 with the possible exception of discharge criteria for the treatment system (groundwater at T-11 Fact Sheet page 5). These non-PCB constituents including arsenic, chromium, PAHs (as BaPE) and PCDD/DF TEQ are associated with naturally occurring background conditions or non-P/S industrial sources. As stated in the Proposed Plan (page 40): "There is substantial data to link these contaminants to multiple industrial operations in the area, even some still operating in the floodplain. Appendix G in the OU-1/OU-2 Feasibility Study (OU-1/OU-2 FS) includes an exhaustive review of data compared to background concentrations and geographic distribution. The end result is a determination that the Facility is not likely the only or even primary contributor to the concentrations detected in OU1/OU2."

4. The key ARARs listed on page 73 of the Proposed Plan include elements of TSCA and incorrectly refer to remediation wastes. The specific statement of concern is "Regulations at 40 Code of Federal Regulations (C.F.R.) Part 262.11 (a)-(d) for the "management and disposal of remediation wastes." It is undisputed that PCB residuals from the Site being addressed within OU-1/0U-2 are associated with waste placed or releases which occurred prior to 1978. Based on this, the PCBs in OU-1/OU-2 are not subject to TSCA and its implementing regulations except when materials with PCB concentrations greater than or equal to 50 mg/kg are removed for remediation.

Snow Creek Sediment and Creek Bank Soils

1. PRGs for constituents other than PCBs should not be applied to sediment and creek bank areas. These non-PCB constituents are identified on Table 6 of the Proposed Plan (page 44) and include barium, chromium, cobalt, lead, manganese, mercury, nickel, and vanadium. These constituents are associated with non-P/S industrial sources located in the Snow Creek watershed. As stated in the Proposed Plan (page 40): "There is substantial data to link these contaminants to multiple industrial operations in the area, even some still operating in the floodplain."

2. PRGs for chromium II, chromium VI and lead in surface water are associated with parties other than P/S. These constituents are associated with non-P/S industrial sources located in the Snow Creek watershed. As stated in the Proposed Plan (page 40): "There is substantial data to link these

contaminants to multiple industrial operations in the area, even some still operating in the floodplain."

3. USEPA has chosen off-site disposal instead of on-site disposal with little discussion about the rationale behind that decision. Although in some cases, the USEPA cites concerns expressed by local residents, it is not clear that the USEPA has fully evaluated the balances between the primary balancing criteria and modifying criteria. On-site disposal would be easier to implement, have fewer short-term negative impacts to local residents than off-site disposal, and be significantly lower cost.

4. The key ARARs listed on page 78 of the Proposed Plan include elements of TSCA and incorrectly refer to remediation wastes. The specific statement of concern is "Regulations at 40 Code of Federal Regulations (C.F.R.) Part 262.11 (a)-(d) for the "management and disposal of remediation wastes." It is undisputed that PCB residuals from the Site being addressed within OU-1/0U-2 are associated with waste placed or releases which occurred prior to 1978. Based on this, the PCBs in OU-1/OU-2 are not subject to TSCA and its implementing regulations except when materials with PCB concentrations greater than or equal 50 mg/kg are removed for remediation.

ATTACHMENT B

Specific Comments on the Proposed Plan

Attachment B
Anniston PCB Site: Operable Unit 1/Operable Unit 2
Pharmacia LLC/Solutia Inc. Specific Comments on the Proposed Plan

B1. Page 8: Air dispersion is not a main pathway for past or present migration of constituents from OU-3 to OU-1/OU-2 or to OU-4. Concentrations of PCBs in air have been investigated and found to be below concentrations that would pose unacceptable risks in OU-3 and in OU-1/OU-2. The distribution of PCBs in OU-1/OU-2 soils surrounding OU-3 does not support the air pathway as being a significant historical source. The distribution of PCBs in OU-1/OU-2 soils is not consistent with the predominant direction of winds in this portion of the Anniston area. To the extent that the USEPA claims that PCBs from the operations of P/S' predecessors have "volatilized" and "spread" through the Anniston area, that claim is insufficient as a matter of law to hold P/S as a potentially responsible party under CERCLA. See *Pakootas v. Teck Cominco Metals*, No. 15-35228, 2016 WL 4011196 (9th Cir. July 27, 2016). In the *Pakootas* case, the 9th Circuit Court of Appeals rejected a similar "aerial deposition' theory." 2016 WL 401196 at *5. The Court noted that an earlier interpretation of the term "deposit" as used in CERCLA held there was nothing in the statute suggesting "'that Congress meant to include chemical or geologic processes or passive migration, *i.e.*, the gradual spread of contaminants without human intervention.'" *Id.* (quoting *Carson Harbor Vill., Ltd. v. Unocal Corp.*, 270 F.3d 863, 879 & n.7 (9th Cir. 2001)).

B2. Page 10, Table 1 and Table 9 footnotes: The number of properties that fall into the different categories (with or without structures and with PCBs or no PCBs at depth) are not the same on the two tables. Recognizing that these numbers change as the properties are addressed, the numbers on the applicable tables should be the same and should reference a date and source document for the information.

B3. Page 15, Soil: The Proposed Plan does not clarify that the special use properties included high and low activity areas and that the Stipulation treated the high activity portions of the special use areas as residential for the purposes of surface and subsurface PCB removals.

B4. Page 15, Residential Soil: The USEPA should consider the recently issued Desk Statement Regarding Lead Contamination in Soil (Desk Statement; USEPA September 2016). The Desk Statement discusses recent data for lead toxicity that may impact the 400 mg/kg action level that was used to address the Anniston Lead Site properties under the RO. Specifically, there may be unacceptable risks for residential properties with lead concentrations less than 400 mg/kg. including properties that were cleaned up under the Anniston Lead Site Removal Order by other PRPs. Since the mid-1990s, the USEPA has relied on the Integrated Exposure, Uptake, and Biokinetic (IEUBK) model for lead to establish "safe" lead levels in various environmental media. The model is applied to exposures to both adult and children. Epidemiological data have suggested that neurodevelopmental effects in young children are the most sensitive toxic endpoint for lead, and the IEUBK model has been used to estimate exposures in soil and water that are protective of these receptors. More than 25 years ago, the Centers for Disease Control and Prevention (CDCP) established a guideline of 10 micrograms of lead per deciliter (µg Pb/dL) blood in preschool children, "which is believed to prevent or minimize lead-associated cognitive deficits". Using the IEUBK model, the USEPA determined that residential exposure to lead at a concentration of 400 milligrams per kilogram (mg/kg) in soil would prevent 90% of the exposed

population from having lead blood levels in excess of 10 µg Pb/dL. The Desk Statement discusses the current science and states that the USEPA Office of Research and Development reviewed the health effects evidence for lead in the 2013 Integrated Science Assessment for Lead and identified several studies that have observed cognitive impairments in children ages 4 to 11 with blood-lead levels between 2 and 8 µg/dL. In 2012, the National Toxicology Program (NTP) published a report, Monograph on Health Effects of Low-Level Lead (NTP June 2012), that "found sufficient evidence of delayed puberty, reduced post-natal growth, and decreased hearing for young children with blood-lead levels below 10 µg/dL, and adverse effects on academic achievement, IQ, attention-related behaviors, problem behaviors and other cognitive measures at blood-lead levels below 5 µg/dL." Since the IEUBK model is relatively linear in terms of exposure and predicted blood lead levels, lowering the threshold from 10 µg/dL to 5 µg/dL may require a reduction for the "safe" level of lead in soil (currently concentrations below 400 mg/kg). The impacts of this recently published information may require additional remediation of residential properties previously sampled and/or remediated as part of the Anniston Lead Site to which: P/S are not the source of lead.

B5. Page 15 and p. 19: Although not included in the Proposed Plan, a third UWDA was identified in the OU-1/OU-2 RI. This third UWDA is located west of EU1 and land ownership records for this property clearly identify it as dump site for a local industry (MeadWestvaco). The presence of this third UWDA is documented in publicly available records for parcel (PPIN 32695) and indicates that the property was owned by the Anniston Foundry Company (recorded in the Calhoun County at Deed Book 1097, Page 931-938) and used as a dumping operation by Anniston Foundry Company from 1957 forward. See Affidavit of H. Worth Little, dated March 9, 1961. The property was conveyed by Anniston Foundry Company to Woodward Iron Company (as the sole shareholder of Anniston Foundry Company) in 1963, Calhoun County, Alabama, Deed Book 1263, Page 528; and that the Mead Corporation acquired the property by merger from Woodward Iron Company in 1977, Calhoun County, Alabama, Deed Book 1445, Page 764. The UWDAs should not be included in the ROD for OU-1/OU-2 as the areas are not part of the Anniston PCB Site. If they are included in the ROD, the USEPA should pursue parties other than P/S for the implementation of that portion of the remedy.

B6. Page 15, Residential Soil: Stating that PCB residuals on properties that were addressed under the Anniston Lead Site are now part of the Anniston PCB Site equates to a transfer in liability. The Anniston Lead Site properties were separately addressed by the USEPA and a group of PRPs under a Removal Order to which P/S are not party. The responsibility for PCB residuals at these properties rests with these other parties and not P/S.

B7. Page 19, UWDAs: The responsibility for implementing remedial cleanup actions at the UWDAs rests with parties other than P/S. The UWDAs should not be included in the ROD for OU-1/OU-2 as the areas are not part of the Anniston PCB Site. If the UWDAs are included in the ROD, the USEPA should pursue parties other than P/S for the implementation of that portion of the remedy. The UWDAs are not part of the Anniston PCB Site based on the definition of the Site presented in the

PCD which establishes specific conditions that must be present for an area to be considered part of the Site: "the Anniston PCB Site consists of the area where hazardous substances, including PCBs associated with releases or discharges as a result of the operations, including waste disposal, of the Anniston plant by Solutia Inc., Monsanto Company, and their predecessors have come to be located." In a letter to P/S dated February 25, 2016, the USEPA, in discussing the UWDAs, indicates that "Based on the thousands of parcels sampled and the volume of data reviewed, the EPA has a solid understanding that the Site contamination is either fill material containing PCBs and/or lead or fill material that contains auto fluff." The past use of the UWDAs by parties other than P/S is recognized by the USEPA in the Proposed Plan when describing the UWDAs..."Investigations conducted in these areas have shown that the UWDAs contain or may contain auto fluff that was deposited over time."

B8. Page 23: The information provided by the USEPA on this page of the Proposed Plan for non-PCB constituents including arsenic, PAHs, chromium and PCDD/DFs in soils documents that these constituents are not associated with the Anniston PCB Site. The distribution of these non-PCB constituents is consistent with the presence of other industrial sources in the Anniston area, or in the case of arsenic, is consistent with naturally occurring conditions based on a comparison of background data from a study conducted at Fort McClellan.

B9. Pages 23, 36, 41 and 66: There are inconsistencies regarding proposed cleanup of nonresidential soil with PCDD/DF and DL-PCBs in the Proposed Plan and the Proposed Plan Fact Sheet. For example, page 66 of the Proposed Plan indicates that there is "one location where one sample result exceeds the PCDD/DF PRG of 0.6 µg/kg (Exposure Unit [EU]25)." This statement is inconsistent with the information provided on page 41 of the Proposed Plan that indicates "two locations (2,200 ng/kg in EU25 and 2000 ng/kg in EU10) do not fit the data... ." In reviewing the nonresidential surface soil results for PCDD/DF and DL-PCBs in OU-1/OU-2, there are a total of three sample locations where the PRG for TEQ inclusive of PCDD/DF and DL-PCBs (0.73 µg/kg) is exceeded. The corresponding total PCB concentrations for each of these three sample locations are low. Additional information is provided below for the two locations where remedial actions are not needed to reduce risks associated with PCBs in surface soils. Information is also provided below for the single sample location where the possible presence of PCDD/DFs is not the responsibility of P/S.

a. The TEQ PRG exceedance for two of the three locations are driven by the DL-PCB component of TEQ. One of the PRG exceedances is associated with a surface soil sample collected in EU11, and the second exceedance is associated with a surface soil sample collected in EU15/16. Both of these EUs are characterized by low PCB concentrations, and the Proposed Plan does not identify remediation for either of these EUs based on the presence of total PCBs. The average surface soil PCB concentrations in EU11 and EU15/16 are 1.3 mg/kg and 0.84 mg/kg, respectively. The DL-PCB concentrations for these two sample results are discussed in the CDM September 29, 2010 memorandum addendum to the HHRA. This memorandum concluded that the DL-PCB component of

TEQ for these two locations is attributed to PCB 126, and that the reported concentrations of PCB 126 are likely false positives or are falsely biased high. The memorandum also concludes that total PCB concentrations based on the sum of detected Aroclors is consistent with total PCB homologues and, thus, subsequent risk-based decisions based on PCB Aroclors results can be made with confidence.

b. An additional consideration is that since the publication of the current toxicity equivalent factors (TEFs) in 2006, there has been considerable research in this area, and several papers have been published demonstrating the flaws in the published 2006 PCB TEFs. The lead author of the 2006 TEF publication (Martin van den Berg) recently published research that concludes that the "current TEF concept overestimates [aryl hydrocarbon receptor] AHR-mediated risk of DL-PCBs in humans." In particular, "the human-TEF for PCB126 should probably be around 0.003 for AHR-mediated effects" or 30 times lower than the current TEF. If, based on these new data, TEFs were lowered to reflect actual toxicity, DL-PCBs would not make a measurable contribution to the calculated total TEQ.

c. The third TEQ above 0.73 µg/kg is in a former industrial area (US Pipe) located in EU25. The TEQ concentration at this location is driven by the concentration of PCDD/DFs and not DL-PCBs, as the total PCB concentration is 0.062 mg/kg. Since the TEQ concentration is driven by a group of constituents that are not associated with the Anniston PCB Site (i.e., PCDD/DFs), and given that the PCB concentrations at this location do not pose unacceptable risks, there is no need to address the area as part of the Anniston PCB Site. If the risks associated with the PCDD/DF component of TEQ at this single location are unacceptable, then the responsibility to address this portion of EU25 shifts to parties other than P/S.

B10. Page 24, PCDD/DF TEQ: This section accurately describes a single sample with a concentration of 2.2 µg/kg PCDD/DF TEQ as an outlier relative to the remainder of the OU-1/OU-2 data set. The lack of correlation between TEQ and PCB concentrations indicates that PCDD/DFs and PCBs are not from the same source. It is not appropriate to combine the results for PCDD/DF with DL-PCBs for the purposes of remediation decisions, as the OU-1/OU-2 HHRA determined that risks associated with total PCBs sufficiently addressed risks associated with DL-PCBs. Furthermore, the OU-1/OU-2 HHRA determined that the two sample locations where the total TEQ was driven by the detection of PCB 126 are attributed to potentially false positive or falsely high results for PCB 126.

B11. Page 24, metals in sediment: Because metals found in the sediment deposits of Snow Creek are associated with a wide range of industries in the watershed and/or are naturally occurring elements, they should not be used to develop PRGs for Snow Creek. Remediating sediment deposits in Snow Creek for these metals would be difficult to maintain over the long-term given the past and continued use of these constituents by non-P/S entities. If risks associated with the isolated occurrences of metals in sediment are deemed unacceptable by USEPA, then the responsibility to address these sediment deposits would fall to others, recognizing the challenges to meet the PRGs over the long-term.

B12. Page 33, PTW: The definition of PTW in the Proposed Plan is inconsistent and in some cases incorrect. The USEPA's Proposed Plan (page 56, 57, and 58) correctly identifies PTW as locations where high PCB concentration soils have impacted groundwater at concentrations exceeding the maximum contaminant level (MCL) of 0.5 µg/L. While the description of PTW is correct in the locations referred to above, the text included on page 34 incorrectly indicates that "principal threats will generally include material contaminated at concentrations exceeding 100 ppm for sites in residential areas and concentration exceeding 500 ppm for sites in industrial areas." The inconsistent manner in which PTW is defined in the Proposed Plan should be corrected in the ROD to reflect that impacts to groundwater must be exist for PTW to be present. The inference is that a default PCB concentration of 500 mg/kg defines PTW is a one-size-fits-all approach without technical justification. The USEPA's guidance documents (A Guidance on Remedial Actions at Superfund Sites with PCB Contamination [OSWER Directive No. 9355.4-01FS, August 1990] and A Guide to Principal Threat and Low Level Threat Wastes [OSWER Directive No. 9380.3-06FS, November 1991]) allow for a site-specific determination of what constitutes PTW and should be determined as part of the ongoing RI/FS process. The information presented in the Proposed Plan should be corrected in the ROD to reflect a correct and consistent approach for defining PTW.

B13. Page 34, The proposed Plan is inconsistent in the approach to address PTW, if identified. For example, if predesign investigations conducted for the Eastside Properties IM identify the presence of PTW through impacts to groundwater, then some of the text on page 34 of the Proposed Plan correctly states that "excavation of PTW may be required". The text presented on pages 55 through 58 of the Proposed Plan conflicts with this approach by indicating that…"If PCB impacts to groundwater are greater than the MCL, excavation of the PCB impacted subsurface soil within the IM or at PB-RR-37 will be required as determined in the design." The advance decision to excavate PTW presented on these pages of the Proposed Plan is in direct conflict with the language presented on page 34 of the Proposed Plan including "When PTWs are not practicable to treat or remove, reliable and effective long-term containment options can be considered…"

B14. Page 35: Air is not a future exposure pathway of concern once the remedial action is implemented for OU-1/OU-2. Both the remedial investigation (OU-1/OU-2 RI) and OU-1/OU-2 FS recognize that additional air sampling may be needed to support construction activities if soils are disturbed during construction. At the present time, with no intrusive activity, there are no concerns regarding PCB concentrations in ambient air. Based on the lack of risks associated with ambient air

exposure, additional ambient air monitoring following implementation of the remedy for OU-1/OU-2 is not necessary.

B15. Page 35, 1st full paragraph, last sentence: "… and impacted areas further downstream." This sentence should be deleted as OU-4 is not the subject of this Proposed Plan. In addition, there has been no decision to assess the potential for Site-related impacts downstream of OU-4 and the sentence as currently written, presumes that impacts are present downstream of OU-4.

B16. Page 36: The PCB concentration value for the MCL is incorrect. It should be 0.5 µg/L and not 5 µg/L.

B17. Pages 36 and 37, Dioxins v. PCBs: The heading and associated text are poorly worded, sometimes incorrect and misleading. The term "dioxin" is used interchangeably to refer to both PCDD/DF TEQ and DL-PCB TEQ. Although the guidance documents include provisions for calculating a total PCDD/DF/DL-PCB TEQ using both PCDD/DF and PCB data, the data from the Anniston Site indicate that the PCDD/DF compounds are not related to PCBs. It is, therefore, incorrect to include them in an additive calculation. The text should be clear when discussing dioxins and furans (PCDD/DFs), PCBs or calculated TEQ values. Also, there is no relationship between PCDD/DFs and PCBs for this Site based on the data collected for OU-1/OU-2 and OU-4.

B18. Page 36, last paragraph: "used to provide information about total dioxins (PCDD/DF/DL-PCB) in lower concentrations of PCBs, like what might be present in a residential setting." Furans and DL-PCBs are not dioxins and should not be referred to as dioxins in this context. The conclusion presented on the top of page 37 that "PCB remedial goals are protective … " is essentially correct, although it would be more appropriately worded as: "PCB remedial goals are protective of the risks calculated for DL-PCB TEQs."

B19. Page 37, 2nd paragraph: The sentence: "The highest PCB value evaluated for non-residential surface soil is 21 mg/kg." appears to be out of context.

B20. Page 37, 3rd paragraph: "The results of the study provided a relationship between total dioxin (i.e., PCDD/DF and DL-PCB TEQ) and total PCBs." This sentence is incorrect. Although there is a relationship between total PCBs and DL-PCB TEQ, as the latter is calculated from the former, there is no relationship between total PCBs and PCDD/DFs on this Site. The statement provided to the National Remedy Review Board by the USEPA Region IV is correct: "The distribution of concentrations of PCDD/DFs is random with no evident pattern to the sporadic higher concentrations in the Snow Creek floodplain."

B21. Page 37, 4th paragraph: As noted in comment no. B9, there are three locations in OU-1/OU-2 where the total PCDD/DF/DL-PCB TEQ is greater than the PRG.

B22. Page 37, 5th paragraph: The phrase "total dioxin" should be replaced with "DL-PCB TEQ" in two instances.

B23. Page 37: The statement in the Proposed Plan indicating "If after the Baseline Ecological Risk Assessment for OU4 is complete, it is determined that additional terrestrial cleanup should be conducted in certain areas to address ecological risk, an amendment to the decision document will be considered." is not relevant. It is not clear why (or how) the results of the OU-4 BERA would be back-applied to OU-specific decisions that have already been made for OU-1/OU-2. The ecological risks assessments conducted for OU-1/OU-2 included the 2005 Screening Level Ecological Risk Assessment (SLERA) and the Streamlined Ecological Risk Assessment (SERA) that was finalized in the OU-1/OU-2 RI (ENVIRON 2015). The SLERA and SERA for OU-1/OU-2 were both approved by the USEPA. The OU-4 BERA is focused on areas located downstream of OU-1/OU-2 and its conclusions will have no bearing on terrestrial conditions in OU-1/OU-2. This statement should be corrected to reflect document approvals already in-place, and information regarding studies that are not applicable to OU-1/OU-2 should be deleted.

B24. Page 41, 5th paragraph: The statement regarding the random distribution of PCDD/DFs with no pattern similar to the PCB distribution pattern is correct. Therefore, it is inappropriate to combine PCDD/DFs and DL-PCBs in a single equation to represent toxicity (TEQ). See General Comment No. 2 for nonresidential soils in Attachment A for an accurate description of the three sample locations with calculated total TEQ values above 0.73 µg/kg. It is also inappropriate to develop a PRG to address "data outliers" especially, in this case, where the outliers appear to be the result of uncertainties in the data set.

B25. Page 41, last sentence regarding arsenic, chromium, PAHs and PCDD/DFs: "Confirmation samples will be needed to demonstrate whether subsurface soil need to be remediated." The data from the RI demonstrate that P/S and the Facility are "not likely the only or even the primary contributor" for these four constituents in soils. Furthermore, the risk assessments evaluated these constituents on an OU-wide basis and found that their presence and concentrations did not constitute an OU-wide risk. Therefore, these constituents should not be evaluated as part of the Site, and any sampling and subsequent data analysis required to further delineate the nature, extent, and risks from these constituents would be the responsibility of others.

B26. Pages 41, 66, and Table 6 on page 44: Since the OU-1/OU-2 HHRA was approved in 2012, the USEPA has updated the cancer slope factor (CSF) that should be used to update the PRG for PAHs. The USEPA has also published a reference dose (RfD) that can be used to estimate non-cancer risks for benzo(a)pyrene (USEPA IRIS database: https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=136, accessed May 2017). Using the most recent toxicity information, the PRG in soil for PAHs (as BaPE) associated with a cancer risk of 1 x 10^{-4} would be 153 mg/kg, and the non-cancer PRG for an HQ of 1 would be 186 mg/kg.

B27. Page 44, Table 6: Subsurface has a footnote reference, but no footnote is included with this table.

B28. Page 44, Table 6, nonresidential soils: The non-PCB PRGs should not be applied to nonresidential soils. This includes the IM areas, dredge spoil piles, UWDAs, nonresidential floodplain soils, and

soils at the T-11 area. These non-PCB constituents include arsenic, chromium, PAHs (as BaPE) and PCDD/DF TEQ, and are associated with naturally occurring background conditions or non-P/S industrial sources. As stated in the Proposed Plan (page 40): "There is substantial data to link these contaminants to multiple industrial operations in the area, even some still operating in the floodplain. Appendix G in the FS includes an exhaustive review of data compared to background concentrations and geographic distribution. The end result is a determination that the Facility is not likely the only or even primary contributor to the concentrations detected in OU1/OU2." Based on this statement and all the supporting data, non-PCB constituents should not be considered for the Anniston PCB Site. If these constituents are included in the ROD, the USEPA should pursue parties other than P/S for the implementation of that portion of the remedy.

B29. Page 44, Table 6, sediment: The non-PCB PRGs should not be applied to sediment and creek bank areas. These non-PCB constituents include chromium, cobalt, manganese, mercury, nickel, and vanadium. These constituents are associated with non-P/S industrial sources located in the Snow Creek watershed. As stated in the Proposed Plan (page 40): "There is substantial data to link these contaminants to multiple industrial operations in the area, even some still operating in the floodplain. Appendix G in the FS includes an exhaustive review of data compared to background concentrations and geographic distribution. The end result is a determination that the Facility is not likely the only or even primary contributor to the concentrations detected in OU1/OU2." Based on this statement and all the supporting data, non-PCB constituents should not be considered to identify remedial areas along Snow Creek or the creek bank areas. If these constituents are included in the ROD, the USEPA should pursue parties other than P/S for the implementation of that portion of the remedy.

B30. Page 44, Table 6, surface water: The non-PCB PRGs should not be applied to surface water. This includes chromium III, chromium VI and lead that are associated with other industrial discharges located in the watershed, and not P/S. This is underscored for lead where responsibility for remediating lead was assigned to a separate group of PRPs by the USEPA as part of the Anniston Lead Site. If these non-PCB constituents are included in the ROD, the USEPA should pursue parties other than P/S for the implementation of that portion of the remedy.

B31. Page 45, 1st paragraph: "… risks to contamination…" should be rephrased in a manner similar to "risks due to contamination".

B32. Pages 47 and 48, Deed Notices: Deed notices for residential properties with PCB residuals are not necessary as these properties will be tracked through the soil management program that will be implemented for OU-1/OU-2. A key component of the soil management program will be regular written outreach with the property owners and tenants to remind them of the procedures to follow if they plan to disturb soils with PCB residuals and/or remove structures or paving from areas where the PCB concentrations may exceed the residential PRG of 1 mg/kg. These conditions must be disclosed to prospective buyers by the landowner and/or real estate professional. Even

though the State of Alabama has a "caveat emptor" provision for real estate transactions, items that present a health or safety concern must be disclosed to prospective buyers.

B33. Pages 48 (RS-2) and 49 (RS-3): last bullets: "Re-vegetate the property as close to original conditions as possible." Given that overgrown properties with limited physical access has been one of the difficulties with the residential cleanups to date, it is unlikely that restoration will be to original conditions. In some cases, the original conditions include multiple invasive species which may return on their own, but will not be planted as part of restoration activities.

B34. Page 49, Special Use Properties, 1st sentence: "Special Use Properties … were partially cleaned…" The term "partially" should be deleted and this sentence should be reworded to recognize that all of the special use properties have been addressed in accordance with the Stipulation. The Stipulation includes the definition of high activity and low activity areas and only required residential cleanup activities for the high activity areas. Where high activity areas required cleanup to reach residential cleanup goals, these cleanups have been completed with the exception of areas with structures or paved areas that prevent direct contact with soils.

B35. Page 50, SU-1: " …the health of current visitors and workers at low activity areas on special use properties may be at risk." This sentence, when used in this context, implies that there may be a different or greater risk than what was evaluated in the OU-1/OU-2 HHRA. The OU-1/OU-HHRA prepared by CDM on behalf of the USEPA fully evaluated the risks to visitors and workers (and residential receptors) and developed PRGs that are protective of those receptors.

B36. Page 52, SU-3: The PRG for the low activity portions of the special use areas should be consistent with the PRG used for the other nonresidential portions of OU-1/OU-2 (21 mg/kg) and, thus, the selected remedy for the special use properties should be remedial alternative SU-2, not SU-3. The proposed remediation of low activity portions of the special use areas to support school and daycare under SU-3 is inconsistent with current land use, the Stipulation, the OU-1/OU-2 HHRA prepared by the USEPA. In both of these documents, the USEPA considered the low activity portions of the special use areas to be nonresidential and not used for school or daycare activities. The high activity portions of the special use areas (e.g., schools, daycare, churches, playgrounds) were addressed under the Stipulation based on the different characterization of such properties in the Anniston Lead Site Removal Order (presumably based on an assumption of children having direct contact with soils on a regular basis in these areas) and P/S' agreement to address these areas as part of the Non-Time Critical Removal Order rather than wait until the OU-1/OU-2 RI/FS process on these properties, which are classified as nonresidential properties under the PCD, was completed. As defined in the Stipulation, low activity areas do not present the same exposure as the high activity areas and it is not appropriate for the USEPA to apply a PRG from a school/daycare exposure scenario to areas that are not used in this way. If land use changes from low to high activity, the high activity removal requirements would apply and remedial activities for the area would be implemented consistent with the requirements of the Stipulation (1 mg/kg for surface soils and 10 mg/kg for subsurface soils). To be consistent with the OU-1/OU-2 HHRA and

the Stipulation, the low activity special use areas should be evaluated as part of the broader EUs that they are located in, where a nonresidential PRG of 21 mg/kg would apply. As presented in the OU-1/OU-2 FS, alternative SU-2 would implement a soil management plan that would communicate land use issues with the property owner(s) and would ensure that appropriate remediation actions would be taken if the land use changed to high activity (i.e., school/daycare) or residential.

B37. Pages 51, 52, and 53, deed notices for special use properties: Deed notices for special use properties with PCB residuals are not necessary as these properties will be tracked through the soil management program that will be implemented for OU-1/OU-2. A key component of the soil management program will be regular written outreach with the property owners and tenants to remind them of the procedures to follow if they plan to disturb soils with PCB residuals and/or remove structures or paving from areas where the PCB concentrations may exceed the residential PRG of 1 mg/kg. These conditions must be disclosed to prospective buyers by the landowner and/or real estate professional. Even though the State of Alabama has a "caveat emptor" provision for real estate transactions, items that present a health or safety concern must be disclosed to prospective buyers.

B38. Pages 51 (SU-2), 53 (SU-3), and 4 (SU-4), last bullets: "Re-vegetate the property as close to original conditions as possible." Given that this is in reference to low activity areas that may be heavily wooded or overgrown, achieving original conditions may not be feasible. In some cases, the original conditions include multiple invasive species which may return on their own, but will not be planted as part of restoration activities.

B39. Pages 49 through 54: Remedial alternatives to address the low activity portions of special use properties are not necessary as these areas should be addressed as part of the nonresidential soil alternatives. This would include these areas as part of the EUs where the nonresidential PRG for PCBs (21 mg/kg) would be applied. See General Comment No. 1 for special use properties presented in Attachment A.

B40. Pages 54, 58, 63, 67, 73 and 78: Pages 56, The key ARARs listed on these pages of the Proposed Plan include elements of TSCA and incorrectly refer to remediation wastes. The specific statement of concern is "Regulations at 40 Code of Federal Regulations (C.F.R.) Part 262.11 (a)-(d) for the "management and disposal of remediation wastes." It is undisputed that PCB residuals from the Site being addressed within OU-1/OU-2 are associated with waste placed or releases which occurred prior to 1978. Section 761.50(b)(3)(i) of the PCB Mega Rule (Applicability) provides that PCBs "placed in a land disposal facility, spilled, or otherwise released into the environment prior to April 18, 1978, regardless of the concentration of the spill or release" are "presumed not to present an unreasonable risk of injury to health or the environment from PCBs at the site." See 40 C.F.R. § 761.50 (b)(3)(i)(A); see also Rogers Corp. v. Environmental Protection Agency, 275 F.3d 1096, 1102 (D.C. 2002). Thus, there is a presumption that there is no unreasonable risk or injury to health or the environment at the site regarding PCBs at levels below 50 mg/kg. See 40 C.F.R. §

761.50 (b)(3)(i)(A). On March 10, 2009, the USEPA issued an email correspondence to P/S expressly indicating that the "Mega Rule" was not a chemical specific ARAR for OU-3, since a risk assessment was performed for the Site (March 10, 2009 Email Correspondence from the USEPA's Remedial Manager for the Anniston PCB Site). The same logic applies to OU-1/OU-2. See also June 10, 1997 Letter from Wm. Gerald Hardy ("It is my understanding that correspondence will be issued from Mr. Perry indicating whether or not the proposed activity will be a TSCA issue"); August 12, 1997 Letter from Alfreda F. Freeman ("The soil and sediments from this drainage ditch are pre-Toxic Substance Control Act (TSCA) materials generated from historic operations at the facility prior to 1972, and contain less than 50 parts per million of Polychlorinated Biphenyls (PCB) . . . We have reviewed the information that was submitted, and concur with the proposal to place the soil in the south landfill as part of upgrading the cover on the south landfill since the soil is considered to be pre-TSCA"), July 16, 1998 Letter from Wm. Gerald Hardy ("The soil to be removed is reportedly considered pre-Toxic Substances Control Act (TSCA) material and furthermore is contaminated with PCBs at levels significantly less than 50 mg/kg"). This position is also confirmed by the USEPA's PCB Q&A Manual (June 2014), pp. 46-48. Among other things, the PCB Q&A Manual confirms that "[the PCB Rules do not apply to waste disposed of prior to April 18, 1978, that is currently < 50 ppm, regardless of the concentration of the original spill," "[d]isposal of pre-'78 wastes at PCB concentrations < 50 ppm are not regulated under TSCA," "[t]he PCB disposal rules do not apply to waste that is currently < 50 ppm that was disposed of, spilled, or otherwise released into the environment prior to April 18, 1978," and "[u]nder § 761.50(b)(3)(i)(A), the Regional Administrator can require cleanup based on a finding of unreasonable risk only if the PCB concentration [from a pre-78 release] as found at the Site is > 50 ppm." As a result, the PCBs in OU-1/OU-2 are not subject to TSCA and its implementing regulations except when materials containing PCBs greater than or equal to 50 mg/kg are removed for remediation.

B41. Page 56: The subsurface soil PRG for PCBs of 97 mg/kg is not directly applicable to the IM expansion areas. This subsurface PRG was developed to protect receptors (construction and utility workers) whose exposure is evaluated on an OU-wide basis and not an EU, area or location basis. The OU-1/OU-2 RI and OU-1/OU-2 HHRA documented that the subsurface soil PCB exposure point concentration (EPC) of 99 mg/kg was equivalent to the subsurface PRG (97 mg/kg) and thus remediation of subsurface soils is not required.

B42. Pages 56, 57, and 58: Additional deed restrictions are not needed for properties that are owned by P/S and have IMs. P/S are not planning to divest these properties and access to most of these properties is controlled through fencing. For properties that are owned by P/S with deed notices already in place, these deed notices will remain in effect. Additional institutional controls for IMs on properties that are not owned by P/S will be evaluated during the remedial design process for the selected remedy.

B43. Pages 56 and 57 (last paragraph on each page): "Further evaluation of potential PCB discharges to groundwater…" should be reworded, suggest: "Further evaluation of the potential presence (and concentration) of PCBs in groundwater…"

B44. Page 58: Only one of the four dredge spoil piles proposed for removal in the Proposed Plan has PCB concentrations above the PRG for nonresidential soils. Of the three remaining dredge spoil piles, one has yet to be sampled for PCBs, and the other two piles have PCB concentrations below the nonresidential PRG. The two dredge spoil piles with PCB concentrations less than the PRG do not pose an unacceptable risk, are located well away from the creek, and have been stabilized with a vegetative cover. Based on these collective findings, there is no need to remove these two dredge spoil piles. Since the dredge spoil pile that has not been characterized is located away from the creek and has been stabilized with vegetation, the correct technical approach would be to evaluate the dredge spoil pile for PCBs. If the USEPA requires the removal of all four dredge spoil piles, institutional controls (ICs) would not be applicable

B45. Page 58, dredge spoil piles: "… to prevent future erosion back into the creek or residential use of the soil in the piles as fill." Based on the most recent evaluation of the dredge spoil piles, all of the dredge spoil piles with the exception of SC-8 (that exceeds the nonresidential PRG) are located away from the creek and stable with well-established cover. Based on this, the other dredge spoil piles that have been sampled have PCB concentrations below the PRG and are not susceptible to erosion. All of the dredge spoil piles are located in heavily vegetated areas and well away from areas that could be used for residential-type activities.

B46. Page 60, 7th bullet, DSP-3 and DSP-4, and all references to in-place sampling to determine waste disposal options: Initial waste disposal decisions will be made based on in-place total PCB concentrations. However, if excavated materials are sampled from stockpiles, as is often required by the disposal facility, disposal decisions may be altered based on those results. Disposal decisions would always be made based on the highest concentrations identified from any of the sampling events. For example, if in-place sampling indicates that material is less than 50 mg/kg PCB and stockpile sampling indicates that material is greater than 50 mg/kg PCB, material will be disposed of as greater than 50 mg/kg PCB material at an approved off-site facility.

B47. Page 63: The UWDAs should not be included in the ROD for OU-1/OU-2 as the areas are not part of the Site. If they are included in the ROD, the USEPA should pursue parties other than P/S for the implementation of that portion of the remedy. The UWDAs are not part of the Site based on its definition presented in the PCD which establishes specific conditions that must be present for an area to be considered part of the Site. While not included in the Proposed Plan, a third UWDA was identified in the OU-1/OU-2 RI.

B48. Page. 65, 1st paragraph: "… a more stringent RCRA Subtitle D cap is appropriate for waste disposal areas." This is a declarative statement rather than a conclusion from the OU-1/OU-2 FS process. The Proposed Plan text and Table 23 indicate that each of the UWDA alternatives, except for UWDA-1, would comply with ARARs. As stated, the Proposed Plan does recognize that the

source(s) for these waste materials are not P/S and, therefore, these UWDAs should not be included as a part of the Anniston PCB Site.

B49. Page 66: There are inconsistencies for the TEQ PRG in this section for nonresidential soils. Sometimes the TEQ PRG is listed as 0.73 µg/kg, and other times it is listed as 0.6 µg/kg. The use of TEQ should be clarified to only include PCDD/DF based on the OU-1/OU-2 HHRA. If DL-PCBs are included in the calculation of TEQ, there are three sample locations where the total TEQ PRG of 0.73 µg/kg is exceeded.

B50. Page 68, last full paragraph, page 69, last paragraph, page 70, last paragraph: The potential application of "… deed notices or environmental easements/covenants…" As presented in the OU-1/OU-2 FS, the soil management plan will include regular outreach provisions to notify nonresidential landowners and tenants if PCB residuals are present on their property. The soil management plan will also include notice and handling procedures to prevent inadvertent contact with and/or the migration of PCB-containing soils. These provisions of the soil management plan will more than satisfy the intent of deed restrictions and be much more practical to implement for the number of properties that will be involved.

B51. Page 69, first bullet, page 70, first and fourth bullets: The nonresidential remedial alternatives should be focused on the remediation of PCBs, not non-PCB constituents unrelated to P/S. If remedial alternatives based on non-PCB constituents are included in the ROD, the USEPA should pursue parties other than P/S for the implementation of that portion of the remedy.

B52. Page 73, Groundwater, 2nd paragraph, last sentence: "… a separate set of alternatives were considered for this area." It is not clear what is intended by this sentence, separate from the other OU-1/OU-2 alternatives or separate from the OU-3 alternatives? Is an additional statement needed to clarify this?

B53. Page 74: The subsurface soil PRG for PCBs of 97 mg/kg is not applicable to the T-11 area. The subsurface soil PRG for PCBs was developed to protect receptors (construction and utility workers) whose exposure is evaluated on an OU-wide basis and not an EU, area or location basis. The OU-1/OU-2 RI and OU-1/OU-2 HHRA documented that the subsurface soil PCB EPC of 99 mg/kg was equivalent to the subsurface PRG (97 mg/kg) and, thus, remediation of subsurface soils at T-11 (other than in the PTW area) is not required. In addition, the subsurface PRG was developed to protect construction workers who may contact subsurface soils. Under the proposed remedy, the entire T-11 area will be capped with an impermeable liner that will limit excavation activities and be owned by P/S. If after completion of the remedy, excavation of subsurface soils in the T-11 area is necessary for O&M purposes, this work will be performed by trained workers wearing the appropriate personnel protective equipment (PPE) to prevent exposure to subsurface soils.

B54. Pages 75, 76 and 77: The remedy proposed by the USEPA for the T-11 area is protective of direct contact with soils. In addition, the parcel where groundwater well T-11 is located is owned by P/S and there are no plans to divest the property. Also, the local community receives their potable

water from a public water supply and, thus, there is no need for an IC to prevent groundwater extraction. Based on the protective nature of the proposed remedy, land ownership by P/S, and the availability of a public water supply, deed restrictions on the T-11 property are not necessary.

B55. Page 77, 2nd paragraph: "… chromium, cobalt, manganese, mercury, nickel, and vanadium …" should not be included as these constituents are not the responsibility of P/S.

B56. Page 80, top of page: it is not clear why the Proposed Plan chose the SED alternatives as the first place to mention energy usage and carbon footprints. This information was also developed for the other remedial alternatives and should be used consistently.

B57. Page 89: The recommended remedial alternative presented in the Proposed Plan for the IM areas (IM-4) is more disruptive to the community than the two other active remedial alternatives (IM-2 and IM-3); and based on the comparative analysis table in the IM Fact Sheet (Table 3; page 8), both IM-3 and IM-4 are "effective and permanent". Based on this, IM-3 should be the recommended remedial alternative and not IM-4. The Proposed Plan (page 89) differentiates IM-4 from IM-2 and IM-3 by asserting that "IM-4 would provide higher long-term effectiveness and permanence through soil removal." Since capping has been and continues to be effective at the Site and other sites, the basis for stating that removal provides a higher degree of effectiveness and permanence is not supported by the information provided by the USEPA.

B58. Pages 89 through 91: It is unclear why the USEPA chose DSP- 4 as the preferred alternative. The other active alternatives are similar for each of the evaluation criteria and meet the PRGs. DSP-4 and DSP-5 would be more difficult to implement and DSP-4 would cost significantly more than the other alternatives.

B59. Pages 95 and 96: Each of the active GW alternatives is expected to achieve MCLs over time and GW-4 reduces the "expected time" to achieve MCLs. The increase in cost (almost $1M) for GW-4 above GW-3 do not appear warranted given the limited geography of the impacted groundwater, Anniston is served by a public water supply, and the increased implementability challenges due to its location next to Snow Creek and an active railway line.

B60. Page. 97, 4th paragraph: Sediment removal for metals and the acknowledgement that "the contribution of multiple historical and ongoing sources to Snow Creek." It does not make sense to implement removal actions for these non-PCB constituents based on the historical and ongoing sources and the non-PCB PRGs should not be included with the remedial alternative for sediment. If these non-PCB constituents are included in the ROD, the USEPA should pursue parties other than P/S for the implementation of that portion of the remedy.

B61. Page 98, 2nd full paragraph: "Sediments in Snow Creek upstream of the 11 Street Ditch and in the 9th Street Ditch would need to be remediated to 1 mg/kg to protect the remedy downstream, further increasing the cost of the remedy." Although it is implied that these would increase the costs above the $4.1M and $4.5M cited, the volume of additional sediment and the additional costs are not clear.

B62. Page 99, 2nd paragraph and 3rd bullet: Although it is correct that the chosen alternatives include off-site disposal, the use of on-site disposal, where appropriate, is not mentioned in this list of preferred alternatives.

B63. Page 100, last bullet: "Community concerns about PCBs in air is not increased by selection of onsite treatment." This bullet should be re-worded to recognize the community's concerns and state that off-site alternatives eliminate the possibility of increased PCBs in air from on-site treatment systems.

B64. Table 11 Remedial Alternatives Comparison for table Interim Measures, Treatment: typo: "PWT", the statement regarding "effectively contained" does not belong under treatment, none of the IM alternatives include treatment.

B65. Table 11 Remedial Alternatives Comparison Table for Interim Measures: The OU-1/OU-2 FS assumed that 100% of the excavated soils (4,200 cubic yards (cy), 6,200 tons) for IM-4 would be disposed of off-site as ≥50 mg/kg (not 20%).

B66. Table 12 Remedial Alternatives Comparison Table for UWDAs: The OU-1/OU-2 FS assumed that the entire excavation under UWDA-4 would be backfilled to natural grade (100,100 cy) and that excavated materials would be disposed of as ≥ 50 mg/kg and < 50 mg/kg in 51%/49% proportions, respectively.

B67. Table 15 Remedial Alternatives Comparison Table for Nonresidential Soil: The estimated costs for NRS-5 and NRS-6 for the 9 mg/kg goal should be as follows:

NRS-5: $46,200,000
NRS-6: $36,600,000

B68. Table 20: The comparative analysis presented in Table 20 for the special use properties supports the selection of SU-2 as opposed to SU-3 that was proposed by the USEPA. In reviewing the comparative analysis table, alternatives SU-2 and SU-3 are rated the same, with the exception that SU-3 costs significantly more than SU-2. SU-4 is appropriately noted as having more short-term negative impacts while providing no additional protectiveness (and costing more). The evaluation of the special use alternatives is further complicated by the USEPA's selection of a lower nonresidential PRG for SU-3 (1 mg/kg) in contrast to the nonresidential PRG (21 mg/kg) that is used for SU-2. This nonresidential PRG (21 mg/kg) is used for all of the nonresidential remedial alternatives (NRS-2 through NRS-6) and is also appropriately applied for SU-2. The USEPA selected the lower PRG for SU-3 (and SU-4) based on an assumption that a daycare/school exposure scenario could potentially occur in the low activity portions of the special use areas. These low activity areas are not currently used for daycare/school activities and if the land use changed to high activity, these areas would be remediated in accordance with the requirements of the Stipulation. This remediation would include the removal of surface soils with PCBs greater than or equal to 1 mg/kg and the removal of subsurface soils with PCB concentrations greater than or

equal to 10 mg/kg. Based on the comparative analysis table for the special use alternatives, the proposed remedial alternative for the special use areas should be SU-2.

B69. Table 21: The comparative analysis presented in Table 21 does not provide a basis for selecting IM-4 over IM-3. The table correctly concludes that IM-3 and IM-4 would be similar for each evaluation criterion except for cost. IM-4 would cost significantly more ($1.7M) than IM-3. The comparative analysis table correctly identifies IM-3 and IM-4 as being effective and permanent provided that the caps and covers remain in place and would provide a permanent remedy for the railroad and McDaniel Street area. The version of the table included with the Proposed Plan does not have the language from the OU-1/OU-2 FS regarding the difficulty of working adjacent to the railroad for IM-3. Both IM-3 and IM-4 have similar implementability concerns, recognizing that the short-term effectiveness would be magnified for IM-4 as compared to IM-3 given the larger amount of excavation near railways and waterways and the transportation of the excavated soils to an off-site disposal facility.

B70. Table 22: The comparative analysis presented in Table 22 for the dredge spoil piles does not support the recommendation of DSP-4. Both DSP-3 and DSP-4 are equally protective and effective over the long-term, yet DSP-4 has more short-term negative impacts, is less implementable, and has a higher cost. Given these factors, there is no technical basis to propose DSP-4 over DSP-3. The primary difference between DSP-3 and DSP-4 is that all dredge soil piles are removed under DSP-4 as opposed to only removing the dredge spoil piles that exceed the nonresidential PRG (21 mg/kg) under DSP-3. While the USEPA appropriately acknowledges the additional implementability concerns associated with removing all of the dredge spoil piles under DSP-5, the table incorrectly omits this implementability concern for DSP-4.

B71. Table 23: The comparative analysis table for the UWDAs incorrectly indicates that UWDA-4 is implementable. Other than being used as disposal areas for auto fluff, there is limited knowledge regarding other subsurface materials that may have been disposed of by others in the UWDAs.

B72. Table 24: The comparative analysis table for the groundwater at T-11 inconsistently and incorrectly evaluates the long-term effectiveness and permanence of the active remedial alternatives (GW-2 through GW-4). The cap system used for all three of these alternatives has been proven effective over the long-term and if there are concerns in this regard (as indicated for GW-2 and GW-3 on the table), these concerns would also apply to GW-4. If the cap systems are considered comparable in effectiveness for each alternative, then the only difference between the alternatives would be cost, and the results of evaluation would support GW-2 as the proposed remedial alternative.

ATTACHMENT C

Editorial/Consistency Comments on the Proposed Plan

Attachment C
Anniston PCB Site: Operable Unit 1/Operable Unit 2
Pharmacia LLC/Solutia Inc. Editorial/Consistency Comments on the Proposed Plan

C1. Page 6, 2nd paragraph: "The EPA negotiated a Partial Consent Decree (PCD) **with the** with P/S…"

C2. Page 16, 5th bullet: "… 43 are wooded lots **were** no….", were should be **where**.

C3. Pages 15, 16 and 19: inconsistent use of capitalization for "auto fluff".

C4. Page 23: "… PCDD/DF data were detected…" should be rephrased, suggest: "PCDD/DFs were detected."

C5. Page. 24: "Metals were also found in sediment data… " should be rephrased, suggest: "Metals were also reported for sediment samples."

C6. Page 26, creek banks: "… 3 EUs with average PCB OU-1/OU-2 Feasibility Study Report Anniston PCB Site concentrations below 1 mg/kg." should be rephrased, suggest: "3 EUs with average PCB concentrations below 1 mg/kg."

C7. Global with page 27 as an example: Inconsistent use of superscripts for 11th and 10th.

C8. Page 28: Fourth line under "Groundwater", delete the word "pathways".

C9. Page 28, First paragraph under groundwater, last sentence: should be changed: "… monitoring wells were **installed** to…"

C10. Page 28, Second paragraph under "Groundwater", 3rd sentence: "Soil data was…" should be changed to "Soil samples were" or Soil data were".

C11. Page 31, First paragraph under "Air", 5th line: "Shown" should not be capitalized.

C12. Page 31, First paragraph under "Air", last sentence: "… that are part of **the** administrative record."

C13. Page 31, Fourth paragraph under "Air", 3rd line: " … air ranged **from** non-detect to…."

C14. Page 31, Last paragraph under "Air": First sentence should be clarified: In 2003 and 2004, Solutia conducted the most comprehensive of all the ambient air PCB studies for Anniston.

C15. Page 31, Last paragraph under "Air", 4th line: "ranging" should be changed to "ranged".

C16. Page. 33, First paragraph, 5th line: "ranging" should be changed to "ranged".

C17. Page 33, Second paragraph, first sentence: "Request" should be lower case.

C18. Page37, First sentence: The closing punctuation is missing.

C19. Page 37, Second paragraph, 3rd sentence: "… PCB remedial goal**s**… " goal should be singular.

C20. Page 37, 4th paragraph: " appear to be hot spots that are **nor** representative… " should be "not"

C21. Page. 39, PRGs for soil, 2nd paragraph: typo: PCDD/DFs.

C22. Page 41, 2nd paragraph: arsenic should be lower case.

C23. Page 42, 2nd paragraph: For consistency, grebes and muskrats should be plural.

C24. Page 42, 4th paragraph: "… and all receptors at a NOAEL that spend 50%… " should be rephrased, suggest: "… a NOAEL for receptors that spend 50%…".

C25. Page 42, 5th paragraph: "…receptors at a NOAEL that spend 50%… " should be rephrased, suggest: "… a NOAEL for receptors that spend 50%…"

C26. Page. 42, 6th paragraph: "…receptors at a NOAEL that spend 50%… " should be rephrased, suggest: "… a NOAEL for receptors that spend 50%…" .

C27. Page 42, 7th paragraph: "…receptors at a NOAEL that spend 50%… " should be rephrased, suggest: "… a NOAEL for receptors that spend 50%…".

C28. Page 43, 1st paragraph, 3rd line: " … represents **the** mean…"

C29. Page 43, 2nd paragraph: "…receptors at a NOAEL that spend 50%… " should be rephrased, suggest: "… a NOAEL for receptors that spend 50%…".

C30. Page 43, 3rd paragraph: "…receptors at a NOAEL that spend 50%… " should be rephrased, suggest: "… a NOAEL for receptors that spend 50%…".

C31. Page 43, 4th paragraph: "This values are… " singular, plural, verb agreement. "…receptors at a NOAEL that spend 50%… " should be rephrased suggest: "… a NOAEL for receptors that spend 50%…".

C32. Page 44, Table 6: The use of title case for constituents is not consistent.

C33. Page 46, RS-1: "… cover soil over subsurface soil PCBs remain in place." Should be reworded, suggest: "… cover soil over subsurface soil where PCBs remain in place."

C34. Page 47, 1st paragraph: " … at an approved TSCA offsite disposal facilities." Singular, plural agreement.

C35. Page 47, 2nd paragraph: 4th line "… or paved areas that limits exposure)…" plural, verb agreement

C36. Page 47, 2nd paragraph: 9th line, "protection" should be "protect"

C37. Page.47, 2nd sub-bullet: "soil are" singular, plural agreement

C38. Page 48, last full paragraph: "(i.e., buildings, sheds, or paved areas that limits exposure)" plural, verb agreement

C39. Global and illustrated on pages 48 and 49: Consistent use of significant figures and/or decimal points, e.g., 1.0 mg/kg, 1 mg/kg, 10.0 mg/kg, 10 mg/kg.

Attachment C
Anniston PCB Site: Operable Unit 1/Operable Unit 2
Pharmacia LLC/Solutia Inc. Editorial/Consistency Comments on the Proposed Plan

C40. Global: Consistent use of text or symbols for >, <, ≥, ≥.

C41. Page 49, Last full paragraph: "… (a sampled… " should be "a sample"

C42. Page51, 3rd paragraph, last line: "… controls **that** can…"

C43. Global for the Special Use Properties: Consistent use of capitalization and hyphenation of "low activity" and "high activity" areas. The Stipulation uses "high activity" with no capitalization or hyphen.

C44. Page 52, 3rd paragraph, last line: "… controls **that** can…"

C45. Page 53, SU-4, 3rd paragraph, last line: "… controls **that** can…"

C46. Page 54, Interim Measures, 1st paragraph: "… removals actions…"

C47. Page 55, IM-2, 1st paragraph, 6th line: "engineering" should be "engineered".

C48. Page 56, IM-3, 1st paragraph, 8th line: "engineering" should be "engineered".

C49. Page 60, 8th bullet: "Evaluated" should be "Evaluate"

C50. Page 61, 1st bullet: "… PCBs is less **that** the PCB PRG…"

C51. Page 66, 1st paragraph, 2nd to last sentence: "… if ICs…" should be "… of ICs…. "

C52. Page 67, NRS-1, 1st line: chromium should be lower case

C53. Page 73, Introduction to bullet list: "Groundwater" should be lower case.

C54. Page. 74, top of page: "Groundwater" should be lower case.

C55. Page. 74, last paragraph, 11th, 12 line: "… these impacted soil, …" singular/ plural agreement.

C56. Page 75, GW-3: "… of **the a** 40-mil…"

C57. Page. 85, 7th paragraph: " … where surface soil were… " subject verb agreement

C58. Page 85, 7th paragraph: "… subsurface soil with PCB concentration between … " should be "PCB concentration**s**… "

C59. Page 86, special use property soil, first sentence: "Surface soil … have … " subject verb agreement

C60. Page 92, last paragraph, middle of paragraph, "… each involves…" subject verb agreement

C61. Page 93, 2nd paragraph: This text should be clarified to reflect that the paragraph is discussing ARARs.

C62. Page 93, bottom of page: The sentence: stating…"The lower cleanup goal will approximately double the volume of soil and increase the short-term impacts on the community." Appears to

be somewhat out of context and could be re-phrased to clarify that it is a statement regarding short-term effectiveness. Similarly, the 2nd to last paragraph and the two one-sentence paragraphs on page 94 regarding long-term effectiveness, implementability, and costs could be re-phrased and/or combined to be clearer and easier to follow.

C63. Page.95, second paragraph is unclear and out of context.

C64. Page. 97, 1st full paragraph: " the expected **viability** in the overall field construction schedule." Should be **variability**.

C65. Page 98, last SED paragraph: costs are incorrect, should be: $3.1M (SED-4), $4.5M (SED-4).

C66. Page98, SU-3: "Excavate of … " should be re-worded, suggest: "Excavation of"

C67. Page 98: NRS-4 the "a)" appears out of context

C68. Page 99, 1st bullet: the "a)" appears out of context

C69. Page. 99, last paragraph: "The soil management plan would **extent** …" should be changed to "extend"

C70. Page 100, 1st paragraph: "… institutional controls are limited to, the following:" delete comma.

C71. Page 100: "Five year reviews … to determine if the **remedies continues** …" subject verb agreement.

May 12, 2017

SENT VIA E-MAIL AND FEDERAL EXPRESS

Ms. Pamela J. Langston Scully, P.E.
Remedial Project Manager
United States Environmental Protection Agency, Region IV
Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960

Re: **Response to USEPA letter dated March 7, 2017**
Residential Properties from the Anniston Lead Site with Residual PCBs in Soil
Anniston PCB Site (Docket No. 1:02-cv-0749-KOB); Anniston, Alabama

Dear Ms. Langston Scully:

This letter provides the response from Pharmacia LLC and Solutia Inc. (P/S), as parties to the Partial Consent Decree (PCD; August 4, 2003), to your letter referenced above, regarding the United States Environmental Protection Agency's (USEPA's) proposed disposition of certain properties from the Anniston Lead Site with PCB residuals. These properties are not the responsibility of P/S. These properties were addressed by the USEPA and a group of Responsible Parties (RPs) under a Removal Order (RO) to which P/S are not party. Consequently, it is not clear why this letter was addressed to P/S by the USEPA. It is also our understanding that the USEPA has funds earmarked for the Anniston Lead Site that could be used to manage these Lead Site properties.

From an administrative perspective, the information provided in the March 7, 2017 letter is slightly different than the information provided in the Proposed Plan for Operable Unit 1/Operable Unit 2 (OU-1/OU-2). The list attached to the March 7, 2017 letter provides an overall inventory of Anniston Lead Site properties with PCBs that were previously remediated by parties other than P/S. Based on the list included with the letter, a total of 87 properties are grouped in the following categories:

- 28 properties presented do not have PCBs above 1 mg/kg at depth or structures and no further action is required;

- 49 properties do not have PCBs above 1 mg/kg at depth and have a structure(s) present on the property;
- 4 properties are classified as having PCBs above 1 mg/kg at depth and have a structure present on the property
- 5 properties are classified as having PCBs present above 1 mg/kg at depth and no structure is present; and
- 1 property (ID No. 32294) is listed as having a structure on the property with no information regarding PCB concentration at depth.

In order to further understand the 59 properties listed in the March 7, 2017 letter as having PCBs present above 1 mg/kg at depth and/ or with structures present and to understand the potential for long-term remedial or monitoring obligations, P/S request that the USEPA provide all available documentation related to these properties including but not limited to sample logs, laboratory reports, and removal information including removal as-built drawings to show the area and depth of the completed removal actions.

In addition, the USEPA should consider the recently issued Desk Statement Regarding Lead Contamination in Soil (Desk Statement; USEPA September 2016). The Desk Statement discusses recent data for lead toxicity that may impact the 400 mg/kg action level that was used to address the Anniston Lead Site properties under the RO. Specifically, there may be unacceptable risks for residential properties with lead concentrations less than 400 mg/kg, including the 59 properties listed above. Since the mid-1990s, the USEPA has relied on the Integrated Exposure, Uptake, and Biokinetic (IEUBK) model for lead to establish "safe" lead levels in various environmental media. The model is applied to exposures to both adult and children. Epidemiological data have suggested that neurodevelopmental effects in young children are the most sensitive toxic endpoint for lead, and the IEUBK model has been used to estimate exposures in soil and water that are protective of these receptors. More than 25 years ago, the Centers for Disease Control and Prevention (CDCP) established a guideline of 10 micrograms of lead per deciliter (µg Pb/dL) blood in preschool children, "which is believed to prevent or minimize lead-associated cognitive deficits". Using the IEUBK model, the USEPA determined that residential exposure to lead at a concentration of 400 milligrams per kilogram (mg/kg) in soil would prevent 90% of the exposed population from having lead blood levels in excess of 10 µg Pb/dL.

The Desk Statement discusses the current science and states that the USEPA Office of Research and Development reviewed the health effects evidence for lead in the *2013 Integrated Science Assessment for Lead* and identified several studies that have observed cognitive impairments in children ages 4 to 11 with blood-lead levels between 2 and 8 µg/dL. In 2012, the National Toxicology Program (NTP) also "found sufficient evidence of delayed puberty, reduced post-natal growth, and decreased hearing for young children with blood-lead levels below 10 µg/dL, and adverse effects on academic achievement, IQ, attention-related behaviors, problem behaviors and other cognitive measures at blood-lead levels below 5 µg/dL." Since the IEUBK model is relatively linear in terms of exposure and predicted blood lead levels, lowering the threshold from 10 µg/dL to 5 µg/dL may require a reduction for the "safe" level of lead in soil below 400 mg/kg. The impacts of this recently published information may require additional remediation of residential properties previously sampled and/or remediated as part of the Anniston Lead Site. P/S are not the source of lead on the Anniston Lead Site properties.

Please feel free to contact me with any questions.

Sincerely,

E. Gayle Macolly Harris
Manager, Remedial Projects
Solutia Inc.

cc: Mr. Chip Crockett (ADEM)
Mr. G. Douglas Jones, Esq.
Mr. Thomas Dahl
Mr. David Reddick, CAG
Mr. Bertrand Thomas, TA

May 12, 2017

SENT VIA E-MAIL AND FEDERAL EXPRESS

Ms. Pamela J. Langston Scully, P.E.
Remedial Project Manager
United States Environmental Protection Agency, Region IV
Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960

Re: **Pharmacia LLC/Solutia Inc. Comments on the USEPA Region IV Responses to National Remedy Review Board Recommendations for the Anniston PCB Site Operable Unit 1/Operable Unit 2 Anniston PCB Site (Docket No. 1:02-cv-0749-KOB); Anniston, Alabama**

Dear Ms. Langston Scully:

This letter provides comments from Pharmacia LLC and Solutia Inc. (P/S), as parties to the Partial Consent Decree (PCD; August 4, 2003) on the memorandum titled: Response to National Remedy Review Board (NRRB) Recommendations for the Anniston PCB Site Operable Unit 1/Operable Unit 2. The memorandum is dated March 10, 2017 and was prepared by the United States Environmental Protection Agency (USEPA) Region IV to respond to recommendations from the NRRB. Comments from P/S are provided in Attachment A and include the NRRB recommendations, the associated UESPA Region IV responses, and comments from P/S where applicable.

Please contact me if you have any questions.

Sincerely,

E. Gayle Macolly Harris
Manager, Remedial Projects
Solutia Inc.

Attachment A

cc: Mr. Chip Crockett (ADEM)
Mr. G. Douglas Jones, Esq.
Mr. Thomas Dahl
Mr. David Reddick, CAG
Mr. Bertrand Thomas, TA

ATTACHMENT A

Comments on the USEPA Region IV Responses to National Remedy Review Board Recommendations for the Anniston PCB Site Operable Unit 1/Operable Unit 2

Attachment A
Anniston PCB Site, Operable Unit I/Operable Unit 2
Pharmacia LLC/Solutia Inc. Comments on the United States Environmental Protection Agency Region IV Memorandum dated March 10, 2017 Providing Responses to United States Environmental Protection Agency National Remedy Review Board Recommendations

National Remedy Review Board Recommendations	USEPA Region IV Responses to National Remedy Review Board Recommendations	Pharmacia LLC/Solutia Inc. Comments
SITE CHARACTERIZATION (3 recommendations)		
Recommendation 1: The package the Region provided to the Board indicates that part of the Region's preferred approach would involve off-site disposal but the package was not clear as to which permitted facility would be used or the facility type that would be used (i.e., RCRA subtitle C or D, Toxic Substances Control Act [TSCA] landfill). The package also indicates that disposal decisions would, in part, be made based on "sediment deposits with average polychlorinated biphenyl (PCB)-concentration exceeding the PCB preliminary remediation goal (PRG) of 3 milligrams per kilogram (mg/kg)." The Board recommends that the Region clearly specify in its decision documents how: (1) PCB remediation waste was sampled, characterized and identified consistent with TSCA regulations and guidance; and (2) off-site disposal will be implemented consistent with CERCLA section 121, EPA's off-site regulation and existing EPA CERCLA guidance. The Board further recommends that the decision documents include a discussion of any specific state or local laws that may affect disposal of PCB remediation waste associated with this Superfund site.	**Response:** In accordance with 40 CFR 761.61(c), risk based sampling plans were developed and executed to support risk assessments that were used to justify risk-based cleanups. The Proposed Plan includes both onsite and offsite disposal alternatives for soils and sediments that exceed acceptable risk concentrations. Onsite disposal in specified Pharmacia Corporation and Solutia Inc. (P/S) owned soil management areas has already been used for disposal of soils from residential and special use properties (i.e., schools, churches, day-care centers, community centers, playgrounds, and parks) contaminated with PCB concentrations < 10 mg/ kg, based on five-point composite samples from areas no greater than 1/4 acre. The proposed plan envisions continued disposal of soils from residential and special use properties onsite, provided PCB concentrations are < 10 mg/kg. Soils that exceed the onsite disposal concentrations will be disposed of offsite at a TSCA approved disposal facility. All other non-residential soil and sediments are proposed to be disposed of offsite, though onsite disposal in existing soil management areas was considered in multiple alternatives for PCB concentrations < 50 mg/kg based on total PCB concentrations from grab samples. Soils or sediments with PCB concentrations ≥ 50 mg/kg have been disposed of at a TSCA approved disposal facility in Emelle, Alabama. Soils or sediments with PCB concentrations< 50 mg/kg have been disposed offsite at a RCRA Subtitle D permitted disposal facility in Piedmont, Alabama. Offsite disposal has been approved in the past and will continue to be approved by the Region 4 Offsite Contact in accordance with Section 121(d)(3) of CERCLA, interpreted in the Off-Site Rule (OSR), published in the National Contingency Plan (NCP), at 40 CFR 300.440. Any specific state laws offsetting the disposal of PCB remediation waste will be identified in the ARARs tables. The Proposed Plan contains the board recommended language about disposal requirements.	As stated by Region IV, the Operable Unit 1/Operable Unit 2 Feasibility Study (OU-1/OU-2 FS) evaluates both on-site and off-site disposal for each of the categories and alternatives involving removal and disposal of solid materials < 50 mg/kg PCB. The OU-1/OU-2 FS also specifies that, for each of these removal and disposal alternatives, the alternatives would be conducted in a manner that is fully compliant with ARARs, including TSCA regulations and guidance, CERCLA section 121, the USEPA's off-site regulation, existing USEPA CERCLA guidance, and other applicable regulations and guidance. With the requisite that all disposal will be conducted in compliance with ARARs, both on-site and off-site disposal should be considered for each of the disposal alternatives, not only for the residential and special use properties. On-site disposal in approved soil management areas is currently being conducted for the Non-Time Critical (NTC) removals in accordance with the Stipulation and Agreement (Stipulation). As stated by Region IV, soils approved for disposal on-site were characterized *in-situ* as < 10 mg/kg using a 5-point composite sample from a 1/4 acre area. The 10 mg/kg limit for a 5-point composite sample ensures that no individual sample could be greater than or equal to 50 mg/kg. Provided that materials are characterized *in-situ*, as prescribed in the Proposed Plan, and are < 50 mg/kg, there is no technical difference between the materials excavated from residential and special use properties or from other areas (nonresidential, sediment or dredge spoil piles). On-site disposal should be considered as a viable option for materials characterized as < 50 mg/kg. As described in detail in the OU-1/OU-2 FS, on-site disposal would be protective and effective, would have fewer negative short-term impacts, would be more implementable, and would be lower in costs than off-site disposal. There are no technical reasons why on-site disposal, if conducted similarly to the NTC removals, should not be chosen for the disposal of nonresidential soils, sediment, and dredge spoil piles containing less than 50 mg/kg of PCBs.

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Anniston PCB Site, Operable Unit I/Operable Unit 2
Pharmacia LLC/Solutia Inc. Comments on the United States Environmental Protection Agency Region IV Memorandum dated March 10, 2017 Providing Responses to United States Environmental Protection Agency National Remedy Review Board Recommendations

National Remedy Review Board Recommendations	USEPA Region IV Responses to National Remedy Review Board Recommendations	Pharmacia LLC/Solutia Inc. Comments
		For off-site disposal, materials with PCB concentrations less than 50 mg/kg do not require a TSCA landfill. These materials have and can be disposed in an off-site landfill regulated under the provisions of the RCRA Subtitle D regulations.
Recommendation 2: The Regional information provided to the Board mentions various air sampling events (2000-2012) and the concentration ranges detected during those events, which were used in the baseline human health risk assessment (BHHRA) for inhalation risk. Since the affected community members are concerned with inhalation exposure, The Board recommends that the Region clearly present in the decision documents each sampling event and the cumulative sampling events' overall robustness. The Board notes that there are various PCB air monitoring methods available in EPA's toxic organic compendium methods and the National Institution for Occupational Safety and Health analytical methods. The Board further recommends, in addition to specifying the analytical method, the decision documents include any specific factors that may have affected air monitoring results (such as, particulate versus vapor exposures, sample collection medium, sampling flow rate, sample collection time, seasonal wind direction, wind velocity, distance to source, distance to breathing zone, humidity level, temperature) and how the Region accounted for these impacts. Finally, the Board recommends that further air sampling during remedy implementation be undertaken to assure that workers and the community are not exposed to inhalation risk.	**Response:** The air sampling conducted at the Site to date will be described in detail in the ROD. Sampling methods and specific factors measured will be fully summarized, and the original studies will be added to the Administrative Record for the OU1/OU2. The Region agrees that where air monitoring is needed to assure that workers and the community are not exposed to inhalation risk, it will be included in remedial action implementation plans. Further, the Region agrees that the need for future monitoring to address community concerns and to document decreasing concentrations over time after remedy implementation should be considered in long-term monitoring plans.	Consistent with the recommendation from the National Remedy Review Board (NRRB) and the associated response from the United States Environmental Protection Agency (USEPA) Region IV, air monitoring will be conducted during implementation of the selected remedy(ies). Air monitoring for dust concentrations will be conducted during the excavation and handling of PCB-containing soils as part of remedial construction activities. Although the NRRB recommended additional ambient air monitoring that the USEPA Region IV Response describes in their response, additional ambient air monitoring for PCBs is not necessary following implementation of the selected remedy. The USEPA has already documented that risks to the community associated with the air pathway are low and do not pose unacceptable risks or require specific remedial action.
Recommendation 3: Based on the information provided to the Board, PCBs in the OU1/OU2 areas may have been found in surface soils, subsurface soils, sediments, and groundwater. It is not clear from the package provided that, for characterization and remedial investigation/feasibility study (RI/FS) purposes, there has been adequate soil and groundwater sampling site-wide (beyond confirmation sampling, which may have been conducted after the prior removal actions for portions of the site), as well as in certain locations (e.g., underneath buildings). For example, Figure B-3 shows only a handful of groundwater monitoring wells several of which the figure identifies as abandoned. Also, the remedy's OU1 portion will address as a final remedy all residential properties but the	**Response:** The Region is confident that the scope of all sampling and site characterization work was accomplished consistent with Agency regulations, including the NCP (e.g., 40 CFR 300.430(1)(d)(1) and (2)), and 40 CFR 761.260, and 40 CFR 761.61(c), as well as EPA guidance. While the surface soil sampling efforts were designed to achieve comprehensive overall spatial coverage of the OU, the subsurface soil sampling locations were targeted for areas within the OU with elevated surface soil PCB concentrations. The intent was to determine if the areas of high concentration created leaching and subsurface soil contamination and possibly groundwater contamination. This methodology was justified based on the results of the extensive residential sampling and removal efforts which confirmed that for the most part OU1/OU2 PCB contamination is a surface soil concern. [Approximately 15	P/S also note that the one location in OU-1/OU-2 with the highest subsurface PCB concentration in soil (T-11) had PCB concentrations in groundwater above the maximum contaminant level (MCL). Groundwater wells were subsequently installed and sampling was conducted at five other properties in OU-1/OU-2 with elevated (but lower than in the T-11 area) subsurface soil PCB concentrations. Groundwater concentrations from these five wells were either non-detect for PCBs or had PCB concentrations below the MCL.

National Remedy Review Board Recommendations	USEPA Region IV Responses to National Remedy Review Board Recommendations	Pharmacia LLC/Solutia Inc. Comments
documentation provided does not include details of prior cleanups and any actions that may be needed as part of this remedy to assure those prior actions are protective under CERCLA. Furthermore, from the package provided to the Board, it is not clear that there has been adequate evaluation of the contaminants of concern (COCs) potential migration from soil to groundwater. The Board recommends that the Region present in the decision documents how the site data delineate the PCB contamination's horizontal and vertical extent. This delineation should include adequate groundwater collection, and surficial and subsurface soil samples across the site to ensure the remedy's protectiveness relative to all exposure routes. This analysis should also include a discussion of whether the soil contaminants serve as a continuing source of contamination to other media and other OUs. Further, the Board recommends that the Region include within the decision documents sufficient explanation regarding how sampling and site characterization are being accomplished consistent with Agency regulations, including the NCP (e.g., 40 CFR 300.430(1)(d)(1) and (2)), and 40 CFR 761.260, and 40 CFR 761.61(c), as well as EPA guidance.	percent of the residential properties that required cleanup (i.e., have surface soil PCB concentrations ≥ 1 mg/kg) have subsurface soil PCB concentrations greater than or equal to the residential cleanup goal of 1 mg/kg. Of those properties, 50 percent had subsurface soil PCB concentrations less than 2 mg/kg, 35 percent had subsurface soil PCB concentrations less than 5 mg/kg, and 15 percent had subsurface soil PCB concentrations between 5 mg/kg and 10 mg/kg.] For the subsurface samples collected in nonresidential areas of the OU, the majority of the samples were collected at locations where the highest surficial PCB concentrations were measured. This includes a portion of soil samples that were collected as part of the groundwater investigations where the sampling was specifically targeted for locations with the highest PCB soil concentrations at depth. [Generally, if PCB concentrations in soil did not extend to the groundwater table, there was not a concern that groundwater would be contaminated by the PCBs in area soil.] One hundred thirty-three (133) subsurface soil samples (excluding duplicates) were collected from non-residential parcels and were analyzed for PCBs. Thirty (30) of those samples were additionally analyzed for lead. Seven subsurface samples were submitted for analysis of the wider constituent list. Select samples were also analyzed for PCB congeners. All of the sampling plans were tailored to the conceptual site model and fate and transport mechanisms in play at the Site. Data was collected and reviewed using an adaptive site management approach to target issues and areas of concern (i.e., sampling was phased such that data from a broad areas was used to determine where additional sampling was needed to define the nature and extent of contamination).	

Attachment A
Anniston PCB Site, Operable Unit I/Operable Unit 2
Pharmacia LLC/Solutia Inc. Comments on the United States Environmental Protection Agency Region IV Memorandum dated March 10, 2017 Providing Responses to United States Environmental Protection Agency National Remedy Review Board Recommendations

National Remedy Review Board Recommendations	USEPA Region IV Responses to National Remedy Review Board Recommendations	Pharmacia LLC/Solutia Inc. Comments
INSTITUTIONAL CONTROLS (3 recommendations)		
Recommendation 4: The Region's preferred alternative includes a soil management program that will be relied upon in perpetuity to manage contaminated soils currently located beneath structures roads and inaccessible areas. It will also be relied upon to address long-term protectiveness in the event of future land use changes (e.g., changes in zoning, low activity areas become high activity areas). The Board recommends that the Region provide in the decision documents detailed information demonstrating the soil management program's future effectiveness. The Board further recommends the use of layering institutional controls (ICs) to enhance the soil management program's effectiveness (OSWER Directive No. 9355.0-89, December 2012. Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites). The Board also recommends that the Region consider ICs, such as creating a site registry of potentially affected locations, coordinating with local authorities (especially if permits are required), identifying potential contamination areas in the Alabama 811 Program (''call before you dig'' program) and similar methods informing the general public of the contaminated locations. The Board also recommends that the Region estimate the soil management program's future cost and the cost of potential future remedy implementation under this plan.	**Response:** The cost of the soil management plan is included in the operation and maintenance costs of the remedial alternatives. Residential and non-residential soil management is estimated at approximately $550,000 per year. For purposes of comparison, a 30 year period is used as the time frame for the cost calculation. Because the plan relies heavily on knowing when soil disturbance activities are taking place on impacted properties, the EPA has held multiple discussions with local officials to determine how their laws, ordinances, and permitting/operating procedures can be used to assist in protection of the remedy. Alabama 811 and similar programs are being investigated. If there are any specific ICs that can be legally developed, consented to by the impacted property owners and relied on at the time of the ROD, they will be specified in the ROD or can be adopted through an ESD after the ROD is finalized.	The NRRB recommendation and the associated USEPA Region IV response are noted.

Attachment A
Anniston PCB Site, Operable Unit I/Operable Unit 2
Pharmacia LLC/Solutia Inc. Comments on the United States Environmental Protection Agency Region IV Memorandum dated March 10, 2017 Providing Responses to United States Environmental Protection Agency National Remedy Review Board Recommendations

National Remedy Review Board Recommendations	USEPA Region IV Responses to National Remedy Review Board Recommendations	Pharmacia LLC/Solutia Inc. Comments
Recommendation 5: The package the Region provided to the Board contains a discussion of the role of ICs as part of the remedial action to ensure protectiveness of human health for those properties where waste is left in place at depth. The Board notes that, for residential properties, the Region expects that no ICs will be needed when PCBs are left at a depth greater than 12 inches because remaining PCB concentrations will be relatively low (not greater than 10 ppm) and found only sporadically. It appears that the Region's remedy does not consider a marker or barrier to identify the contaminated areas remaining at depth -- an approach used at other sites in combination with an IC to assure a remedy's long-term protectiveness. The Board recommends that the selected remedy's risk assessment documentation include an evaluation of the potential for PCB exposure at concentrations between 1 and 10 parts per million (ppm) that could remain at depth. Comments they provided to the Board suggest that some local community stakeholders appear to be concerned about such exposure; quantifying this risk would provide additional information to the community about the remedy's protectiveness.	**Response:** As discussed with the Board, the human health risk assessment assumes that only construction and utility workers are exposed to subsurface soil concentrations at a frequency that would create risk. For the few residential properties that have PCBs greater than 1 mg/kg and less than 10 mg/kg in subsurface soils, the risk to construction workers and utility workers is below the carcinogenic 1 x 10^{-6} and non-cancer HI of 1. For that reason, no marker layer was installed. The primary reason PCBs in subsurface soils on residential properties are of concern is the fact that soils with PCB concentrations greater than 1 mg/kg are still considered PCB remediation waste under the Toxic Substance Control Act (TSCA) and the Region believes that P/S retain TSCA obligations for that waste. Additionally, the Region wants to ensure that soils in those subsurface areas are not mishandled in a way that would create new exposures. The Region evaluated alternatives to remove the remaining accessible waste or manage those waste long-term. There are no scenarios for homeowner exposure that would exceed construction worker or utility worker exposure, so no additional exposures were evaluated. However, there is a Soil Management Plan that addresses how to handle potentially contaminated soils brought to the surface during construction and utility work on properties where PCBs remain in the subsurface. The EPA is working with local government agencies to determine if there are ICs that would increase protectiveness of the proposed remedy.	The NRRB recommendation and the associated USEPA Region IV response relative to the human health risk assessment are noted. The cleanup of residential soils is consistent with the OU-1/OU-2 human health risk assessment (OU-1/OU-2 HHRA) prepared by the USEPA for OU-1/OU-2. With regard to the USEPA Region IV reference to the Toxic Substance Control Act (TSCA), PCBs associated with this Site (including OU-1/OU-2), were released prior to April 18, 1978. Based on this, TSCA and its implementing regulations are not applicable.

Attachment A
Anniston PCB Site, Operable Unit I/Operable Unit 2
Pharmacia LLC/Solutia Inc. Comments on the United States Environmental Protection Agency Region IV Memorandum dated March 10, 2017 Providing Responses to United States Environmental Protection Agency National Remedy Review Board Recommendations

National Remedy Review Board Recommendations	USEPA Region IV Responses to National Remedy Review Board Recommendations	Pharmacia LLC/Solutia Inc. Comments
Recommendation 6: The package included information on the unremediated residential properties, which fall into several categories: properties where access has not been granted; properties unsuitable for removal due to overgrown vegetation, which is currently preventing exposure; and properties where remediation has been performed but structures are present that have not been removed to address contamination underneath. The Board recommends that the Region explain in its decision documents how the ICs will be monitored and enforced, consistent with Office of Solid Waste and Emergency Response (OSWER) Directive No. 9355.0-89, December 2012, Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites, how the approach will ensure protectiveness of human health and the steps the Region intends to take (e.g., remedy modification in a record of decision [ROD] amendment) if - five -year reviews reveal that the Region's preferred approach and use of ICs does not lead to long-term human health protectiveness. To the extent Region's package presented to the Board identified property access as an issue, the Board recommends that the Region explain in its decision documents the good-faith efforts that the PRP needs to undertake, the potential use of CERCLA section 104(e) access authority and how human health protectiveness will be achieved at these properties. If the remedy includes a contingency in the event that restrictions needed for protectiveness are not effective, the Board recommends that the contingency remedy alternative be evaluated to ensure NCP consistency (e.g., nine criteria analysis), and also recommends that the decision documents contain a full discussion of the contingency, including the proposed plan, to allow for meaningful public participation.	**Response:** As presented to the Board, the Region has proposed that subsurface PCB remediation waste be managed through a PRP soil management plan and any ICs that local institutions adopt to help protect the remedy. The reason the Region proposed this alternative is that the current risk to human health from the residual PCBs on residential soils is below the EPA risk range. However, the Region did evaluate an alternative to remove accessible subsurface PCBs based on future risk to residents if recontamination occurs. The Region's proposal is subject to change based on community and state input. If the Region's proposed alternative is selected in a ROD, language about what might lead to an amended decision for residential properties if the soil management activities and ICs fail will be included. Access efforts were described in more detail in the Proposed Plan, as suggested. No contingency remedy is planned for the ROD.	The NRRB recommendation and the associated USEPA Region IV response are noted.

Attachment A
Anniston PCB Site, Operable Unit I/Operable Unit 2
Pharmacia LLC/Solutia Inc. Comments on the United States Environmental Protection Agency Region IV Memorandum dated March 10, 2017 Providing Responses to United States Environmental Protection Agency National Remedy Review Board Recommendations

National Remedy Review Board Recommendations	USEPA Region IV Responses to National Remedy Review Board Recommendations	Pharmacia LLC/Solutia Inc. Comments
HUMAN HEALTH RISK		
Recommendation 7: The package (B-74) indicates that the "HHRA has not demonstrated risk associated with subsurface soils containing PCBs greater than 1 mg/kg and less than 10 mg /kg" and that "under the risk based cleanup option, there are no unacceptable risks associated with these subsurface soils, so unrestricted use should be allowed." The Board recommends that the Region explain in its decision documents how this approach is consistent with national Superfund program guidance on conducting HHRA, exposure assessment and land use. Including, but not limited to, Risk Assessment Guidance for Superfund Volume I (Human Health Evaluation Manual Part A, Interim Final (EPA/540/I-89/002, December 1989). In particular, the Region should explain in the decision documents why it is reasonable to assume for purposes of the human health risk assessment exposure pathway that addressing only the top 12 inches of PCB contaminated soil in a residential neighborhood is protective of human health and that this assumption takes into account sensitive subpopulations of potential concern. The explanation should also include how the risk assessment considered current toxicity information (e.g. the results of the 2012 EPA dioxin assessment that PCBs are more toxic than previously understood) and how the exposure pathway evaluation addresses both unacceptable cancer and non-cancer health hazards. The Board also recommends that the Region address the potential human health risk from fish consumption.	**Response:** The EPA followed Region 4 risk assessment guidance (https://www.epa.gov/sites/production/files/2015-09/documents/region 4 hhraguidedoc 011014.pdf) and ADEM Risk Based Corrective Action guidance (http://adem.alabama.gov/programss/land/landforms/arbcamanual.pdf) in determining that surface soil should be evaluated as the top 12 inches of soil at this site. The Region 4 HHRA Supplemental Guidance has been developed by the Regional Superfund Division's Scientific Support Section (SSS) risk assessment staff to supplement the Agency guidance documents on site-specific HHRA (i.e., the Risk Assessment Guidance for Superfund (RAGS), Volumes I, II and III (EPA, 1989a 1989b, 2001a)). RAGS was developed as broad guidance, and the purpose of the Region 4 supplemental guidance is to clarify and extend RAGS as interpreted and applied in Region 4. The designation of the top 12 inches as surface soil is substantiated by Agency guidance for PCBs. On page 28 of "Guidance on Remedial Actions for Superfund Sites with PCB Contamination," (August 1990) it is stated that "based on the standard exposure assumptions associated with residential land use (ingestion, inhalation, and dermal contact), concentrations of .1 ppm PCBs to 10 ppm PCBs will generally fall within the protective range"; and "it is also estimated that a 10 inch cover of clean soil will reduce risks by approximately one order of magnitude." Combined, these statements tells us that at 10 ppm with 12 inches of cover, our risk under standard assumptions should be less than 1×10^{-5}. On page 30 of this same guidance it goes on to say that the PCB Spill Cleanup Policy recommends a 10 ppm cleanup level with a 10 inch cover for residential areas. Per this guidance, the need for ICs would be unjustified based on a less than 10 ppm subsurface PCB concentration. For residential land use, the 10 ppm subsurface level would yield a risk of less than 1×10^{-5}. The guidance for RA at Superfund Sites with PCB contamination specifically supports the use of a 1 ppm cleanup level in the top 10 inches of soil, and 10 ppm below 10 inches. Exposure to contaminants in surface soils and subsurface soils are likely to occur via different mechanisms. The depth to which samples need to be collected for adequate characterization of "surface soil"' depends on the Conceptual Site Model (CSM) and the contaminants of interest. Surface soil samples should be collected between the surface and a depth of 12 inches depending on the type of contaminant. For undisturbed soils, direct contact exposure will most likely be to contaminants in the top couple of inches of soil. Samples for contaminants like	The NRRB recommendation and the associated USEPA Region IV response are noted.

National Remedy Review Board Recommendations	USEPA Region IV Responses to National Remedy Review Board Recommendations	Pharmacia LLC/Solutia Inc. Comments
	metals, polycyclic aromatic hydrocarbons (PAHs), dioxin, and pesticides should be typically collected in the top 3 or 4 inches, but most organics, especially volatile organics should be collected at a depth of 9-12 inches for surface soils. Even though there are activities in both residential (e.g., gardening) and non-residential land uses (e.g., agricultural practices, earth-moving, construction) that may disturb soils to a depth of up to two feet, in general, EPA Region 4 defines surface soil available for direct human contact as the top 12 inches. As described in the response to Recommendation 3, the results of the residential sampling and removal efforts confirm that for the most part OU1/OU2 PCB contamination is a surface soil concern. Only about 15 percent of the residential properties that required cleanup (i.e., had surface soil PCB concentrations ≥1 mg/kg) have subsurface soil PCB concentrations greater than or equal to the residential cleanup goal of 1 mg/kg. Of those properties, 50 percent have subsurface soil PCB concentrations less than 2 mg/kg, 35 percent have subsurface soil PCB concentrations less than 5 mg/kg, and 15 percent have subsurface soil PCB concentrations between 5 mg/kg and 10 mg/kg.] The residential cleanup goal of 1 mg/kg is protective of cancer and noncancer risks. Fish consumption is a large part of the OU4 HHRA. Human fish consumption was not evaluated in OU 1/OU2 because Snow Creek does not support an edible fish population. The HHRA was prepared by the EPA using data provided by P/S. Though initially finalized in 2010, the HHRA was revised in 2012 to evaluate the impact of the dioxin reassessment, and again in 2014 to adjust exposure assumptions used in the OU1/OU2 HHRA so they were the same as the assumptions used in the OU4 HHRA. The results presented in the Proposed Plan reflect all of the changes made to the original HHRA.	

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ECOLOGICAL RISK ASSESSMENT		
Recommendation 8: From the materials the Region presented to the Board it appears that there are issues (such as physical habitat degradation and storm water flow patterns, as well as multiple sources of chemical stressors) related to the remediation of Snow Creek and the associated floodplain. The information provided to the Board also notes that a fall baseline ecological risk assessment (BERA) was not conducted since the preferred alternative to address the human health risk from soil will be protective of ecological risk. The Board recommends that, in the decision documents, the Region provide the reasoning for not conducting a full BERA within Snow Creek and the associated floodplain. This justification should reference the studies and existing information/data that supported limiting the BERA within Snow Creek.	**Response:** In responding to this recommendation, it should be noted that the Site has been divided into several OUs, which were selected based on geographic location and complexity. OU1/OU2 is a combination of two OUs representing residential properties (OU1) and non-residential properties (OU2) around the facility currently owned by Solutia, and downstream along Snow Creek to Highway 78. OU3 is Solutia's Anniston facility (Facility) and its adjacent closed landfills, the South Landfill and the West End Landfill. OU4 includes Snow Creek and its floodplain downstream of Highway 78 to the confluence of Snow and Choccolocco Creeks, and Choccolocco Creek from the backwater area upstream of Snow Creek to the embayment of Lake Logan Martin on the Coosa River. Ecological risk assessments for the OU1/OU2 portion of the Site were developed in two reports. Potential ecological risks for OU1/OU2 were initially evaluated in the Screening-Level Ecological Risk Assessment (SLERA) (BBL, 2005). In the 2005 SLERA, it was determined that the terrestrial exposure pathways in OU1/OU2 are fragmented, habitat is disturbed (dominated by mowed and maintained lands with little habitat-quality plant cover, impervious surfaces, and transportation infrastructure), and development pressure is strong, which will likely lead to additional fragmented and disturbed ecological habitat over time. Due to the habitat constraints, the EPA decided that soil cleanup to protect human health would provide acceptable protection of terrestrial ecological receptors exposed to OU1/OU2 soils. One third of the OU1/OU2 area is residential, where PCBs have been cleaned up to a concentration of less than 1 mg/kg. Future cleanup of non-residential soils for human health will also increase the protection of terrestrial ecological receptors. If after the Baseline Ecological Risk Assessment for OU4 is complete, it is determined that additional terrestrial cleanup should be conducted in certain areas to address ecological risk, an amendment to the decision document will be considered. The OU1/OU2 portion of Snow Creek required a more quantitative evaluation because of the ecological receptors associated with the aquatic environment. The results of the SLERA supported PCBs as the primary risk driver for OU1/OU2. In further evaluation conducted by EPA, (which considered background concentrations, bioaccumulation and EPA Region 4 sediment screening values), eight other constituents, in addition to PCBs, were identified as possibly indicating risk, and these constituents were carried forward for evaluation in the SERA (Environ, 2015). The COPCs evaluated in the SERA were PCBs, barium, chromium, cobalt, lead, manganese, mercury, nickel, vanadium, and PCDDs/PCDFs and DL-PCBs. The SERA for the OU1/OU2 portion of Snow Creek found that there are risks to benthic invertebrates, avian, and mammalian receptors from exposure to PCBs	Documents prepared as part of the Remedial Investigation (RI) process for OU-1/OU-2 documented that terrestrial habitat in OU-1/OU-2 was limited and where small areas of quality habitat were present, these areas were not connected. Based on the combination of poor and fragmented habitat, the remedial action objectives (RAOs) for the OU-1/OU-2 floodplain are not based on risks to ecological receptors. This finding is consistent with the 2005 Screening Level Ecological Risk Assessment (SLERA) and the Streamlined Ecological Risk Assessment (SERA) that was presented in the OU-1/OU-2 RI report (ENVIRON 2015). The SLERA and SERA for OU-1/OU-2 were both approved by the USEPA. While a Baseline Ecological Risk Assessment (BERA) is being prepared for the OU-4 portion of the Site, the assessment is focused on OU-4 and the BERA conclusions will have no bearing on terrestrial or aquatic habitat conditions in OU-1/OU-2. Although constituents other than PCBs (metals) were evaluated in sediment in the FS, it is not appropriate to include them as part of remedial areas for the Anniston PCB Site. In the same way that the ecological risk based preliminary remedial goals (PRGs) for PCBs are conservative based on the poor habitat quality and fragmented nature of Snow Creek, the metals PRGs are overly conservative for the available ecological exposure pathways. The widespread use of the metals in industry throughout the Anniston area and their distribution patterns demonstrate that the metals are not associated with the Site and are associated with other sources. Remediating sediment deposits in Snow Creek for metals is not necessary, given the widespread distribution and past and continued use of these constituents in the watershed by entities other than P/S. If risks associated with these isolated occurrences of metals in sediment are deemed unacceptable by USEPA, then the responsibility to address these sediment deposits would fall to others, recognizing the challenges to meet the PRGs listed in the Proposed Plan and associated fact sheets over the long-term.

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	and some metals (barium, chromium, cobalt, lead, manganese, mercury, nickel and vanadium) in sediment in localized areas. These risks are addressed by the proposed sediment remedy.	
PRINCIPAL THREAT WASTE		
Recommendation 9: The Region states on page B-72 that "Soils in OU1/OU2 with PCB concentrations greater than or equal to 500 mg/kg were evaluated as potential principal threat waste (PTW). The results of this evaluation indicated that highly mobile PTW was present only at the T-11 portion of EU5 based on the high PCB concentrations (up to 1500 mg/kg in one sample), lighter Aroclors, and the exceedance of the PCB maximum contaminant level (MCL) in groundwater." The Board notes that while mobility can be a factor for determining the presence of PTW, it is not necessarily the only way to identify its presence. The Board further notes that CERCLA section 121 contains a preference for treatment "to the maximum extent practicable," and that the NCP has an expectation that principal threat wastes will be treated. The guidance document, A Guide to Principal Threat and Low Level Threat Wastes (OSWER Directive No. 9380.3-06FS, November 1991) addresses this preference for treatment of highly toxic materials while A Guide on Remedial Actions at Superfund Sites with PCB Contamination (OSWER Directive No. 9355.4-01 FS, August1990) states that principal threats will generally include soils contaminated at concentrations greater than 100 ppm PCBs for residential sites and greater than or equal to 500 ppm PCBs for industrial sites. The Board recommends that in its decision documents, the Region more thoroughly explain how its reading of Agency guidance and its approach to treatment at this site are consistent with the statute and NCP.	**Response:** CERCLA 121, the NCP and EPA guidance specify requirements related to addressing principal threat wastes (PTW) through a CERCLA response action. A general rule of thumb is to consider PTW as source materials with toxicity and mobility characteristics that combine to pose a potential risk several orders of magnitude greater than the risk level that is acceptable for the current or reasonably anticipated future land use, given realistic exposure scenarios. Based upon those CERCLA and NCP requirements, the EPA guidance states that any PTW should be identified in the OU1/OU2 FS in order to develop and properly evaluate remedial alternatives to address such wastes. Additionally, PTW should be identified in order to select a remedy that satisfies CERCLA's preference to treat wastes to the maximum extent practicable (or publish an explanation why it is not practicable).[1] The identification in the FS of certain PCB wastes, located in residential area at concentrations greater than 100 ppm and in non-residential areas at concentrations greater than 500 ppm, which constitute PTW, is necessary to select remedies consistent with the statutory and regulatory requirement of CERCLA. As noted above, CERCLA 121(b)(1) contains a preference or expectation for selecting remedial actions that utilize treatment technologies and permanent solutions to the maximum extent practicable. If the selected remedy does not comply with this preference, the EPA must publish an explanation as to why a treatment remedy was not selected. The basis for this statutory provision is that EPA believes that treatment is the best way to address certain hazardous source materials given the technical limitations with the long-term reliability of containment technologies and the seriousness of the human health and environmental consequences of exposure should a release occur.[2] These PTWs are those source materials that contain highly toxic or highly mobile wastes and liquids for which treatment is preferred.[3] No threshold of toxicity or risk has been established to equate to a "principle threat".[4] For PCB contamination or PCB waste at Superfund sites, principal threats will generally include material contaminated at concentrations exceeding 100 ppm for sites in residential areas and concentrations exceeding 500 ppm for sites in industrial areas.[5]	The NRRB recommendation and the associated USEPA Region IV response are noted.

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	When PTWs are not practicable to treat or remove, reliable and effective long-term containment options can be considered in the FS. In demonstrating impracticability, EPA considers such factors as the media involved, the volume and concentration of contamination, the size and depth of the area impacted, whether containment is even possible, whether groundwater is or is likely to be impacted, the accessibility to the waste material, the on-site containment costs, the availability of effective ICs and engineering controls and the likely threat of exposure over time. Applying these considerations to the portions of OU1/OU2 that contain contamination > 500 ppm, the EPA believes it can effectively prevent exposure over the long-term through the proposed alternatives that involve both excavation and containment. Groundwater protection directly downgradient of former high PCB concentration areas on the Eastside Properties IM needs to be verified during remedial design. However, the results of groundwater investigations at high PCB concentration areas at other IMs provide strong support for the assumption that groundwater is not affected. If groundwater impacts are found during design, excavation of PTW may be required. 1 See CERCLA Section 121(d)(1), 40 C.F.R. Section 300.430(a)(1)(iii){A), 40 C.F.R. Section 300.430 (f)(1)(2)(E), A Guide to Principal Threat and Low Level Threat Wastes (OSWER Directive No. 9380.3-06FS, November 1991), A Guidance on Remedial Actions at Superfund Sites with PCB Contamination (OSWER Directive No. 9355.4-01FS, August 1990). 2 A Guide to Principal Threat and Low Level Threat Wastes (OSWER Directive No. 9380.3-06FS, November 1991). 3 Id., Page 2. 4 Id., Page 2. 5 Guidance on Remedial Actions for Superfund Sites with PCB Contamination, U.S. EPA, August 1990, (EPA/540/G-90/007), at Page iv.	

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REMEDIAL ACTION OBJECTIVES (3 recommendations)		
Recommendation 10: The materials provided to the Board appear to indicate that subsurface soils were not included in the risk analysis, remedial action objective (RAO) development or preliminary remediation goal (PRG) development for residential areas. The Board recommends that the decision documents explain how the Region's preferred approach is consistent with the NCP and existing guidance regarding the development of PRGs and RAOs in a manner that ensures protectiveness of human health and the environment (i.e., within the cancer risk range and hazard index [HI] not to exceed 1). In particular, the Board is concerned with the soil RAO described on B-29 that narrowly focuses on direct contact with surface soil even though the site's response action encompasses a residential area where it is not uncommon for people to come into contact with subsurface soils (e.g., planting, construction).	**Response:** Subsurface soils were included in the analysis of risk to construction workers and utility workers. RAOs for residential soils do not need to address construction worker and utility worker exposure specifically, because only PCB concentrations above 56 mg/kg will generate risk to these receptors above the 1 x 10^{-6} point of departure. Residential properties have been cleaned up such that PCBs in surface soils are less 1 mg/kg and PCBs in subsurface soils are less than 1 mg/kg on 85% of properties that required cleanup and below 10 mg/kg on 15% of properties that required cleanup. The Region believes the Board's concern has been adequately addressed.	The NRRB recommendation and the associated USEPA Region IV response are noted.
Recommendation 11: In addition, one of the soil RAOs is to reduce migration of COCs from surface soil to surface water. The Board recommends that the Region explain in its decision documents how reducing (as opposed to eliminating) migration will prevent recontamination in general, and, in particular, sediments recontamination, in a manner that will achieve the sediments and surface water RAOs and ensure OU wide protectiveness of human health and the environment.	**Response:** Region 4 believes that the primary fate and transport mechanism for PCB contamination in the floodplain of OU1/OU2 has been caused by sediment transport through flooding from Snow Creek, although the historical air transport pathway and transport of PCB contaminated soil for use as fill have also played a part. To that end, surface soil contamination came from the creek. Since the cleanup goal needed to protect ecological receptors in sediment is lower than the cleanup goal to protect human health in surface soil, flooding as a cause of contamination should not impact surface soil after the cleanup. However, as the RAOs indicate, it is also important to reduce the migration of PCBs in surface soils of the floodplains and creek banks from re-contaminating Snow Creek sediments. Excavation of PCBs in surface soil and stabilization of creek banks is expected to allow sediments goals to be maintained in Snow Creek. A monitoring program will be needed to ensure that all goals and RAOs are maintained.	The NRRB recommendation is noted and P/S concur with the Region IV response regarding surface soils, sediments and creek banks. To the extent the USEPA claims that PCBs from the operations of P/S' predecessors have "volatilized" and "spread" through the Anniston area, that claim is insufficient as a matter of law to hold P/S as a potentially responsible party under CERCLA. See *Pakootas v. Teck Cominco Metals*, No. 15-35228, 2016 WL 4011196 (9th Cir. July 27, 2016). In the *Pakootas* case, the 9th Circuit Court of Appeals rejected a similar "aerial deposition' theory." 2016 WL 401196 at *5. The Court noted that an earlier interpretation of the term "deposit" as used in CERCLA held there was nothing in the statute suggesting "'that Congress meant to include chemical or geologic processes or passive migration, *i.e.*, the gradual spread of contaminants without human intervention.'" *Id.* (quoting *Carson Harbor Vill., Ltd. v. Unocal Corp.*, 270 F.3d 863, 879 & n.7 (9th Cir. 2001)).

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Recommendation 12: The package indicates that the groundwater RAOs include prevention of further migration of contaminated groundwater beyond the existing known limits of the contaminant plumes, and restoration of groundwater throughout each plume to beneficial use, thereby meeting MCLs. The package (B-27), in discussing PCBs in groundwater, indicates that the OU3 ROD will address groundwater issues but does not mention plumes (although it does state that "[s]ome localized areas of groundwater with concentrations of PCBs have been identified in association with overlying soils containing PCBs.") The Board recommends that the Region's decision documents explain the PCB migration pathway to groundwater, as well as the sampling strategy and approach to accurately characterize site groundwater PCB contamination (in other locations besides well T-11). Further, the Board recommends that the RAO discussion describe how this remedial action (versus OU3) will address groundwater contamination consistent with CERCLA, the NCP (including 40 CFR 300.430 (a)(1)(III)) and existing EPA guidance (including Summary of Key Existing EPA CERCLA Policies for Groundwater Restoration, OSWER Directive No. 9283.1-33, June 2009).	**Response:** As discussed in the Proposed Plan, groundwater was not expected to be a medium of concern in the OU1/OU2 portion of the Site; groundwater migrating from the Facility (OU3) with Site related contaminants above regulatory action levels is being remediated through remedial actions selected for OU3. However, sampling of surface water and sediment pathways has shown that significant concentrations of PCBs have been released from the Facility to Snow Creek and its floodplain. At subsurface soil locations where the deepest sampling interval (four-feet below ground surface or refusal) indicated the presence of PCBs at concentrations above 10 mg/kg, a groundwater pathway investigation was performed. The results of this investigation were that the PCBs deposited at the T-11 location were leaching to groundwater above the MCL for PCBs (i.e., 0.5 µg/L). Region 4 believes this targeted investigation is consistent with CERCLA, the NCP (including 40 CFR 300.430 (a)(1)(III)) and existing EPA guidance (including Summary of Key Existing EPA CERCLA Policies for Groundwater Restoration, OSWER Directive No. 9283.1-33, June 2009). The proposed remedial action is intended to restore groundwater quality to MCLs in the affected area.	The NRRB recommendation and the associated USEPA Region IV response are noted.
PRELJMINARY REMEDIAL GOALS		
Recommendation 13: The package presented to the Board identified a preliminary remediation goal (PRG) set at 10^{-5} excess lifetime cancer risk. In 40 CFR 300.430(e)(2)(i) the NCP states that "...for known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upper bound lifetime cancer risk to an individual of between 10^{-4} – 10^{-6} ... [t]he 10^{-6} risk level shall be used as the point of departure for determining remediation goals for alternatives when ARARS are not available ..." The Board recommends that the Region explain in the decision documents how its approach (moving off of the point of departure for the development of PRGs at the site) is consistent with the NCP and existing CERCLA guidance on developing PRGs.	**Response:** Preliminary Remedial Goals (PRGs) are discussed on five (5) pages of the Proposed Plan. Justification for each of the soil, sediment, groundwater, and surface water PRGs is provided and will be included in the ROD. PRGs for non-residential properties were developed based on a number of factors. For recreation fields and large open areas at churches, schools, and parks, a PCB PRG of 1 mg/kg is proposed, which represents a 1 x 10^{-6} cancer risk for children in a school setting (such as a playground). For the 1.7 acre area where groundwater impacts were found and the 4.5 acres area where unapproved waste disposal was found, low permeability caps are being installed which will eliminate unacceptable exposure altogether. For the remaining non-residential areas, a commercial/ industrial PRG of 21 mg/kg is proposed, which represents a 1 x 10^{-5} cancer risk, impacts only 8 out of 30 exposure units, and is in the recommended range identified in Superfund PCB guidance documents. This combination of PRGs provides for a 1 x 10^{-6} cancer risk where more sensitive receptors may be located and a 1 x 10^{-5} cancer	The PRG for the low activity portions of the special use areas should be consistent with the PRG used for the other nonresidential portions of OU-1/OU-2 (21 mg/kg). Current land use in these low activity areas is consistent with the OU-1/OU-2 HHRA, where USEPA considered the low activity portions of the special use areas to be nonresidential and not used for school or daycare activities. The high activity portions of the special use areas (e.g., schools, daycare, churches, playgrounds) were addressed under the Stipulation based on the different characterization of such properties in the Anniston Lead Site Removal Order (presumably based on an assumption of children having direct contact with soils on a regular basis in these areas) and P/S agreement to address these areas as part of the Non-Time Critical Removal Order rather than wait until the OU-1/OU-2 RI/FS process on these

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	risk where less sensitive receptors may be located. Because these properties are in afloodplain, they are dominated by scrap yards, recycling facilities, roadways, and railroad lines. In order to cleanup to the commercial/industrial PCB PRG of 2 mg/kg, which represents the 1 x 10^{-6} cancer risk, 18 out of 30 exposure units would need to be targeted. Businesses that are operating would be disrupted and the volume and cost would increase substantially even though both risk levels are in the EPA's acceptable risk range. A risk management decision was made to instead evaluate a 1 x 10^{-6} commercial visitor goal for PCBs of 9 mg/kg, which would impact 13 out of 30 exposure units. The volume of soil impacted approximately tripled in changing the PRG from 21 mg/kg to 9 mg/kg, and arguably the areas impacted were not likely to experience commercial visitor exposure. The non-residential PRG proposed is 21 mg/kg was determined by Region 4 to provide acceptable protection with the least disruption to existing businesses for the type of receptor most likely to experience exposure. In addition to PCBs, COCs in soil include arsenic, chromium, PAHs, and PCDD/DF/DL-PCBs. There is substantial data to link these contaminants to multiple industrial operations in the area, even some still operating in the floodplain. Appendix G in the FS includes an exhaustive review of data compared to background concentrations and geographic distribution. The end result is a determination that the OU3 is not likely the only or even primary contributor to the concentrations of these COCs detected in OU1/OU2. Remediation of the OU1/OU2 area to the lowest (i.e., 1 x 10^{-6} carcinogenic risk) concentrations is not sustainable. For that reason the highest acceptable cleanup concentration (i.e., 1 x 10^{-4} carcinogenic risk or an HI of 1) was used to identify hot spots for remediation of these non-PCB contaminants.	properties, which are classified as non-residential properties under the PCD, was completed. As defined in the Stipulation, low activity areas do not present the same exposure as the high activity areas and it is not appropriate for the USEPA to apply a PRG from a school/daycare exposure scenario to areas that are not used in this way. If land use changes from low to high activity, the high activity removal requirements would apply and remedial activities for the area would be implemented consistent with the requirements of the Stipulation (1 mg/kg for surface soils and 10 mg/kg for subsurface soils). To be consistent with the OU-1/OU-2 HHRA and the Stipulation, the low activity special use areas should be evaluated as part of the broader Exposure Units (EUs) where they are located, where a nonresidential PRG of 21 mg/kg would apply. Region IV is clear that the source for non-PCB constituents is not P/S or the Facility. If the non-PCB constituents are included in the ROD, the USEPA should pursue parties other than P/S for the implementation of that portion of the remedy.

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REMEDY PERFORMANCE (3 recommendations)		
Recommendation 14: Remedy Effectiveness - The Region's package indicates that part of the Region's preferred approach entails using a soil cover to bring properties back to grade. The Board notes that gravel, soil and vegetative covers may erode overtime, especially in areas subject to surface water infiltration, flooding and large volumes of surface water runoff, all of which appear to be possible at the site based on the package's description of how PCBs have come to be located throughout this site (A1 - 2). The Board also notes that contaminated soil particles in areas with pervious covers may migrate via surface water runoff when flooded and, subsequently, may become airborne after drying. The Board recommends that the Region explain in its decision documents how its preferred approach is consistent with the design and construction requirements in the TSCA PCB regulations (40 CFR 761.61 (a)(7)) and how it will ensure protectiveness of human health and the environment over the long term (e.g., how would soil covers prevent recontamination) consistent with CERCLA and the NCP [e.g., 40 CFR 300.430(e)(9)(iii)].	**Response:** The Region has proposed surface and subsurface cleanup goals for direct contact with soil that are protective of human health based on a CERCLA human health risk assessment. The proposed alternatives require excavation of soil to meet these standards. After soils are excavated, clean soil backfill will be used to bring the area back to the original grade. This is a risk based cleanup plan in accordance with 40 CFR 761.61(c) as well as in accordance with CERCLA Section 121 and the NCP [40 CFR 300.430]. Although erosion can occur over time, it is not likely that it will erode 12 inches (the minimum depth of excavation and backfill) without the property owner's knowledge. Erosion is of most concern along creek banks, which will be periodically monitored by the PRP. Because there are PCBs remaining above 1 mg/kg in surface and subsurface soils, property owners and responsible parties will need to work together to ensure that the PCB impacted soils are not disturbed or moved unless proper handling and disposal is ensured. PCBs in subsurface soils are expected to remain in subsurface soils. Since concentrations of PCBs in air currently present a low inhalation risk to residents, the proposed remedial action is expected to further reduce the amount of PCBs available to the air pathway, thereby reducing the amount of PCBs in air and any associated risk. Since waste will be left in place, five year reviews will occur to ensure the remedy remains protective.	The NRRB recommendation and the associated USEPA Region IV response are noted. It should be emphasized that PCB concentrations in air are not of concern in OU-1/OU-2 and that actions taken to date have reduced the concentrations of PCBs in surface soil and subsequently in air. Although the excavation of materials containing PCBs may create short-term worker exposures, the risks from undisturbed conditions in OU-1/OU-2 do not constitute a risk from exposure to PCBs in air. The OU-1/OU-2 HHRA, conducted on behalf of USEPA, calculated the risks from concentrations of PCBs in air using data collected from OU-3 and from OU-1/OU-2. The following is from the HHRA on the subject of risks from air concentrations in OU-1/OU-2: Using these OU-1/OU-2 data (1.4 to 14 ng/m3 PCBs) to estimate risk using the ratio of the EPC from OU-3 to the estimated cancer risk, indicates that risks to receptors in OU-1/OU-2 would be negligible or *de minimis,* that is less than 1×10^{-6}. The OU-3 HHRA risks were based on a residential exposure scenario that estimated risks as if the air samplers were located in a residential yard and residents were exposed to PCBs via inhalation constantly. The maximum concentration in OU-1/OU-2 is approximately 5 times less than the maximum OU-3 value. Consequently, cancer risks to residents in OU-1/OU-2 would be 5 times less than OU-3, approximately 4×10^{-7} and risks to non-residential receptors with significantly lower exposure frequency and duration would be even lower.
Recommendation 15: The Region's package provided to the Board identified chemicals such as chromium, arsenic, dioxins/furans and polycyclic aromatic hydrocarbons, in addition to PCBs, as risk drivers. However, the package did not include a thorough discussion of how the alternatives presented will address these chemicals. The	**Response:** The Proposed Plan provides details about the other COCs sampled in soils and sediments. In addition to PCBs, COCs in soil (contaminants that had generated greater 1×10^{-6} cancer risk or hazard index greater than 1) include arsenic, chromium, PAHs, and PCDD/DF/DL-PCBs (dioxins). There is substantial data to link these contaminants to multiple industrial operations in the area, even some still	Although constituents other than PCBs are identified as being present in the various media, sometimes at concentrations above PRGs, they are not identified as being OU-wide risk drivers. As the USEPA Region IV notes, the FS includes an exhaustive evaluation of the data that yields a

Attachment A
Anniston PCB Site, Operable Unit I/Operable Unit 2
Pharmacia LLC/Solutia Inc. Comments on the United States Environmental Protection Agency Region IV Memorandum dated March 10, 2017 Providing Responses to United States Environmental Protection Agency National Remedy Review Board Recommendations

National Remedy Review Board Recommendations	USEPA Region IV Responses to National Remedy Review Board Recommendations	Pharmacia LLC/Solutia Inc. Comments
Board recommends that the Region's decision documents include a robust discussion of the other COCs, including the level of confidence that the contamination has been adequately characterized, and how the alternatives will address the risk posed by these contaminants.	operating in the floodplain. Appendix G in the FS includes an exhaustive review of data compared to background concentrations and geographic distribution. The end result is a determination that the Facility is not likely the only or even primary contributor to the concentrations detected in OU1/OU2. Remediation of the OU1/OU2 area to the lowest (i.e., 1 x 10^{-6} carcinogenic risk) concentrations is not sustainable. For that reason the highest acceptable cleanup concentration (i.e., 1 x 10^{-4} carcinogenic risk or an HI of 1) was used to identify hot spots for remediation of these non-PCB contaminants. Additional investigations may be needed during remedial design to ensure that these concentrations are protective of groundwater. The OU1/OU2 mean arsenic concentrations are the same as the local background mean at Fort McClellan. The OU1/OU2 maximum arsenic concentration (120 mg/kg near railroad and the 11th Street ditch) is higher than the Fort McClellan maximum suggesting anthropogenic source(s) of arsenic inside or outside of OU1/OU2. The range of PRGs for arsenic that are protective of all exposures except young children in a school/daycare or recreational setting are within the carcinogenic risk range and have noncancer HIs less than or equal to 1 range from 4 mg/kg to 382 mg/kg. Since the high concentrations are associated with industrial areas and not schools and recreation areas, the PRG for arsenic was set at 382 mg/kg, and no areas of exceedance have been identified. The OU1/OU2 mean chromium concentrations are much higher than the local background mean at Fort McClellan. The OU1/OU2 average chromium concentration is driven by two elevated points of 14,000 mg/kg in EU22 and 850 mg/kg in EU24. If these two high points are removed, the average would be 39 mg/kg and the maximum would be 550 mg/kg, which is higher than Fort McClellan, but consistent with OU1/OU2 background. The range of PRGs for chromium that are protective of all exposures except young children in a school/daycare setting are within the carcinogenic risk range and have noncancer HIs less than or equal to 1 range from 6 mg/kg to 568 mg/kg. Since the high concentrations are associated with industrial areas and not schools and daycares, the PRG for chromium was set at 568 mg/kg, and two areas of exceedance not associated with PCBs have been identified. PAH concentrations in soil appear to be attributable to urban background. OU1/OU2 maximum concentrations are higher than OU3 maximum concentrations. PAHs are likely present from multiple urban and industrial uses in the area. The range of PRGs for PAHs that are protective of for all exposures except young children in a school or daycare setting are within the carcinogenic risk range and have noncancer HIs less than or equal to 1 range from 0.2 mg/kg to 21 mg/kg. Since the high concentrations in OU1/OU2 are associated with industrial areas and not schools and recreation	"determination that the Facility is not likely the only or even primary contributor to the concentrations detected in OU1/OU2." These constituents appear to be present as a result of native or anthropogenic background or, possibly, from a single or multiple specific point sources. The data clearly indicate that the presence of these constituents is not associated with PCBs or the Facility. Therefore, it is inappropriate to identify these constituents as requiring remediation in association with the Anniston PCB Site. Because these sporadic, unrelated (to each other or to PCBs) instances of higher concentration constituents do not drive OU-wide risks, they should not be targeted for remediation as a part of the Anniston PCB Site. If the risks associated with these isolated occurrences are deemed unacceptable by USEPA, then the responsibility to address these areas would fall to others. In the memorandum titled: *Comparison of Dioxin-Like PCB Congener and Total Aroclor Data for OU1/OU2*, (September 29, 2010), CDM augments the Human Health Risk Assessment (HHRA) by evaluating whether there is a difference between calculating the 2,3,7,8-tetrachlorodibenzo-p-dioxin toxic equivalent (TEQ) and comparing to a PRG of 1 µg/kg or using total PCBs (Aroclors and homolog groups) and comparing to the residential PRG of 1 mg/kg. The memorandum concludes that total PCB Aroclors and total PCB homologs provide consistent results. Therefore, because the preponderance of data from OU-1/OU-2 were based on Aroclors and the risk assessment was performed using those results, it is most logical to continue to use Aroclor results for the purposes of making remediation decisions. The CDM memorandum also concludes that the total PCB PRG of 1 mg/kg is protective for residential areas and would be inclusive of a total dioxin-like PCB (DL-PCB) TEQ PRG of 1 µg/kg. As a point of clarification, there are three, not two, surface soil sampling locations where the TEQ for polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/DF) and DL-PCBs

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	areas, the PRG for PAHs was set at 21 mg/kg, and one area of exceedance not associated with PCBs has been identified. 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 micrograms per kilogram (µg/kg) [i.e., 2,200 nanograms per kilogram (ng/kg) in EU25]. When combined with dioxin-like PCBs, only two locations (2,200 ng/kg in EU25 and 2000 ng/kg in EU10) do not fit the data demonstrating that PCB cleanup goals are protective of PCDD/DF/DL-PCB concentrations. The sample in EU25 is not associated with significant PCBs and the sample in EU10 is not associated with significant PCDD/DFs. RGs for PCDD/DF/DL-PCB was set at 0.73 µg/kg to address these data outliers, ensuring that the OU1/OU2 area as protected as possible. For subsurface soils, arsenic concentrations less than 596 mg/kg are protective, chromium concentrations less than 6,936 mg/kg are protective, PAHs (as BaPE) concentrations less than 534 mg/kg and PCDD/PCDFs (TEQ) less than 0.73 µg/kg are protective.	is above the PRG of 0.73 µg/kg. The corresponding PCB concentrations for all three locations are low. Additional information is provided below for the two locations where remedial actions are not needed to reduce risks associated with DL-PCBs in surface soils. Additional information is also provided below for the location where the reduction of risks associated with the presence of PCDD/DF is not the responsibility of P/S. • The TEQ PRG exceedance for two of the three locations are driven by the DL-PCB component of TEQ. One of the PRG exceedances is associated with a surface soil sample collected in Exposure Unit 11 (EU11) and the second exceedance is associated with a surface soil sample collected in EU15/16. Both of these EUs are characterized by low PCB concentrations, and the Proposed Plan does not identify remediation for either of these EUs based on the presence of total PCBs. The average surface soil PCB concentrations in EU11 and EU15/16 are 1.3 mg/kg and 0.84 mg/kg, respectively. The DL-PCB concentrations for these two sample results are discussed in the September 29, 2010 memorandum referred to in Response No. 3. This September 29, 2010 memorandum prepared by CDM on behalf of the USEPA concluded that the DL-PCB component of TEQ for these two locations is attributed to PCB 126, and that the reported concentrations of PCB 126 are likely false positives or are falsely biased high. The memorandum also concludes that total PCB concentrations based on the sum of detected Aroclors is consistent with total PCB homologues and, thus, subsequent risk-based decisions based on PCB Aroclors results can be made with confidence. • The third "TEQ hot spot" referred to in Comment No. 6 is in a former industrial area (US Pipe) located in EU25. The TEQ concentration at this location is driven by the concentration of PCDD/DFs and not DL-PCBs, as the total PCB concentration is 0.062 mg/kg. Since the TEQ concentration is driven by a group of constituents that are not associated with the Anniston PCB Site (i.e.,

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		PCDD/DFs), and given that the PCB concentrations at this location do not pose unacceptable risks, there is no need to address the area as part of the Anniston PCB Site. If risks associated with the PCDD/DF component of TEQ are unacceptable, then the responsibility to address this portion of EU25 shifts to parties other than P/S.
Recommendation 16: Alternative Remedy - The package provided to the Board references low and high activity areas. These terms are not standard Superfund risk assessment terms, and, therefore, the Board recommends that the Region clearly define them in the decision documents. The Board also recommends that the Region develop remedial alternatives for these special use properties, including excavation of PCBs in both low and high activity areas. These new alternatives should obviate the need for complex and potentially difficult-to-implement institutional controls for these properties over the long term.	**Response:** The terms "low activity area" and "high activity area" were developed in the District Court authorized Stipulation to the Consent Decree for the Anniston PCB Site: Residential Property(ies)' shall mean properties containing single and multi-family dwellings, apartment complexes, vacant lots in areas zoned residential by local authorities, and the high activity areas of schools, churches, day-care centers, community centers, playgrounds, and parks. The high activity areas of schools, churches, day-care centers, community centers, playgrounds, and parks are the areas where persons, primarily children, are likely to spend considerable time. Specifically, the playground area of a public park, the outdoor play or recess areas of a school, community center or day-care center and similar areas of any church property, generally comprised of areas less than one quarter acre in size, are, for the purposes of this Agreement, included in the definition of Residential Property. Conversely, for the purposes of this Agreement, other areas of the same types of property, such as athletic fields and large open fields larger than one quarter acre in size, paved areas, and other portions of these properties where people, primarily children, are likely to spend less time, do not fall into the definition of Residential Property. The Parties agree that the areas of schools, churches, day-care centers, community centers, playgrounds, and parks that do not fall under this definition of Residential Property will continue to be addressed as may be required under the RI/FS Agreement and the cleanup standards for these areas shall be set subject to the risk assessment process set forth therein. The alternatives for the Special Use Properties (i.e., schools, churches, day-care centers, community centers, playgrounds, and parks) include scenarios that range from remediating (excavating) low activity areas to the non-residential PRG, to remediating low activity areas to goals that are similar to residential cleanup goals. The need for complicated ICs are reduced progressively by the alternatives evaluated.	Based on the definitions of special use properties and high activity and low activity areas, and the manner in which the low activity areas were evaluated in the OU-1/OU-2 HHRA, it is appropriate to address the low activity areas as nonresidential. When applying nonresidential land use to the low activity areas, it is not appropriate to use a PRG from a school/day-care exposure scenario. If these activities were going to take place on a portion of a special use property, the land use classification would be changed from low to high activity and the high activity removal requirements would apply (1 mg/kg for surface soils and 10 mg/kg for subsurface soils). To be consistent with the OU-1/OU-2 HHRA and the Stipulation, low activity special use areas should be evaluated as part of the broader EUs where they are located. The Stipulation identifies the low activity portions of the special use properties as nonresidential, and the recent actions taken by the USEPA Region IV in the Proposed Plan to apply a different risk management standard for these low activity areas, as compared to other nonresidential properties, is arbitrary and capricious. The USEPA's actions in the Proposed Plan result in a nonresidential PRG for the low activity portions of the special use properties that is equivalent to the child school/daycare exposure pathway and a 1×10^{-6} cancer risk PRG of 1 mg/kg. As agreed to in the Stipulation, it is appropriate to apply this PRG to high activity areas of schools and daycares, based on the potential for exposure. However, in accordance with the Stipulation, low activity areas do not have the same potential for exposure and the school/daycare exposure pathway should not be considered for these areas. Changes in land use should be managed in accordance with the soil management plan that includes frequent communication to landowners and users

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		to manage exposures. The PRG for the low activity portions of the special use areas should be consistent with the PRG used for the other nonresidential portions of OU-1/OU-2 (21 mg/kg) and, thus, the selected remedy for the special use properties should be remedial alternative SU-2, as opposed to SU-3.

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National Remedy Review Board Recommendations	USEPA Region IV Responses to National Remedy Review Board Recommendations	Pharmacia LLC/Solutia Inc. Comments
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (3 recommendations)		
Recommendation 17: The package indicates that TSCA regulations published at 40 CFR 761.61 are applicable or relevant and appropriate requirements (ARARs) for this site, but it does not specify which portions of the regulations (e.g., subsection 761.61(a), (b) or (c); subpart N; subpart O) are being identified as the ARAR for specific response actions. The Board notes that, consistent with national program guidance, attaining an ARAR does not necessarily lead to ensuring protectiveness of human health as required by CERCLA. From both a general statutory perspective, as well as a regulatory one {under 40 CFR 761.61(c)], TSCA uses a "no unreasonable risk" standard. As a legal matter under established TSCA case law, the "no unreasonable risk" standard is based on cost-benefit analysis; however, CERCLA, under section 121, requires a health-based standard and does not use cost-benefit analysis. Both the NCP and the guidance document, Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions (OSWER Directive No. 9355.0-30, April 1991), define protectiveness as a cancer risk range of 10^{-4} to 10^{-6} or for non-cancer risks, an HI no greater than 1. Protectiveness also includes a consideration of ecological factors. In addition, EPA's Guidance on Remedial Actions for Superfund Sites with PCB Contamination (OSWER Directive No. 9355.4-01, August 1990) states: "For soils, the starting point action level (preliminary remediation goal) is 1 ppm for sites where unlimited exposure under residential land use is assumed." To the extent 40 CFR 761.61(c) is being used as an ARAR at this site and to the extent the CERCLA/NCP health-based protectiveness standard is a more stringent standard than the TSCA "no unreasonable risk" standard in 40 CFR 761.61(c), the Board recommends that the Region explain in its decision documents how the cleanup ensures the NCP's “protectiveness of human health."	**Response:** 40 CFR 761.61(c) is being used as an ARAR. Cleanup of the Site based on the EPA approved risk assessment processes and risk range has typically satisfied the TSCA "no reasonable risk" standard at CERCLA Sites. Language about the assessment of risk and recommended remedial goals is provided in the Proposed Plan and will be included in the ROD to show how human health is protected. If there is specific language required for the Statutory Determination Section at PCB Site, it will be included in the ROD. The Anniston cleanup ensures the protection of human health under a residential scenario given that surface soils (0 to 12 inches bgs) in all yards cleaned up pursuant to the ongoing removal activities do not exceed 1 ppm. At this cleanup level, the human health risk posed by the Site falls well within or is actually less than EPA's cancer risk range. Risk scenarios of concern for exposure to subsurface soils (below 12 inches depth) are only present for select construction and utility workers. Moreover, eco-risk considerations were evaluated for sediments. The Region will document the overall protection provided to terrestrial receptors through proposed residential and non-residential soil cleanups. If after the Baseline Ecological Risk Assessment for OU4 is complete, it is determined that additional terrestrial cleanup should be conducted in certain areas to address ecological risk, an amendment to the decision document will be considered.	Since PCBs associated with this Site (including OU-1/OU-2), were released prior to April 18, 1978, TSCA and its implementing regulations do not apply. The results of the OU-4 BERA should not be back-applied to OU-specific decisions that were already made for OU-1/OU-2. The ecological risks assessments conducted for OU-1/OU-2 included the 2005 Screening Level Ecological Risk Assessment (SLERA) and the Streamlined Ecological Risk Assessment (SERA) that was finalized in the OU-1/OU-2 RI report (ENVIRON 2015). The SLERA and SERA for OU-1/OU-2 were both approved by the USEPA. The OU-4 BERA is focused on areas located downstream of OU-1/OU-2 and its conclusions will have no bearing on terrestrial conditions in OU-1/OU-2.

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Recommendation 18: The Board also recommends that the site administrative record be consistent with 40 CFR §300.800(a)) by including specific data, information and analysis (e.g., human health risk assessment) to support the CERCLA remedy selection decision and to demonstrate how the preferred approach ensures protectiveness. This inclusion of information and analysis should be done to help ensure the public has a meaningful opportunity to comment and to ensure a defensible remedy selection decision.	**Response:** Data summaries and analyses that are the basis for the proposed remedy are included in the administrative record for the Site. Records specialists have worked with the project team to ensure that the requirements of 40 CFR §300.800(a) have been meet.	The NRRB recommendation and the associated USEPA Region IV response are noted.
Recommendation 19: The package (B-73) indicates that Clean Water Act section 404 and its implementing regulations are potential ARARs for this site. The Board recommends that the Region include in its administrative record and explain in its decision documents how it has addressed the substantive provisions associated with the section 404 program (i.e., 404(b)(1) analysis, the environmental mitigation being done to offset impacts of the cleanup, evaluation of the Least Environmentally Damaging Practicable Alternative).	**Response:** Section 404 of the Clean Water Act and its implementing regulations (known as the 404(b)(1) guidelines) are potential ARARs for CERCLA cleanups. The 1988 Manual describes in detail what the substantive requirements of the 404(b)(1) guidelines are and, in particular, states that mitigation is a substantive requirement. Thus, mitigation measures must be taken to minimize adverse impacts resulting from the remedial action that significantly degrade the aquatic environment, and if there is unavoidable loss from the remedy, mitigation is appropriate. There are two designated wetland areas on Snow Creek, one in OU1/OU2 and one in OU4. The two acre area that is part of OU1/OU2 where Snow Creek passes through is in EU25 and EU26. There are sediment deposits in this area with PCB concentrations greater than 1 mg/kg, but less than the 3 mg/kg proposed remedial goal. Preliminary design sampling in this area is required to verify that no impacts to this wetland will occur during remediation for a PCB remedial goal of 3 mg/kg. If the PCB remedial goal ultimately selected is 1 mg/kg, a 404(b)(1) analysis of the design and determination on the scope of impacts and amount of mitigation required will be conducted as part of the remedial design.	The OU-1/OU-2 FS and ultimately the ROD for OU-1/OU-2 will meet the substantive process requirements for evaluating a range of potential alternatives under the Clean Water Act (CWA). During the remedial design (RD) process, steps will be taken to further delineate wetlands in the project area and to develop implementation plans for a construction approach that minimizes wetland impacts. Wetland areas impacted during remedial action (RA) construction activities will be restored recognizing: (1) the degraded nature of the existing wetland resource areas that have been compromised by the urban setting and surface water runoff; (2) the presence of PCBs (or other chemicals) has not contributed to the physical degradation of these wetland resources; (3) that restoration of these areas will occur over a period of time: and (4) additional mitigation in an off-site area at some multiplier of the impacted wetland area is not required.

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MONITORED NATURAL RECOVERY		
Recommendation 20: The package (B-70) states that "with the remediation measures already taken and those anticipated to be taken in OU3 and in soils areas in OU1/OU2, the concentration of PCBs entering the creek from discharge and runoff is expected to continue to decrease over time, allowing monitored natural recovery (MNR) to be a long-term, effective alternative for PCBs in sediment." While the package indicates that the Region's preferred alternative for sediment is SED-4, that alternative does not include an MNR component. The Board recommends that, if MNR is considered further in the remedy selection process, the Region should present quantitative lines of evidence, such as natural recovery processes, data showing the effectiveness of upland source control measures, and deposition rates in the decision documents.	**Response:** Using natural processes to reduce exposure concentrations of a given contaminant over time is referred to as MNR for sediment. For PCBs in sediment, the primary MNR mechanism is introducing and mixing clean sediments that are brought into the aquatic system through upstream flows. Other processes for sediment such as biodegradation, volatilization, dispersion, adsorption, and dissolution play a lesser role in MNR. The effectiveness of MNR will be assessed over time using an Adaptive Site Management (ASM) process to document attainment of the preliminary remedial goals (PRGs) including the chronic ambient water quality criteria (AWQC) for PCBs. The data collected to make this assessment will include at least 10 sediment and 10 surface water samples that are spatially located through the OU-1/OU-2 portion of Snow Creek. If the data collected indicate that the chronic AWQC is not being achieved in the dissolved phase surface water samples collected during periods of low flow, then an evaluation of potential options would be conducted. This review would assess if additional actions are necessary in the OU-1/OU-2 portion of Snow Creek and/or in the reach of Snow Creek upstream of its confluence with the 11th Street Ditch for the remedy to be protective. The preferred alternative does not include MNR. The MNR alternative was not proposed because s more stringent cleanup goal can be implemented and provides for more timely protection of the environment.	The NRRB recommendation and the associated USEPA Region IV response are noted.

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ENVIRONMENTAL JUSTICE		
Recommendation 21: Based on the information provided by the Region, West Anniston may be considered an Environmental Justice (EJ) community. The Board recommends· that the Region explain in its decision documents how its preferred approach reflects specific consideration of and consistency with: Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations), which "directs federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law" (https://www.epa.gov/environmentaljustice/learn-about-environmental-justice); existing EPA guidance on EJ, including EJ Legal Tools (September 2011), and the Administrator's January 21, 2016, Policy on Elevation of Critical Public Health Issues.	**Response:** When the ROD is prepared the Region will detail the steps that have been taken to ensure that the West Anniston community has been considered in every step of the Superfund process: - Multiple environmental stressors were identified that impact the West Anniston community when the Superfund Program was asked to assist at the PCB Site. The EPA has taken action to alleviate those stressors by cleaning up lead on residential properties from multiple industrial operations in Anniston through the Anniston Lead Superfund Site, providing treatment towers on the local groundwater supply through the Anniston Army Depot Superfund Site, and prioritizing a NTC removal of PCBs on residential properties as part of the Anniston PCB Superfund Site. - Community concerns have been and will continue to be sought relative to the remedial investigations and feasibility studies being conducted at the Anniston PCB Site. The PRPs and EPA have supported both a Community Advisory Group and a Technical Advisor for the impacted community for over 10 years; both are centered on the West Anniston community. The EPA also negotiated a multi-million dollar education fund to benefit the education of children in the West Anniston community. - Extensive efforts have been made to inform the community about the work being done through regular meetings and fact sheets. Superfund staff have attended Community Advisory Group meetings and Technical Advisor meetings for the past thirteen years. Separate community meetings have been held by the EPA to explain the human health risk assessments, various decision documents and Site status updates. Consideration of community impacts have influenced the proposed remedy and may change and influence the final remedy. Offsite disposal is being proposed to alleviate community concerns about additional contamination being brought to West Anniston for permanent internment.	Documentation regarding community concerns for the use of an on-site disposal for materials from OU-1/OU-2 is requested by P/S.

May 12, 2017

SENT VIA E-MAIL AND FEDERAL EXPRESS

Ms. Pamela J. Langston Scully, P.E.
Remedial Project Manager
United States Environmental Protection Agency, Region IV
Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960

Re: **Operable Unit 1/Operable Unit 2 Feasibility Study**
Response to Comments from the USEPA dated March 7, 2017
Anniston PCB Site (Docket No. 1:02-cv-0749-KOB); Anniston, Alabama

Dear Ms. Langston Scully:

This letter provides responses from Pharmacia LLC and Solutia Inc. (P/S), as parties to the Partial Consent Decree (PCD; August 4, 2003) to comments dated March 7, 2017 from the United States Environmental Protection Agency (USEPA) on the March 31, 2016 version of the Operable Unit 1/Operable Unit 2 Feasibility Study (OU-1/OU-2 FS). The March 7, 2017 letter from the USEPA also provided approval of the OU-1/OU-2 FS.

The USEPA comments and P/S responses are included as a tabular matrix attached to this letter. In some of the comments, the USEPA requested changes to text and tables in the OU-1/OU-2 FS. The USEPA clarified in an email dated March 15, 2017 that changes to the OU-1/OU-2 FS are not required.

Please contact me if you have any questions.

Sincerely,

E. Gayle Macolly Harris
Manager, Remedial Projects
Solutia Inc.

Attachment

cc: Mr. Chip Crockett (ADEM)
Mr. G. Douglas Jones, Esq.
Mr. Thomas Dahl
Mr. David Reddick, CAG
Mr. Bertrand Thomas, TA

Anniston PCB Site: OU-1/OU-2 Feasibility Study
Responses to USEPA Comments on the OU-1/OU-2 Feasibility Study Report
Comments Provided on March 7, 2017 with the USEPA's Approval of the OU-1/OU-2 Feasibility Study

USEPA Comment	P/S Response
1. Section 2.6.2.3 Volatilization/Fugitive Dust – The EPA agrees that the surface water pathway was a primary source of offsite migration. However, the EPA has used Monsanto records to demonstrate that significant levels of contamination were released by the air pathway when PCB production was ongoing. It is not a current transport mechanism, but needs to be mentioned as a release pathway considered during the investigation.	Historical and current release mechanisms (sources) were identified in the Operable Unit 1/Operable Unit 2 Remedial Investigation (OU-1/OU-2 RI). These sources were identified as part of developing the Conceptual Site Model (CSM) that presents an understanding of historical and current sources, the fate and transport of contaminants, and the human and ecological exposure pathways. Historical sources are not relevant for the OU-1/OU-2 Feasibility Study (OU-1/OU-2 FS) as they no longer need to be addressed. The remedial alternatives presented in the OU-1/OU-2 FS are designed to address current sources along with addressing unacceptable risks. Identifying and addressing these sources is necessary for long-term effectiveness of the remedial alternatives. The Solutia Plant site area (OU-3) is not a current source of PCBs to OU-1/OU-2. The surface water pathway from OU-3 to downstream areas has been controlled through remedial actions that were implemented under the Resources Conservation and Recovery Act (RCRA) program and under the Interim Record of Decision (IROD) for OU-3. Pharmacia LLC/Solutia Inc. (P/S) agree with the United States Environmental Protection Agency (USEPA) that surface water runoff and to a lesser extent, air were historical OU-3 sources and that these historical OU-3 sources have been controlled and are no longer sources to OU-1/OU-2. P/S also agree with the USEPA that surface water from OU-3 was a significant historical source of PCBs to OU-1/OU-2. However, P/S do not agree that air was a significant source of PCBs to OU-1/OU-2. Documented efforts to measure PCB releases into the air or surface water during PCB manufacturing operations (pre-1971) are limited, likely incomplete, and potentially inaccurate. Conclusions regarding the significance or insignificance of historical sources of PCB releases to air from the Facility are speculative at best.

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	To the extent that the USEPA claims that PCBs from the operations of P/S' predecessors have "volatilized" and "spread" through the Anniston area, that claim is insufficient as a matter of law to hold P/S as a potentially responsible party under CERCLA. See *Pakootas v. Teck Cominco Metals*, No. 15-35228, 2016 WL 4011196 (9th Cir. July 27, 2016). In the *Pakootas* case, the 9th Circuit Court of Appeals rejected a similar "aerial deposition' theory." 2016 WL 401196 at *5. The Court noted that an earlier interpretation of the term "deposit" as used in CERCLA held there was nothing in the statute suggesting "'that Congress meant to include chemical or geologic processes or passive migration, *i.e.*, the gradual spread of contaminants without human intervention.'" *Id*. (quoting *Carson Harbor Vill., Ltd. v. Unocal Corp.*, 270 F.3d 863, 879 & n.7 (9th Cir. 2001)).
2. Section 3.3.1 Establishment of Preliminary RAOs– The Preliminary RAOs should be slightly modified as follows: The following are the RAOs for Site soil: • Reduce risks to residents from direct contact with, inhalation of, or incidental ingestion of PCBs in surface soil to levels that are protective of residential use. • Reduce risks to industrial and commercial workers, commercial visitors, trespassers, school children, and recreational users associated with direct contact with, inhalation of, or incidental ingestion of COCs in surface soil to levels that are protective of industrial use. • Reduce risks to construction and utility workers from direct contact with, inhalation of, or incidental ingestion of COCs in surface and subsurface soil to levels that are protective. • Prevent migration of COCs from surface soil to surface water and sediment to levels that are protective. • Prevent migration and leaching of PCBs in surface and subsurface soil to groundwater above levels that are protective of beneficial use (i.e., drinking water standards).	The changes made to the Remedial Action Objectives (RAOs) do not alter the intended objectives of the remedial alternatives that were presented in the OU-1/OU-2 FS. A track changes version of the RAOs is provided as Attachment A and highlights the differences between the RAOs presented in the OU-1/OU-2 FS and those provided by the USEPA in their comments.

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The following are the RAOs for Snow Creek sediments: • Reduce risks to ecological receptors from exposures to sediments in Snow Creek to levels that are protective of receptors. • Prevent migration of PCBs from creek bank soil to levels that are protective of Snow Creek and OU4. The following is the RAO for surface water: • Reduce COC concentrations in surface water to meet AWQC. The following are the RAOs for groundwater: • Prevent exposure to groundwater from direct contact with, inhalation of, or ingestion of PCBs in groundwater above acceptable levels that are protective of beneficial use (i.e., attain drinking water standards). • Restore PCBs in contaminated groundwater to levels that are protective of beneficial use (i.e., attain drinking water standards).	
3. Section 3.3.2 Human Health PRG Values – The industrial RSL for PCDD/DF/DL-PCB TEQ should be used (0.73 µg/kg). DL-PCBs must be included in the dioxin TEQ.	The recommended value of 0.73 µg/kg for the polychlorinated dibenzo-p-dioxin and dibenzofuran (PCDD/DF) component of the 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) equivalent (toxic equivalent or TEQ) is an appropriate preliminary remedial goal (PRG). Including dioxin-like PCBs (DL-PCBs) with the PCDD/DF component of TEQ is not necessary as the cleanup of PCBs in soils is already addressed as part of the PRG for PCBs. In addition, because the sources of PCBs and PCDD/DFs on the Anniston Site are not the same, and because the human health risk assessment (HHRA) considered individual EUs to evaluate PCB risks and used an OU-wide approach to evaluate PCDD/DFs, combining these two groups of compounds to evaluate remediation decisions is not appropriate. Evaluating the two groups of compounds separately is consistent with the USEPA's November 15, 2012 approval of the OU-1/OU-2 HHRA. The approval letter also refers to a September 29, 2010 memorandum prepared by CDM to

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	supplement the HHRA and specifically addresses PCDD/DF and DL-PCBs. The concluding summary of the September 29, 2010 memorandum states: > Available data from surface soil collected in OU2 was used to estimate TCDD TEQ for dioxin like PCB congeners, and total PCBs as sums of homolog groups and of Aroclors. The two estimates of total PCBs were mostly consistent and suggest that the data can be used with confidence. Comparisons of TCDD TEQ with a residential PRG of 1 µg/kg did not identify exceedances, except for two of 44 soil samples. These two samples showed questionable results for PCB 126, thus, in both cases, low confidence is placed in reported data. As further discussed in response to Comment No. 6, the USEPA's evaluation of the DL-PCB data indicates that, for those limited number of instances where PCB 126 was present and resulted in an exceedance of the threshold TEQ value (1 µg/kg at the time), that these exceedances were based on: > ...a concentration of PCB 126 reported with a JN qualifier. This qualifier indicates that a PCB congener was detected, but its concentration was only estimated and its identity could not be confirmed. Consideration should also be given to the considerable research for toxicity equivalent factors (TEFs) that has been conducted since they were initially published in 2006. Since the initial TEFs were published, several papers have been published demonstrating the flaws in these initial TEF values. The lead author of the 2006 TEF publication (Martin van den Berg) recently published research concluding that the "current TEF concept overestimates [aryl hydrocarbon receptor] AHR-mediated risk of DL-PCBs in humans." In particular, "the human-TEF for PCB126 should probably be around 0.003 for AHR-mediated effects" or 30 times lower than the current TEF. Use of a revised TEF for DL-PCBs would demonstrate that DL-PCBs do not make a measurable contribution to the calculated total TEQ.

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4. Section 3.3.3 Ecological PRG Values – The EPA does not agree with the characterization that the PCB PRG of 3 mg/kg for sediment is overly conservative. The PRGs for total PCBs in sediment range from 0.1 mg/kg to 5 mg/kg for receptors that spend 100% of their time in Snow Creek. The total PCB PRGs 3 mg/kg is in the middle of the range.	The PRG of 3 mg/kg for sediment in Snow Creek is overly protective because of several assumptions made in the ecological risk assessment. As stated in the FS report: > This PRG was selected to protect a benthic invertebrate community that is largely not present in Snow Creek due to habitat limitations (sections of concrete lined creek). … Other stream quality limitations include non-site-related impacts to Snow Creek from point discharges and nonpoint surface water runoff from the parking lots/streets. Additionally, the 3 mg/kg PRG is based on the most sensitive endpoint from the sediment toxicity testing program (the reproductive endpoint of 42-day young/female) and a relatively low level of effect (10%). Given the large degree of among batch control variability for the reproductive endpoint upon which the EC10* is based (i.e., 135%) it is expected that the concentration at which PCB-related effects are observed in benthic organisms would be much higher. By comparison, the EC10* value for the most sensitive survival endpoint, for which the among batch control variability was more acceptable (i.e., 4.4%), is 76 mg/kg, and the concentration at which there is no difference from reference sediments (EC0*) is 14 mg/kg. In addition to evaluating risks to the benthic community, the ecological risk assessment also evaluated protectiveness for birds and mammals that may use the OU-1/OU-2 portion of Snow Creek. Based on the most likely and relevant ecological exposures for OU-1/OU-2, the raccoon and muskrat appear to be more representative than birds. The overly protective, no-effect-based RGOs for these two receptors are 3 and 4 mg/kg, respectively, while the lowest-effect-based RGOs are 8 and 12 mg/kg, respectively.

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5. Section 3.2 Identification of Potential ARARs and To Be Considered Requirements - Some changes are needed to the Table 3-1 Potential Chemical-Specific ARARs and TBCs, Table 3-2 Potential Location-Specific ARARs and TBCs and Table 3-3 Potential Action-Specific ARARs and TBCs. The revised tables are attached.	Track changes versions of the Applicable or Relevant and Appropriate Requirements (ARARs) tables are provided as Attachment B and highlight the differences between the ARARs presented in the OU-1/OU-2 FS and those provided by the USEPA in their comments. The differences for the chemical specific ARARs, as revised by the USEPA, includes the addition of a guidance document as an ARAR to be considered (TBC), *Guidance on Remedial Actions for Superfund Site with PCB Contamination* (EPA/540/G-90/007) published by the USEPA in 1990. The guidance document identifies cleanup for PCBs to 1 mg/kg, and treatment for materials determined to be a Principal Threat Waste (PTW). The threshold for determining PTW presented in the USEPA version of Table 3-1 is 100 mg/kg in soil. The USEPA version of the table is misleading in that it does not indicate that the 100 mg/kg threshold is in reference to residential areas. While the 100 mg/kg value is presented as a threshold, actual site-specific data should be used, where available, to evaluate the potential presence of PTW. For OU-1/OU-2, impacts to groundwater are necessary for PTW to be identified. Comparing the measured concentration of PCBs in soil to a predetermined threshold value is not an appropriate approach for identifying PTW. The USEPA's Proposed Plan (page 56, 57, and 58) correctly identifies PTW as locations where high concentration soils have impacted groundwater at concentrations exceeding the maximum contaminant level (MCL) of 0.5 µg/L. While the description of PTW is correct in the 3 pages of the Proposed Plan referred to above, the text included on Proposed Plan page 34 incorrectly indicates that "principal threats will generally include material contaminated at concentrations exceeding 100 ppm for sites in residential areas and concentrations exceeding 500 ppm for sites in industrial areas." The inconsistent manner in which PTW is defined in Table 3-1 and in the Proposed Plan should be corrected in the ROD to reflect that impacts to groundwater must be observed in order to determine the presence of PTW. Applying a PCB threshold of 500 mg/kg to define PTW is arbitrary and capricious and otherwise not in accordance with applicable law. The USEPA

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	has previously indicated that site-specific risk-based calculations should be used in deriving PTW (*See* Westinghouse Electric Corp. [Sharon Plant] Record of Decision, 02/18/2000). The 1990 USEPA guidance document referred to in Table 3-1 only suggests that a PCB concentration of 500 mg/kg in industrial soils might constitute PTW. The OU-1/OU-2 FS included an evaluation for soils with PCB concentrations above 500 mg/kg recognizing that the impacts to groundwater at concentrations above the MCL must also be present for the soils to be defined as PTW. The results of the evaluation included the elimination of multiple potential PTW locations and the Proposed Plan identified that only two locations (PB-RR-37 and within the Eastside Area IM) require further evaluation as part of the remedy. The approach of conducting a site-specific evaluation, as described above and as included in the OU-1/OU-2 FS, is consistent with "A Guide to Principal Threat and Low Level Threat Wastes," Superfund Publication: 9380.3-06FS, November 1991, where "The concept of principal threat waste and low level threat waste as developed by EPA in the NCP is to be applied on a site-specific basis when characterizing source material." This guidance document further indicates that "source material" is defined as material that includes or contains hazardous substances, pollutants or contaminants that act as a reservoir for migration of contamination to ground water, to surface water, to air, or acts as a source for direct exposure." In addition, "principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur." The guide also makes clear "[n]o 'threshold level' or toxicity/risk has been established to equate to 'principal threat.'" *Id.* Although the changes made to Table 3-2 by the USEPA were editorial, it is important to highlight that the OU-1/OU-2 portion of Snow Creek (and Snow Creek in general) is not a "navigable waterway."

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	The changes made to Table 3-3 by the USEPA are editorial except for changes regarding the applicability of the Toxic Substance Control Act (TSCA). It is undisputed that PCB residuals from the Site being addressed within OU-1/OU-2 are associated with waste placed or releases which occurred prior to 1978. Section 761.50(b)(3)(i) of the PCB Mega Rule (Applicability) provides that PCBs "placed in a land disposal facility, spilled, or otherwise released into the environment prior to April 18, 1978, regardless of the concentration of the spill or release" are "presumed not to present an unreasonable risk of injury to health or the environment from PCBs at the site." See 40 C.F.R. § 761.50 (b)(3)(i)(A); see also Rogers Corp. v. Environmental Protection Agency, 275 F.3d 1096, 1102 (D.C. 2002). Thus, there is a presumption that there is no unreasonable risk or injury to health or the environment at the site regarding PCBs at levels below 50 parts per million. See 40 C.F.R. § 761.50 (b)(3)(i)(A). The USEPA's position that Section 761.61(a) is applicable to OU-1/OU-2 regarding low activity areas at special use properties and residuals in residential properties below 12 inches contradicts the USEPA's own past statements and representations: • On March 10, 2009, EPA issued an email correspondence to P/S expressly indicating that the "Mega Rule" was not a chemical specific ARAR for OU-3, since a risk assessment was performed for the Site (March 10, 2009 Email Correspondence from the USEPA's Remedial Manager for the Anniston PCB Site). The same logic applies to OU-1/OU-2. • See also June 10, 1997 Letter from Wm. Gerald Hardy ("It is my understanding that correspondence will be issued from Mr. Perry indicating whether or not the proposed activity will be a TSCA issue"); • August 12, 1997 Letter from Alfreda F. Freeman ("The soil and sediments from this drainage ditch are pre-Toxic Substance Control Act (TSCA) materials generated from historic operations at the facility prior to 1972, and contain less than 50 parts per million of Polychlorinated Biphenyls (PCB) . . . We have reviewed the information that was submitted, and concur with the proposal to

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	place the soil in the south landfill as part of upgrading the cover on the south landfill since the soil is considered to be pre-TSCA"); • July 16, 1998 Letter from Wm. Gerald Hardy ("The soil to be removed is reportedly considered pre-Toxic Substances Control Act (TSCA) material and furthermore is contaminated with PCBs at levels significantly less than 50 mg/kg"). This position on TSCA materials is also confirmed by the USEPA's PCB Q&A Manual (June 2014), pp. 46-48. Among other things, the PCB Q&A Manual confirms that "[t]he PCB Rules do not apply to waste disposed of prior to April 18, 1978, that is currently < 50 ppm, regardless of the concentration of the original spill," "[d]isposal of pre-'78 wastes at PCB concentrations < 50 ppm are not regulated under TSCA," "[t]he PCB disposal rules do not apply to waste that is currently < 50 ppm that was disposed of, spilled, or otherwise released into the environment prior to April 18, 1978." and "[u]nder § 761.50(b)(3)(i)(A), the Regional Administrator can require cleanup based on a finding of unreasonable risk only if the PCB concentration [from a pre-78 release] as found at the Site is > 50 ppm." As a result, the PCBs in OU-1/OU-2 are not subject to TSCA and its implementing regulations except when materials with PCB concentrations greater than or equal to 50 mg/kg are removed for remediation.

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6. Section 4.6.1 (Non-Residential) Surface Soil - There are two locations well above the PRG for PCDD/DF/DL-PCB PRG that should be treated like hot spots.	The Proposed Plan provides a technical rationale establishing that PCDD/DFs are not associated with the Anniston PCB Site. This includes evidence that: The distribution of concentrations of PCDD/DFs is random with no evident pattern to the sporadic higher concentrations in the Snow Creek floodplain. Based on this finding, any remedial activities to reduce risks associated with PCDD/DFs are the responsibility of parties other than P/S. As a point of clarification, there are three, not two, surface soil sampling locations where the TEQ for PCDD/DF and DL-PCBs is above the PRG of 0.73 µg/kg. The total PCB concentrations for all three of these locations are low. Additional information is provided below for the two locations where remedial actions are not needed to reduce risks associated with PCBs in surface soils. Information is also provided below for the single sample location where the risks are calculated from the concentration of PCDD/DFs. If this single location requires additional action to address PCDD/DFs, these are not the responsibility of P/S. • The TEQs above 0.73 µg/kg for two of the three sample locations are driven by the DL-PCB component of TEQ. One of the PRG exceedances is associated with a surface soil sample collected in Exposure Unit 11 (EU11), and the second exceedance is associated with a surface soil sample collected in EU15/16. Both of these EUs are characterized by low PCB concentrations, and the Proposed Plan does not identify remediation for either of these EUs based on the presence of total PCBs. The average surface soil PCB concentrations in EU11 and EU15/16 are 1.3 mg/kg and 0.84 mg/kg, respectively. The total PCB concentrations for the individual sample with the DL-PCB TEQ exceedances were 1.5 mg/kg and 1.2 mg/kg from EU11 and EU15/16, respectively. The DL-PCB concentrations for these two sample results are discussed in the September 29, 2010 HHRA memorandum referred to in Response No. 3. This memorandum concluded that the DL-PCB component of TEQ for these two locations is

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	attributed to PCB 126, and that the reported concentrations of PCB 126 are likely false positives or are falsely biased high. The memorandum also concludes that total PCB concentrations based on the sum of detected Aroclors is consistent with total PCB homologues and, thus, subsequent risk-based decisions based on PCB Aroclors results can be made with confidence. • The third "TEQ hot spot" referred to in Comment No. 6 is in a former industrial area (US Pipe) located in EU25. The TEQ concentration for this single sample is driven by the concentration of PCDD/DFs and not DL-PCBs, as the total PCB concentration is 0.062 mg/kg. Since the TEQ concentration is driven by a group of constituents that are not associated with the Anniston PCB Site (i.e., PCDD/DFs), and given that the PCB concentrations at this location do not pose unacceptable risks, there is no need to address the area as part of the Anniston PCB Site. If risks associated with the PCDD/DF component of TEQ are unacceptable, then the responsibility to address this portion of EU25 shifts to parties other than P/S.
7. Section 7. Detailed Analysis of Alternatives - The no action alternative should not be carried through the comparative evaluation when it does not pass the threshold criteria: overall protection of human health and the environment; and compliance with ARARs (unless waived). The names of the Remedial Alternatives (except the no action alternatives) should be changed as show in the table below.	Comment noted and the changes to the names of the Remedial Alternatives are included in Attachment C to this table of responses to comments.

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8. Section 7.2 Residential Properties – At a minimum, residents with potential PCBs in subsurface or under structures should be asked to voluntarily place a notice on their deed to inform prospective purchasers of potential residual contamination on those properties.	Deed notices for residential properties with PCB residuals are not necessary as these properties will be tracked through the soil management program that will be implemented for OU-1/OU-2. A key component of the soil management program will be regular written outreach with the property owners and tenants to remind them of the procedures to follow if they plan to disturb soils with PCB residuals and/or remove structures or paving from areas where the PCB concentrations may exceed the residential PRG of 1 mg/kg. These conditions must be disclosed to prospective buyers by the landowner and/or real estate professional. Even though the State of Alabama has a "caveat emptor" provision for real estate transactions, items that present a health or safety concern must be disclosed to prospective buyers.
9. Section 7.3 Special Use Properties - At a minimum, residents with potential PCBs in subsurface or under structures should be asked to voluntarily place a notice on their deed to inform prospective purchasers of potential residual contamination on those properties.	Comment No. 9 appears to be related to "special use properties" and poses the same concern presented in Comment No. 8, but applied to special use properties. The response to Comment No. 9 is consistent with the response to Comment No. 8 in that there is no need to ask owners of special use properties to voluntarily place deed notices on the properties to inform prospective purchasers of potential residual PCBs in subsurface soils and/or under structures. For those special use properties where PCB residuals are present in subsurface soils and/or structures are present on the property, the landowners will receive regular notices as part of the soil management plan. These notices will remind the landowners of the conditions that are present and who to contact if they are planning to disturb subsurface soils and/or remove a structure or pavement. These conditions must be disclosed to prospective buyers by the landowner and/or real estate professional. Even though the State of Alabama has a "caveat emptor" provision for real estate transactions, items that present a health or safety concern must be disclosed to prospective buyers.

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10. Section 7.4 Interim Measure Areas – There are some deed restrictions in place where the IMs are located. Environmental easements/covenants following state requirements should be put in place where possible to protect the existing measures.	Additional deed restrictions are not needed for properties with Interim Measures (IMs) that are owned by P/S. P/S are not planning to divest these properties. For properties that are owned by P/S with deed notices already in place, these deed notices will remain in effect. Additional institutional controls for IMs on properties that are not owned by P/S will be evaluated during the remedial design process for the selected remedy.
11. Section 7.5 Dredge Spoil Piles – For alternatives where dredge spoil piles are left in place, institutional controls such as deed notices or environmental easements/ covenants are needed to ensure that owners are aware of residual PCBs present on properties and that they handle them properly.	Only one of the four dredge spoil piles proposed for removal in the Proposed Plan has PCB concentrations above the PRG for nonresidential soils. Of the three remaining dredge spoil piles, one dredge spoil pile has yet to be sampled for PCBs, and the other two piles have PCB concentrations below the nonresidential PRG. The two dredge spoil piles with PCB concentrations less than the PRG do not pose an unacceptable risk, are located well away from the creek, and have been stabilized with a vegetative cover. Based on these collective findings, there is no need to remove these two dredge spoil piles. Since the dredge spoil pile that has not been characterized is also located away from the creek and has been stabilized with vegetation, the correct technical approach would be to evaluate the dredge spoil pile for PCBs during remedial design/remedial action. Institutional controls (ICs) do not apply to the dredge spoil piles provided that the piles with PCB concentrations greater than or equal to the nonresidential PRG (21 mg/kg) are addressed as part of a remedial action. If a dredge spoil pile is not removed because the soil has a PCB concentration below the PRG, then the PCB residuals would be addressed under the soil management plan. This soil management plan will include regular outreach provisions to notify nonresidential landowners and tenants if PCB residuals are present on their property. The soil management plan will also include notice and handling procedures to prevent inadvertent contact with and/or the migration of PCB-containing soils.

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12. Section 7.6 Unapproved Waste Disposal Areas - Environmental easements/covenants are needed for UWDA 2 and UWDA 3 to ensure the remedies are not disturbed handle them properly.	It is important to recognize that P/S maintain that the responsibility for implementing any remedial cleanup actions at the UWDAs rests with parties other than P/S. The UWDAs are not part of the Anniston PCB Site based on the definition of the Site presented in the PCD which establishes specific conditions that must exist for an area to be considered part of the Site: ...the Anniston PCB Site, which consists of the area where hazardous substances, including PCBs associated with releases or discharges as a result of the operations, including waste disposal, of the Anniston plant by Solutia Inc., Monsanto Company, and their predecessors have come to be located. In a letter to P/S dated February 25, 2016, the USEPA, in discussing the UWDAs, indicates that "Based on the thousands of parcels sampled and the volume of data reviewed, the EPA has a solid understanding that the Site contamination is either fill material containing PCBs and/or lead or fill material that contains auto fluff." The past use of the UWDAs by parties other than P/S is recognized by the USEPA in the Proposed Plan when describing the UWDAs: Investigations conducted in these areas have shown that the UWDAs contain or may contain auto fluff that was deposited over time. While not included in the Proposed Plan, a third UWDA was identified in the OU-1/OU-2 RI. This third UWDA is located west of EU1 and land ownership records for this property clearly identify it as dump site for a local industry (MeadWestvaco). The presence of this third UWDA is documented in publicly available records for parcel (PPIN 32695) which indicates that the property was owned by the Anniston Foundry Company and used as a dumping operation by Anniston Foundry Company from 1957 forward. This is also documented in the Affidavit of H. Worth Little, dated March 9, 1961, and recorded in the Calhoun County at Deed Book 1097, Page 931-938. The affidavit further documented that the property was conveyed by Anniston

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	Foundry Company to Woodward Iron Company (as the sole shareholder of Anniston Foundry Company) in 1963, Calhoun County, Alabama, Deed Book 1263, Page 528; and that the Mead Corporation acquired the property by merger from Woodward Iron Company in 1977, Calhoun County, Alabama, Deed Book 1445, Page 764. The UWDAs should not be included in the ROD for OU-1/OU-2 as the areas are not part of the Anniston PCB Site. If they are included in the ROD, the USEPA should pursue parties other than P/S for the implementation for that portion of the OU-1/OU-2 remedy.
13. Section 7.7 Non-Residential Soil - Institutional controls such as deed notices or environmental easements/ covenants are needed to ensure that owners are aware of residual PCBs present on properties and that they handle them properly.	The soil management plan will include regular outreach provisions to notify nonresidential landowners and tenants if PCB residuals are present on their property. The soil management plan will also include notice and handling procedures to prevent inadvertent contact with and/or the migration of PCB-containing soils.
14. Section 7.8 Groundwater at T-11 – Environmental covenants following state requirements will help protect the remedy from intrusive soil contact and groundwater extraction.	The remedy proposed by the USEPA for the T-11 area is protective of direct contact with soils. In addition, the parcel where groundwater well T-11 is located is owned by P/S and there are no plans to divest the property. Also, the local community receives its potable water from a public water supply and thus there is no need for an IC to prevent groundwater extraction. Based on the protective nature of the proposed remedy, land ownership by P/S, and the availability of a public water supply, deed restrictions on the T-11 property are not necessary.

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15. Section 7.9 Snow Creek Sediment and Creek Banks – It should be acknowledged that no institutional controls are identified at this time, other than Clean Water Act Regulations that control discharges. The PRPs n work with the Calhoun County and the Cities of Anniston and Oxford to protect the sediment and creek bank remedy.	Outreach with local government agencies will be conducted as part of soil management activities. This will include the implementation of procedures designed to prevent the unnecessary disturbance of creek bank soils. For those cases where creek bank soils may be disturbed to support local development and infrastructure improvement projects, erosion control and stabilization measures will be implemented to protect the creek from the potential migration of creek bank soils. Discharges to Snow Creek are regulated under the Clean Water Act (CWA) through discharge permits issued by the Alabama Department of Environmental Management (ADEM). These permits are discharge-specific and will not be ICs for the Anniston PCB Site. The discharge permits are referred to as National Pollutant Discharge Elimination System (NPDES) permits, and the results of monitoring conducted under the permits are submitted to ADEM as required under the individual permits.

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16. Section 8. Comparative Evaluation of Alternatives – Changes needed to the comparative evaluation table (Tables 8-1 a-h) are attached at the end of this letter.	Changes made to the Comparative Evaluation of Alternatives tables by the USEPA are shown in a track changes version of the tables that is provided as Attachment D to this response to comments matrix. In reviewing the changes made by the USEPA, some are editorial (e.g., the names of the remedial alternatives), yet other changes impact the results of the comparative analysis. The impact of the changes that the USEPA made to the comparative analysis tables are described below. The comparative analysis table for the special use properties support the selection of SU-2 as opposed to SU-3 that was proposed by the USEPA. In reviewing the comparative analysis table, alternatives SU-2 and SU-3 are rated the same, with the exception that SU-3 costs more than SU-2. SU-4 is appropriately noted as having more short-term negative impacts while providing no additional protectiveness (and costing more). The evaluation of the special use alternatives is further complicated by the USEPA's selection of a lower nonresidential PRG for SU-3 (1 mg/kg) in contrast to the nonresidential PRG (21 mg/kg) that is used for SU-2. This nonresidential PRG (21 mg/kg) is used for all of the nonresidential remedial alternatives (NRS-2 through NRS-6) and is also appropriately applied for SU-2. The USEPA selected the lower PRG for SU-3 (and SU-4) based on an assumption that a daycare/school exposure scenario could potentially occur in the low activity portions of the special use areas. These low activity areas are not currently used for daycare/school activities and if the land use changed to high activity, these areas would be remediated in accordance with the requirements of the Stipulation and Agreement (Stipulation). This remediation would include the removal of surface soils with PCBs greater than or equal to 1 mg/kg and the removal of subsurface soils with PCB concentrations greater than or equal to 10 mg/kg. Based on the USEPA's revisions to the comparative analysis table for the special use alternatives and the OU-1/OU-2 FS, the proposed remedial alternative for the special use areas should be SU-2. The comparative analysis table does not provide a basis for selecting IM-4 over IM-3. The table correctly concludes that IM-3 and IM-4 would be similar

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	for each evaluation criterion except for cost. IM-4 would cost significantly more ($1.7M) than IM-3. The USEPA version of the comparative analysis table correctly identifies IM-3 and IM-4 as being effective and permanent provided that the caps and covers remain in place and would provide a permanent remedy for the railroad and McDaniel Street area. The USEPA's table incorrectly deletes the language from the OU-1/OU-2 FS regarding the difficulty of working adjacent to the railroad for IM-3. Both IM-3 and IM-4 would have similar implementability concerns, recognizing that the short-term effectiveness (negative impacts) would be magnified for IM-4 as compared to IM-3 given the larger amount of excavation near railways and waterways and the transportation of the excavated soils to an off-site disposal facility. The USEPA's proposed remedial alternative for the dredge spoil piles (DSP-4) is not supported the evaluation presented in the USEPA's version of the comparative analysis table. In the USEPA version of the table, both DSP-3 and DSP-4 are equally protective and effective over the long-term, yet DSP-4 has more short-term negative impacts, is less implementable, and has a higher cost. There is no technical basis to propose DSP-4 over DSP-3. The primary difference between DSP-3 and DSP-4 is that all dredge soil piles are removed under DSP-4 as opposed to only removing the dredge spoil piles that exceed the nonresidential PRG (21 mg/kg) under DSP-3. While the USEPA appropriately acknowledges the additional implementability concerns associated with removing all of the dredge spoil piles under DSP-5, the table incorrectly omits this implementability concern for DSP-4. The comparative analysis table for the UWDAs incorrectly indicates that UWDA-4 is implementable. Other than being used as disposal areas for auto fluff, there is limited knowledge regarding other subsurface materials that may have been disposed of by others in the UWDAs. The USEPA version of the comparative analysis table for the groundwater at T-11 incorrectly evaluates the long-term effectiveness and permanence of the active remedial alternatives (GW-2 through GW-4). The cap system used for

USEPA Comment	P/S Response
	all three of these alternatives has been proven effective over the long-term and if there are concerns in this regard (as indicated for GW-2 and GW-3 on the table), these concerns would also apply to GW-4. If the cap systems are considered comparable in effectiveness for each of the alternatives, the only difference between the alternatives would be cost and the evaluation would support GW-2 as the proposed remedial alternative.

ATTACHMENT A

Revisions to RAOs

The following are the ~~preliminary~~ RAOs for ~~soils~~Site soil:

- Reduce risks to residents~~, school children, and other users~~ from direct contact with, inhalation of, or incidental ingestion of ~~constituents of concern (COCs)~~PCBs in surface soil ~~above~~to levels that are protective of residential use.
- Reduce risks to industrial and commercial workers, commercial visitors, trespassers, school children, and recreational ~~activities~~users associated with direct contact with, inhalation of, or incidental ingestion of COCs in surface soil ~~above~~to levels that are protective of industrial use.
- Reduce risks to construction and utility workers from direct contact with, inhalation of, or incidental ingestion of COCs in surface and subsurface soil ~~above~~to levels that are protective.
- ~~Reduce migration of COCs in surface soils to surface water.~~
- Prevent migration of COCs from surface soil to surface water and sediment to levels that are protective.
- Prevent migration and leaching of PCBs in surface and subsurface ~~soils~~soil to groundwater above levels that are protective of beneficial use (i.e., ~~attain~~ drinking water standards).

The following are the ~~preliminary~~ RAOs for Snow Creek sediments:

- Reduce risks to ecological receptors from exposures to sediments in Snow Creek to levels that are protective of receptors.
- ~~Minimize~~• Prevent migration of PCBs from creek bank ~~soils as a potential source of PCBs to~~soil to levels that are protective of Snow Creek and ~~OU-4~~OU4.

The following is the ~~preliminary~~ RAO for surface water:

- Reduce ~~exceedances of~~ COC concentrations in surface water to meet AWQC ~~for sediment COCs~~.

The following are the ~~preliminary~~ RAOs for groundwater:

- Prevent exposure to groundwater from direct contact with, inhalation of, or ingestion of PCBs in groundwater above acceptable levels that are protective of beneficial use (i.e., attain drinking water standards).
- Restore PCBs in contaminated groundwater ~~throughout the plume or at and beyond the edge of designated area~~ to levels that are protective of beneficial use (i.e., attain drinking water standards).

ATTACHMENT B

Revisions to ARARs Tables (FS Tables 3-1, 3-2 and 3-3)

Table 3-1
Potential Chemical-Specific ARARs and TBCs
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

Action / Medium	Requirements	Prerequisite	Citation
Restoration of groundwater to its beneficial uses	May not exceed MCLs for organics and inorganics established under the Safe Drinking Water Act National Revised Primary Drinking Water Regulations for community water systems.	Presence of contaminants in groundwater of the state designated as potential underground sources of drinking water as defined in ADEM Admin. Code. r. 335-6-8-.03 – **relevant and appropriate**	40 C.F.R. § 141.61(a) and (c) 40 C.F.R. § 141.62(b) ADEM Admin. Code r. 335-7-2-.03(1) ADEM Admin. Code r. 335-7-2-.04(1) ADEM Admin. Code r. 335-7-2-.05(1)
Cleanup of PCB-contaminated soil at sites in industrial areas	Recommends cleanup levels should be established within a range of 10 to 25 ppm PCB. Recommends treatment, where practicable, for principal threat wastes. (i.e. Soils contaminated with PCBs greater than or equal to 500 ppm).	CERCLA site with PCB contamination in soil requiring response action – **TBC**	USEPA *Guidance on Remedial Actions for Superfund Sites with PCB Contamination* [EPA/540/G-90/007] (USEPA 1990~~)~~), Page 30.
Cleanup of PCB-contaminated soil at sites in residential areas	Recommends cleanup levels should be established at 1 ppm PCB. Recommends treatment, where practicable, for principal threat wastes. (i.e. Soils contaminated with PCBs greater than or equal to 100 ppm).	CERCLA site with PCB contamination in soil requiring response action – **TBC**	USEPA *Guidance on Remedial Actions for Superfund Sites with PCB Contamination* [EPA/540/G-90/007] (USEPA 1990), Page 28.
Groundwater	PCB MCLG (non-enforceable) = 0, PCB MCL (enforceable) MCL = 0.5 µg/L	PCBs in groundwater – **relevant and appropriate**	40 C.F.R. § 141.61(a) and (c)
Surface water	PCBs in freshwater aquatic life chronic criterion = 0.014 µg/L	PCBs in surface water – **relevant and appropriate**	33 U.S.C. §1251 et seq. 40 C.F.R. § 131.36 ADEM Admin. Code r. 335-6-10

ADEM: Alabama Department of Environmental Management
ARAR: applicable or relevant and appropriate requirement
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R.: Code of Federal Regulations
MCL: maximum contaminant level
MCLG: maximum contaminant level goal
µg/L: microgram(s) per liter
PCB: polychlorinated biphenyl
ppm: parts per million
TBC: to be considered
USEPA: United States Environmental Protection Agency

Table 3-2
Potential Location-Specific ARARs and TBCs
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

Location	Requirement	Prerequisite	Citation
In or near the creek	US Army Corps of Engineers (USACE) approval may be required to excavate or fill, to alter or modify the course, location, condition, or capacity of the channel ofrelated to work activities in any navigable water of the US.	DamsConstruction activities in navigable waters - wetlands This could include dams or dikes in navigable waters of the US. Other, as well as other structures or work including excavation, dredging, and/or disposal activities, in navigable waters of the US. ActivitiesParticular focus is on activities that alter or modify the course, condition, location, or capacity of a navigable water of the US – **relevant and appropriate**	Section 10 of the Rivers and Harbors Act and of 1899, Section 10 USACE regulations 33 USCU.S.C. § 403 33 C.F.R. Parts 320, 322, 323, 325, 329 and 330
In or near the creek or wetland areas	These regulations apply to discharges of dredged or fill materials into US waters, which include wetlands. Includes special policies, practices, and procedures to be followed by USACE in connection with the review of applications for permits to authorize the discharge of dredged or fill material into waters of the US pursuant to Section 404 of the Clean Water Act. No activity which adversely affects aquatic ecosystems, including wetlands, shall be permitted if a practicable alternative that has less adverse impacts is available. If there is no other practicable alternative, impacts must be minimized.	Wetland as defined in USACE regulations. Discharges into the waters of the US. – **relevant and appropriate**	Clean Water Act § 404(b), 33 USCU.S.C. § 1344(b) 33 C.F.R. Parts 320, 322, 323, 325, 328 and 330 33 USC § 1344 40 C.F.R. Parts 230.10 and 231
Endangered or threatened fish, wildlife, and plantsplant habitats	Federal statute establishing programmatic protection for endangered and threatened species. within critical habitats and includes consultation with the Department of the Interior	Determination of presence of endangered or threatened fish, wildlife, and plants **– relevant and appropriate**	Endangered Species Act 16 USCU.S.C. § 1531 et. seq. 50 C.F.R. Parts 200 and 402
Creek and floodplain	Prohibits alterations to river or floodplains that may increase potential for flooding, provides federal flood insurance to local authorities, and requires that the local authorities not allow fill in the river that would cause an increase in water levels associated with floods.	Land management in flood-prone areas – **relevant and appropriate**	42 USC 4001 et seq; 42 USC 4101
Floodplain	Land-disturbing activities within the Special Flood Hazard Area require contact with the Floodplain Administrator of the cityCity of Anniston prior to the commencement of these activities.	Work in the floodplain – **relevant and appropriate**	National Flood Insurance Program administered by the Federal Emergency Management Agency, City of Anniston enacted Flood Damage Prevention Ordinance number 04-O-03.
Creek	Require consultation with the US Fish and Wildlife Service and the fish and wildlife agency of the state where the water body is located for the purpose of preventing loss of and damage to wildlife resources.	Diversion, channeling, or other activity that modifies a stream or river and affects fish or wildlife waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted . . . or otherwise controlled or modified – **relevant and appropriate**	16 USCU.S.C. § 662 40 C.F.R. 6.302
Site, where and if applicableMigratory bird habitat	It is prohibited to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention . . . for the protection of migratory birds . . . or any part, nest, or egg of any such bird."	Determination of the presence of birds included in the respective international conventions between the US and Great Britain, the US and Mexico, the US and Japan, and the US and Russia –**TBC**	Migratory Bird Act 16 USCU.S.C. §§703-712 50 C.F.R. § 10.12
Site, where and if applicableBald or Golden Eagle habitat	This Act provides for the protection of the bald eagle (the national emblem) and the golden eagle by prohibiting the taking, possession, and commerce of such birds.	Determination of the presence of bald eagle or golden eagle – **relevant and appropriate**	16 USC §668a-dU.S.C. §668 (a)-(b) 50 C.F.R. Part 22

Table 3-2
Potential Location-Specific ARARs and TBCs
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

Location	Requirement	Prerequisite	Citation
~~Site, where and if applicable~~ Designated Historic Places	Establishes a program for the preservation of historic properties throughout the Nation. Proposed remedial actions must take into account effect on properties in or eligible for inclusion in the National Registry of Historic Places. Actions having an effect on a listed or eligible property must provide the Advisory Council on Historic Preservation a reasonable opportunity to comment on the proposed action. Advisory Council comments must be taken into account and integrated into the decision-making process. A cultural resource survey may be necessary to identify historic properties that could be affected by remediation.	Properties in or eligible for the National Registry of Historic Places -- **relevant and appropriate**	16 ~~USC~~U.S.C. § 470 et seq. 36 C.F.R. Part 800
Location encompassing *aquatic ecosystem* as defined in 40 CFR 230.3(c), Wetlands	Except as provided under [CWA] section 404(b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, or if it will cause or contribute to significant degradation of the waters of the United States.	Remedial work that involves a location encompassing an *aquatic ecosystem* (including wetlands) as defined in 40 C.F.R. 230.3(c). Action that involves the discharge of dredged or fill material into waters of the United States, including jurisdictional wetlands – **Relevant and Appropriate**	40 C.F.R Part 230.10(a) and (c)
	No discharge of dredged or fill material shall be permitted if it: (1) Causes or contributes, after consideration of disposal site dilution and dispersion, to violations of any applicable State water quality standard; (2) Violates any applicable toxic effluent standard or prohibition under section 307 of the CWA; (3) Jeopardizes the continued existence of species listed as endangered or threatened under the Endangered Species Act of 1973, as amended, or results in likelihood of the destruction or adverse modification of a habitat which is determined by the Secretary of Interior or Commerce, as appropriate, to be a critical habitat under the Endangered Species Act of 1973, as amended. If an exemption has been granted by the Endangered Species Committee, the terms of such exemption shall apply in lieu of this subparagraph; (4) Violates any requirement imposed by the Secretary of Commerce to protect any marine sanctuary designated under title III of the Marine Protection, Research, and Sanctuaries Act of 1972.		40 C.F.R. Part 230.10(b)
Location encompassing *aquatic ecosystem* as defined in 40 CFR 230.3(c), Wetlands	Except as provided under [CWA] section 404(b)(2), no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps [in accordance with 40 CFR 230.70 *et seq. Actions To Minimize Adverse Effects*] have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem.	Remedial work that involves a location encompassing an *aquatic ecosystem* (including wetlands) as defined in 40 C.F.R. 230.3(c). Action that involves the discharge of dredged or fill material into waters of the United States, including jurisdictional wetlands – **Relevant and Appropriate**	40 C.F.R Part 230.10(d)
Location encompassing *aquatic ecosystem* as defined in 40 CFR 230.3(c), Wetlands	Must comply with the substantive requirements of the NWP 38 General Conditions, as appropriate, and any regional or case-specific conditions recommended by the USACE District Engineer, after consultation.	Remedial work that involves a location encompassing an *aquatic ecosystem* (including wetlands) as defined in 40 C.F.R. 230.3(c) - **Applicable**	Clean Water Act-Nation Wide Permit (38) Cleanup of Hazardous and Toxic Waste 33 C.F.R 323.3(b)
Wetlands	Requires that the U.S. Fish and Wildlife Service and the related state agency be consulted prior to structural modifications of any body of water, including wetlands with a view to the conservation of wildlife resources by preventing loss of and damage to such resources.	The local agencies would be consulted to determine protective measures to prevent loss of wildlife resources for actions that involve the structural modification of any water body including wetlands - **Relevant and Appropriate**	Fish and Wildlife Coordination Act, 16 U.S.C. §662(a) 33 C.F.R.323.3(b)

Table 3-2
Potential Location-Specific ARARs and TBCs
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

Location	Requirement	Prerequisite	Citation
Presence of floodplain designated as such on a map[1]	Shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains.	Actions that involve potential impacts to, or take place within, floodplains – **TBC**	Executive Order No. 11988, *Floodplain Management*, Section 1
Floodplain and wetlands	~~Evaluate the potential effects of actions in a floodplain to avoid adversely impacting floodplains wherever possible. Consider flood hazards and floodplain management, including the restoration and preservation of such land areas as natural undeveloped floodplains.~~ Shall consider alternatives to avoid, to the extent possible, adverse effects and incompatible development in the floodplain. Design or modify its action in order to minimize potential harm to or within the floodplain.	~~Floodplains and wetlands – **TBC**~~Actions that involve potential impacts to or take place within floodplains **- TBC**	Executive Order No. 11988, *Flood Plain Management* 42 Fed. Reg. 26951 (May 25, 1977~~)~~), Section 2(a)(2), 40 C.F.R. Part 6~~,~~.302(a), and Appendix A
	Where possible, an agency shall use natural systems, ecosystem processes, and nature-based approaches when developing alternatives for consideration.	Actions that involve potential impacts to or take place within floodplains **- TBC**	Executive Order No. 13690, *Federal Flood Risk Management*, Section 2 (c)
	~~Avoid~~Evaluate and avoid to the extent possible the long- and short-term adverse impacts associated with the destruction, loss, degradation or modification of wetlands ~~and~~, avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative~~.~~ and preserve and enhance beneficial values of wetlands.	~~Wetlands – **TBC**~~Actions that involve potential impacts to or take place within wetlands - **TBC**	Executive Order No. 11990, *Protection of Wetlands* 42 Fed. Reg. 26961 (May 25, 1977), Section 1.(a) 40 C.F.R. Part 6.302(a)

ARAR: applicable or relevant and appropriate requirement
C.F.R.: Code of Federal Regulations
PCB: polychlorinated biphenyl
TBC: to be considered
US: United States
~~USC:~~U.S.C.: United States Code

[1] Under 44 CFR § 9.7 ***Determination of proposed action's location***, Paragraph (c) *Floodplain determination*. One should consult the FEMA Flood Insurance Rate Map (FIRM), the Flood Boundary Floodway Map (FBFM) and the Flood Insurance Study (FIS) to determine if the Agency proposed action is within the base floodplain.

Table 3-3
Potential Action-Specific ARARs and TBCs
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
General Construction Standards – All Land-Disturbing Activities			
Activities causing storm water runoff (e.g., clearing, grading, excavation)	Shall fully implement and regularly maintain effective BMPs to the maximum extent practicable and in accordance with the operator's ~~CBMPP~~ Construction Best Management Plan (CBMPP).	All new and existing construction activities as defined in ADEM Admin. Code r. 335-6-12-.02(e) disturbing one (1) acre or more in size - **applicable**	ADEM Admin. Code r. 335-6-12-.05(2)
	Appropriate, effective pollution abatement/prevention facilities, structural and nonstructural BMPs, and management strategies shall be fully implemented prior to and concurrent with commencement of the regulated activities and regularly maintained during construction as needed at the site to meet or exceed the requirements of this chapter until construction is complete, effective reclamation and/or storm water quality remediation is achieved.		
	The operator shall take all reasonable steps to prevent and/or minimize, to the maximum extent practicable, any discharge in violation of this chapter or which has a reasonable likelihood of adversely affecting the quality of groundwater or surface water receiving the discharge(s).		ADEM Admin. Code r. 335-6-12-.06(4)
	Implement a comprehensive CBMPP appropriate for site conditions consistent with the substantive requirements of ADEM Admin. Code r. 335-6-12-.21 that has been prepared and certified by a Qualified Credentialed Professional.		ADEM Admin. Code r. 335-6-12-.21(2)(a)
	The CBMPP shall include a description of appropriate, effective water quality BMPs to be implemented at the site as needed to ensure compliance with this chapter and include but not be limited to the measures provided in subsections 1 through 14.		ADEM Admin. Code r. 335-6-12-.21(2)(b)
	BMPs shall be designed, implemented, and regularly maintained to provide effective treatment of discharges of pollutants in storm water resulting from runoff generated by probable storm events expected/predicted during construction disturbance based on historic precipitation information, and during extended periods of adverse weather and seasonal conditions.		ADEM Admin. Code r. 335-6-12-.21(4)
Activities causing fugitive dust emissions	Shall not cause, suffer, allow or permit any materials to be handled, transported, or stored; or a building, its appurtenances, or a road to be used . . . without taking reasonable precautions to prevent particulate matter from becoming airborne.	Fugitive emissions from construction operations, grading, or the clearing of land – **TBC**	ADEM Admin. Code r. 335-3-4-.02(1)[1]
	Shall not cause or permit the discharge of visible fugitive dust emissions beyond the lot line of the property on which the emissions originate.		ADEM Admin. Code r. 335-3-4-.02(2)[2]
Discharge of dredge ~~and~~or fill material to waters of the US	The four conditions that must be satisfied before the discharge of dredge ~~and~~or fill material is an allowable alternative are: • There must be no practical alternative. • Discharge of dredged or fill material must not cause a violation of State water quality standards, violate any applicable toxic effluent standards, jeopardize an endangered species, or injure a marine sanctuary. • No discharge shall be permitted that will cause or contribute to significant degradation of the water. • Appropriate steps to minimize adverse effects must be taken. Determine long- and short-term effects on physical, chemical, and biological components of the aquatic ecosystem.	Capping, dike stabilization, construction of ~~beams~~berms and levees, and disposal of contaminated soil, waste material, or dredged material are examples of activities that may involve a discharge of dredged or fill material. — **relevant and appropriate**	40 C.F.R. 230 33 C.F.R. 320-330

Table 3-3
Potential Action-Specific ARARs and TBCs
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
Groundwater Monitoring/Extraction Well Installation, Operation, and Abandonment			
Construction of extraction and monitoring wells	All materials used in the construction of a water well shall have the structural strength to accomplish the purpose for which they are installed.	Installation of wells as defined in ADEM Admin. Code r. 335-9-1-.02(g) – **relevant and appropriate**	ADEM Admin. Code r. 335-9-1-.05(a)- (c)
	Must meet any relevant substantive requirements under ADEM Admin. Code r. 335-9-1.-.05 Materials and Admin. Code r. 335-9-1.-.06 Construction Standards related to casings, liners, screens, development, and capping of wells.		ADEM Admin. Code r. 335-9-1-.06(a), (b), (c), (d), (e) & (h)
	Any holes remaining after construction or testing attempts shall be properly backfilled.		ADEM Admin. Code r. 335-9-1-.06(h)
Construction of monitoring wells	Must be cased in a manner that maintains the integrity of the monitoring well bore hole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable sample collection at depths where appropriate aquifer flow zones exist. The annular space (i.e., the space between the bore hole and well casing) above the sampling depth must be sealed with a suitable material (e.g., cement grout or bentonite slurry) to prevent contamination of samples and the groundwater.	Installation of groundwater monitoring wells at a RCRA facility in order to detect any statistically significant amounts of hazardous waste or hazardous waste constituents – **relevant and appropriate**	ADEM Admin. Code r. 335-14-5-.06(8)(c)
	Monitoring wells must be operated and maintained in a manner to prevent soil, surface water, and/or groundwater contamination. This requirement includes the installation of protective barriers around monitoring wells, where necessary, to prevent damage to the well from traffic or other causes.		
	All monitoring wells must have functional key or combination locks on the wellhead covers to prevent unauthorized access. All monitoring wells must be assigned an identifying number by the facility, and such numbers must be permanently affixed to the outer casing of each monitoring well.		
Abandonment of extraction wells, monitoring wells, and boreholes	Any well to be abandoned shall be permanently sealed in the following manner: The well must be filled with a puddled clay material containing 50 ppm of chlorine to within 20 feet of the top of the well. The top 20 feet shall be filled with cement grout or concrete.	Abandonment of extraction wells, monitoring wells, and boreholes – **relevant and appropriate**	ADEM Admin. Code r. 335-9-1-.06(g)
Activity associated with Class V injection wells (e.g., ZVI injections)	Injection activity cannot allow the movement of fluid containing any contaminant into drinking water, if the presence of that contaminant may cause a violation of the primary drinking water standards under 40 C.F.R. part 141, other health-based standards, or may otherwise adversely affect the health of persons.	Construction, operation, maintenance, conversion, plugging, or closure of Class V injection wells associated with remedial activity – **relevant and appropriate**	40 C.F.R. § 144.82(a)(1) ADEM Admin. Code r. 335-6-8-.05(1)(d)
Plugging and abandonment of Class V injection wells	Shall close the well in a manner that prevents the movement of fluid containing any contaminant into an underground source of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 C.F.R. part 141 or may otherwise adversely affect the health of persons.	Operation of a Class V injection well – **relevant and appropriate**	40 C.F.R. § 146.10(c)(1)
	Shall dispose of or otherwise manage any soil, gravel, sludge, liquids, or other materials removed from or adjacent to the well in accordance with all applicable federal, state, and local regulations and requirements.		40 C.F.R. § 146.10(c)(2)
Waste Generation, Characterization, Segregation, and Storage—Primary Wastes (e.g., excavated soils) and Secondary Wastes (e.g., treatment residues)			
Characterization of solid waste (all primary and secondary wastes)	Must determine if solid waste is excluded from regulation under 40 C.F.R. § 261.4(b); and	Generation of solid waste as defined in 40 C.F.R. § 261.2 —**applicable**	40 C.F.R. § 262.11(a)

Table 3-3
Potential Action-Specific ARARs and TBCs
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
	Must determine if waste is listed as hazardous waste under subpart D 40 C.F.R. Part 261; or	Generation of solid waste which is not excluded under 40 C.F.R. § 261.4(a) —**applicable**	40 C.F.R.§ 262.11(b)
Characterization of solid waste (all primary and secondary wastes) cont.	Must determine whether the waste is (characteristic waste) identified in subpart C of 40 C.F.R. part 261 by either: (1) Testing the waste according to the methods set forth in subpart C of 40 C.F.R. part 261, or according to an equivalent method approved by the Administrator under 40 C.F.R. 260.21; or (2) Applying knowledge of the hazard characteristic of the waste in light of the materials or the processes used.		40 C.F.R. § 262.11(c)
	Must refer to Parts 261, 262, 264, 265, 266, 268, and 273 of Chapter 40 for possible exclusions or restrictions pertaining to management of the specific waste.	Generation of solid waste which is determined to be hazardous waste – **applicable**	40 C.F.R. § 262.11(d)
Characterization of hazardous waste (all primary and secondary wastes)	Must obtain a detailed chemical and physical analysis on a representative sample of the waste(s), which at a minimum contains all the information that must be known to treat, store, or dispose of the waste in accordance with pertinent sections of 40 C.F.R. Parts 264 and 268.	Generation of RCRA hazardous waste for storage, treatment, or disposal – **applicable**	40 C.F.R. § 264.13(a)(1)
Determinations for management of hazardous waste	Must determine each USEPA Hazardous Waste Number (waste code) applicable to the waste in order to determine the applicable treatment standards under 40 C.F.R. 268 et seq. Note: This determination may be made concurrently with the hazardous waste determination required in Sec. 262.11 of this chapter.	Generation of hazardous waste for storage, treatment, or disposal – **applicable**	40 C.F.R. § 268.9(a)
	Must determine the underlying hazardous constituents [as defined in 40 C.F.R. § 268.2(i)] in the waste.	Generation of RCRA characteristic hazardous waste (and is not D001 non-wastewaters treated by CMBST, RORGS, or POLYM of Section 268.42 Table 1) for storage, treatment, or disposal **– applicable**	40 C.F.R. § 268.9(a)
	Must determine if the hazardous waste meets the treatment standards in 40 C.F.R. 268.40, 268.45, or 268.49 by testing in accordance with prescribed methods or use of generator knowledge of waste. Note: This determination can be made concurrently with the hazardous waste determination required in 40 C.F.R. 262.11.		40 C.F.R. § 268.7(a)
Temporary on-site storage of hazardous waste in containers	A generator may accumulate hazardous waste at the facility provided that:	Accumulation of RCRA hazardous waste on-site as defined in 40 C.F.R. § 260.10 – **applicable**	40 C.F.R. § 262.34(a)
	• Waste is placed in containers that comply with 40 C.F.R. §§ 265.171-173; and		40 C.F.R. § 262.34(a)(1)(i)
	• The date upon which accumulation begins is clearly marked and visible for inspection on each container; and		40 C.F.R. § 262.34(a)(2)
	• Container is marked with the words "hazardous waste"; or	Accumulation of 55 gallons or less of RCRA hazardous waste or 1 quart of acutely hazardous waste listed in 261.33(e) at or near any point of generation – **applicable**	40 C.F.R. § 264.34(a)(3)
	• Container may be marked with other words that identify the contents.		40 C.F.R. § 262.34(c)(1)
Use and management of hazardous waste in containers	If container is not in good condition (e.g., severe rusting, structural defects) or if it begins to leak, must transfer waste into container in good condition.	Storage of RCRA hazardous waste in containers – **applicable**	40 C.F.R. § 265.171
	Use container made or lined with materials compatible with waste to be stored so that the ability of the container is not impaired.		40 C.F.R. § 265.172
	Keep containers closed during storage, except to add/remove waste.		40 C.F.R. § 265.173(a)

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Action	Requirements	Prerequisite	Citation
	Open, handle, and store containers in a manner that will not cause containers to rupture or leak.		40 C.F.R. § 265.173(b)
Storage of hazardous waste in container area	Area must have a containment system designed and operated in accordance with 40 C.F.R. § 264.175(b).	Storage of RCRA hazardous waste in containers with free liquids – **applicable**	40 C.F.R. § 264.175(a)
	Area must be sloped or otherwise designed and operated to drain liquid from precipitation, or containers must be elevated or otherwise protected from contact with accumulated liquid.	Storage of RCRA hazardous waste in containers that do not contain free liquids (other than F020, F021, F022, F023, F026 and F027) – **applicable**	40 C.F.R. § 264.175(c)
Temporary on-site storage of remediation waste in staging piles (e.g., excavated soils)	Must be located within the contiguous property under the control of the owner/operator where the wastes are to be managed in the staging pile originated.	Accumulation of nonflowing hazardous remediation waste (or remediation waste otherwise subject to land disposal restrictions) as defined in 40 C.F.R. § 260.10 – **applicable**	40 C.F.R. § 264.554(a)(1)
	May be temporarily stored, (including mixing, sizing, blending, or other similar physical operations intended to prepare the wastes for subsequent management or treatment) at a facility if used only during remedial operations provided that the staging pile:		40 C.F.R. § 264.554(a)(1)
	• Must facilitate a reliable, effective, and protective remedy;		40 C.F.R. § 264.554(d)(1)(i)
	• Must be designed to prevent or minimize releases of hazardous wastes and constituents into the environment, and minimize or adequately control cross-media transfer as necessary to protect human health and the environment (e.g., use of liners, covers, run-off/run-on controls); and		40 C.F.R. § 264.554(d)(1)(ii)
	• Must not operate for more than 2 years, except when an operating term extension under 40 C.F.R. 264.554(i) is granted. Note: Must measure the 2-year limit (or other operating term specified) from first time remediation waste is placed in staging pile.		40 C.F.R. § 264.554(d)(1)(iii)
	• Must not use staging pile longer than the length of time designated by USEPA in appropriate decision document.		40 C.F.R. § 264.554(i)(1)
	Extension of up to an additional 180 days beyond the operating term limit may be granted provided the continued operation of the staging pile: • Will not pose a threat to human health and the environment; and • Is necessary to ensure timely and efficient implementation of remedial actions at the facility.		40 C.F.R. 264.554(i)(1)(i) and (ii)
	In setting standards and design criteria, must consider the following factors: • Length of time pile will be in operation; • Volumes of waste you intend to store in the pile; • Physical and chemical characteristics of the wastes to be stored in the unit; • Potential for releases from the unit; • Hydrogeological and other relevant environmental conditions at the facility that may influence the migration of any potential releases; and • Potential for human and environmental exposure to potential releases from the unit.		40 C.F.R. § 264.554(d)(2)(i) –(vi)
	Must not place ignitable or reactive remediation waste in a staging pile unless the remediation waste has been treated, rendered, or mixed before placed in the staging pile so that: • The remediation waste no longer meets the definition of ignitable or reactive under 40 C.F.R. 261.21 or 40 C.F.R. 261.23; and • You have complied with 40 C.F.R. §264.17(b); or	Storage of ignitable or reactive remediation waste in staging pile – **applicable**	40 C.F.R. §264.554(e) 40 C.F.R. §264.554(e)(1)(i) and (ii)

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Action	Requirements	Prerequisite	Citation
	• Must manage the remediation waste to protect it from exposure to any material or condition that may cause it to ignite or react.		40 C.F.R. §264.554(e)(2)
	Must not place in the same staging pile unless you have complied with 40 C.F.R. § 264.17(b).	Storage of "incompatible" remediation waste (as defined in 40 C.F.R. § 260.10) in staging pile – **applicable**	40 C.F.R. § 264.554(f)(1)
Temporary on-site storage of remediation waste in staging piles (e.g., excavated soils) (cont.)	Must separate the incompatible waste or materials or protect them from one another by using a dike, berm, wall, or other device.	Staging pile of remediation waste stored nearby to incompatible wastes or materials in containers, other piles, open tanks or land disposal units – **applicable**	40 C.F.R. § 264.554(f)(2)
	Must not pile remediation waste on same base where incompatible wastes or materials were previously piled unless you have sufficiently decontaminated the base to comply with 40 C.F.R. § 264.17(b).		40 C.F.R. § 264.554(f)(3)
Closure of staging piles of remediation waste	Must be closed within 180 days after the operating term by removing or decontaminating all remediation waste, contaminated containment system components, and structures and equipment contaminated with waste and leachate.	Storage of remediation waste in staging pile in previously contaminated area – **applicable**	40 C.F.R. § 264.554(j)(1)
	Must decontaminate contaminated subsoils in a manner that USEPA determines will protect human health and the environment.		40 C.F.R. § 264.554(j)(2)
	Must be closed within 180 days after the operating term according to 40 C.F.R. §§ 264.258(a) and 264.111, or 265.258(a) and 265.111.	Storage of remediation waste in staging pile in uncontaminated area – **applicable**	40 C.F.R. § 264.554(k)
Waste Treatment and Disposal — Contaminated Groundwater, Excavated Soils, Debris, and Secondary Wastes			
Discharge to surface water***	These standards govern discharge of water into surface waters. Due to the degraded nature of Snow Creek, regulated discharges into the waterway must meet ambient water quality criteria at the discharge point. Prohibition on new discharges into waters that do not meet applicable water quality criteria unless certain conditions are met.	NPDES requirements for point source discharge to surface water (e.g., Snow Creek) – **relevant and appropriate**	33 ~~U.S.C.~~ U.S.C. 1342; 40 C.F.R. 122, 125,131 40 C.F.R. 122.4(i)
Discharge of treated groundwater to surface water	Comply with any applicable substantive water quality requirements under the Alabama Water Pollution Control Act or the CWA including application of technology- or ambient water quality-based effluent limitations to ensure discharge does not cause or contribute to violation of water quality standards. Conditions for the discharge shall meet the requirements, as appropriate, provided in ADEM Admin. Code r. 335-6-6-.14 such as the following: • Technology-based effluent limitations and standards under Sections 301, 302, 303, 304, 307, 318, and 405 of the CWA, including any applicable toxic effluent standard or prohibition under 40 C.F.R. Subchapter N. • Other requirements in addition to or more stringent than promulgated effluent limitations, guidelines, or standards under Sections 301, 306, 307, 318, and 405 of the CWA where necessary to achieve water quality standards established under Section 303 of the CWA and Alabama Water Pollution Control Act §2-22-9(g)	Discharge of pollutants into waters of the State – **applicable**	ADEM Admin. Code r. 335-6-6-.04(f), (h), (i), and (j) ADEM Admin. Code r. 335-6-6-.14 (3)(a), (b), (e)
	Limitations must be applied to control all pollutants or pollutant parameters that are or may be discharged at a level which cause, have reasonable potential to cause, or contribute to an exceedance of a narrative or numerical water quality standard.		ADEM Admin. Code r. 335-6-6-.14(e)(1)(i)

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Action	Requirements	Prerequisite	Citation
Discharge to POTW	Discharge of pollutants that pass through POTW without treatment, interfere with POTW operation, contaminate POTW sludge, or endanger health/safety of POTW workers, is prohibited. Discharge must comply with local POTW pretreatment program, including POTW-specific pollutants, spill prevention program requirements, and reporting and monitoring requirements.	Discharge to a POTW – **relevant and appropriate**	40 C.F.R. 403.5 and local POTW regulations 40 C.F.R. 270.60
Discharge of treated groundwater to POTW	Shall not introduce into publicly or privately owned treatment works any pollutant(s) which, alone or in conjunction with a discharge or discharges from other sources, cause pass through or interference or in any other manner adversely impact the operation or performance of the treatment works, to include the method of sludge disposal in use by the publicly or privately owned treatment works.	Discharge pollutants into POTW or privately owned treatment facility operated by a person other than the indirect discharger – **applicable**	ADEM Admin. Code r. 335-6-5-.03(1)
	The following pollutants may not be introduced into a POTW:		ADEM Admin. Code r. 335-6-5-.03(2)
	• Pollutants which create a fire or explosion hazard in the POTW, including, but not limited to, waste streams with a closed cup flashpoint of less than 140 degrees Fahrenheit (°F) or 60 degrees Centigrade (°C) using the test methods specified in 40 C.F.R. § 261.21;		ADEM Admin. Code r. 335-6-5-.03(2)(a)
	• Pollutants which will cause corrosive structural damage to the treatment works, but in no case discharges with pH lower than 5.0, unless the treatment works are specifically designed to accommodate such discharges;		ADEM Admin. Code r. 335-6-5-.03(2)(b)
	• Solid or viscous pollutants in amounts which will cause obstruction to the flow in sewers, or other interference with the operation of the treatment works;		ADEM Admin. Code r. 335-6-5-.03(2)(c)
	• Any pollutant, including oxygen demanding pollutants released in a discharge of such volume or strength as to cause interference in the treatment works;		ADEM Admin. Code r. 335-6-5-.03(2)(d)
	• Heat in amounts which will inhibit biological activity in the treatment plant resulting in interference but in no case in such quantities that the temperature of the influent, at the treatment plant, exceeds 40 °C (104 °F) unless the treatment plant is designed to accommodate such heat;		ADEM Admin. Code r. 335-6-5-.03(2)(e)
	• Pollutants which result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems;		ADEM Admin. Code r. 335-6-5-.03(2)(f)
	• Any trucked or hauled pollutants, except at discharge points designated by the treatment works; and		ADEM Admin. Code r. 335-6-5-.03(2)(g)
	• Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through.		ADEM Admin. Code r. 335-6-5-.03(2)(h)
Disposal of RCRA hazardous waste in a land-based unit	May be land disposed if it meets the requirements in the table "Treatment Standards for Hazardous Waste" at 40 C.F.R. § 268.40 before land disposal.	Land disposal, as defined in 40 C.F.R. § 268.2, of restricted RCRA waste – **applicable**	40 C.F.R. § 268.40(a)
	All underlying hazardous constituents [as defined in 40 C.F.R. 268.2(i)] must meet the Universal Treatment Standard (UTS), found in 40 C.F.R. 268.48 Table UTS prior to land disposal.	Land disposal of restricted RCRA characteristic wastes (D001-D043) that are not managed in a wastewater treatment system that is regulated under the CWA, that is CWA equivalent, or that is injected into a Class I nonhazardous injection well – **applicable**	40 C.F.R. §268.40(e)
Transport and treatment of collected RCRA wastewater	Any dedicated tank systems, conveyance systems, and ancillary equipment used to treat, store, or convey wastewater to an on-site NPDES-permitted wastewater treatment facility are exempt from the requirements of RCRA Subtitle C standards.	On-site wastewater treatment unit (as defined in 40 C.F.R. 260.10) subject to regulation under § 402 or § 307(b) of the CWA (i.e., NPDES-permitted) that manages hazardous wastewaters – **applicable**	40 C.F.R. §264.1(g)(6)

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Action	Requirements	Prerequisite	Citation
Disposal of RCRA characteristic wastewaters in an NPDES-permitted wastewater treatment unit	Are not prohibited, if the wastes are managed in a treatment system which subsequently discharges to waters of the US pursuant to a permit issued under 402 the CWA (i.e., NPDES permitted), unless the wastes are subject to a specified method of treatment other than DEACT in 40 C.F.R. 268.40, or are D003 reactive cyanide.	Land disposal of hazardous wastewaters that are hazardous only because they exhibit a characteristic and are not otherwise prohibited under 40 C.F.R. 268 – **applicable**	40 C.F.R. §268.1(c)(4)(i)
Disposal of RCRA characteristic wastewaters in a POTW	Are not prohibited, if the wastes are treated for purposes of the pretreatment requirements of Section 307 of the CWA, unless the wastes are subject to a specified method of treatment other than DEACT in 40 C.F.R. 268.40, or are D003 reactive cyanide.		40 C.F.R. §268.1(c)(4)(ii)
Disposal of RCRA hazardous waste soil in a land-based unit	Must be treated according to the alternative treatment standards of 40 C.F.R. § 268.49(c) or according to the universal treatment standards specified in 40 C.F.R. § 268.48 applicable to the listed and/or characteristic waste contaminating the soil prior to land disposal.	Land disposal, as defined in 40 C.F.R. 268.2, of restricted hazardous soils – **applicable**	40 C.F.R. § 268.49(b)
Treatment of RCRA hazardous waste soil	Prior to land disposal, all "constituents subject to treatment" as defined in 40 C.F.R. § 268.49(d) must be treated as follows:	Treatment of restricted hazardous waste soils – **applicable**	40 C.F.R. § 268.49(c)(1)
	• For nonmetals (except carbon disulfide, cyclohexanone, and methanol), treatment must achieve a 90% reduction in total constituent concentrations, except as provided in 40 C.F.R. § 268.49(c)(1)(C). • For metals and carbon disulfide, cyclohexanone, and methanol), treatment must achieve a 90% reduction in total constituent concentrations as measured in leachate from the treated media (tested according to toxicity characteristic leaching procedure or 90% reduction in total constituent concentrations (when a metal removal technology is used), except as provided in 40 C.F.R. § 268.49(c)(1)(C). • When treatment of any constituent subject to treatment to a 90% reduction standard would result in a concentration less than 10 times the universal treatment standard for that constituent, treatment to achieve constituent concentrations less than 10 times the universal treatment standard is not required. [UTSs are identified in 40 C.F.R. § 268.48 Table UTS].		40 C.F.R. § 268.49(c)(1)(A) 40 C.F.R. § 268.49(c)(1)(B) 40 C.F.R. § 268.49(c)(1)(C)
	In addition to the treatment requirement required by paragraph (c)(1) of this section, soils must be treated to eliminate these characteristics.	Land disposal of soils that exhibit the characteristic of ignitability, corrosivity, or reactivity – **applicable**	40 C.F.R. § 268.49(c)(2)
	Provides methods on how to demonstrate compliance with the alternative treatment standards for contaminated soils that will be land disposed.	Treatment of restricted hazardous waste soils following alternative soil treatment of 40 C.F.R. § 268.49(c) –**TBC**	Guidance on Demonstrating Compliance with the LDR Alternative Soil Treatment Standards [EPA 530-R-02-003, July 2002]
Treatment in Miscellaneous Treatment Units (e.g. Thermal desorption) of contaminated soils with RCRA hazardous constituents (Air emissions)	Unit must be located, designed, constructed, operated and maintained, and closed in a manner that will ensure protection of human health and the environment.	Treatment of RCRA hazardous waste in miscellaneous units, except as provided in 40 C.F.R. 264.1 - **relevant and appropriate**	40 C.F.R. § 264.601
	Protection of human health and the environment includes, but is not limited to, prevention of any release that may have adverse effects on human health or the environment due to migration of waste constituents in the air, considering the factors listed in 40 C.F.R. 264.601(c)(1) through (7).		40 C.F.R. § 264.601(c)
	The requirements of RCRA Subpart AAA Air Emission Standards for Process Vents do not apply to process vents that would otherwise be subject to this subpart when equipped with emission controls and operated in accordance with an applicable Clean Air Act regulation codified under 40 C.F.R. part 60, part 61 or part 63.	Process vents associated with air or steam stripping operations that manage hazardous wastes with organic concentrations of at least 10 ppm – **relevant and appropriate**	40 C.F.R. § 264.1030(e)
	The requirements of RCRA Subpart CC – Air Emission Standards for Tanks, Surface Impoundments, and Containers do not apply to a waste management unit that is solely used for on-site treatment or storage of hazardous waste that is placed in the unit as result of implementing remedial activities required under RCRA 3004(u) and (v), or 3008(h), or CERCLA authorities.	Air pollutant emissions with volatile organics from a hazardous waste tank, surface impoundment, or container – **relevant and appropriate**	40 C.F.R. § 264.1080(a)(5)

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Action	Requirements	Prerequisite	Citation
PCB Waste Generation, Management, and Storage			
Management of PCB waste (e.g., contaminated PPE, equipment, wastewater)	Any person storing or disposing of PCB waste must do so in accordance with 40 C.F.R. § 761, Subpart D.	Generation of waste containing PCBs at concentrations ≥50 ppm – **applicable**	40 C.F.R. § 761.50(a)
Management of PCB remediation waste	Any person cleaning up and disposing of PCBs shall do so based on the concentration at which the PCBs are found.	Generation of PCB remediation waste as defined in 40 C.F.R. § 761.3 – **applicable**	40 C.F.R. § 761.61
Temporary storage of PCB waste in a container(s)	Container(s) shall be marked as illustrated in 40 C.F.R. § 761.45(a).	Storage of PCBs and PCB Items at concentrations ≥50 ppm for disposal – **applicable**	40 C.F.R. § 761.40(a)(1)
	Storage area must be properly marked as required by 40 C.F.R. § 761.40(a)(10).		40 C.F.R. § 761.65(c)(3)
	Any leaking PCB items and their contents shall be transferred immediately to a properly marked nonleaking container(s).		40 C.F.R. § 761.65(c)(5)
	Container(s) shall be in accordance with requirements set forth in DOT HMR at 49 C.F.R. §§ 171-180.		40 C.F.R. § 761.65(c)(6)
Storage of PCB waste in non-RCRA regulated unit	Storage facility must have: • Adequate roof and walls to prevent rainwater from reaching stored PCBs and PCB items; • Adequate floor that has continuous curbing with a minimum six-inch-high curb. Floor and curb must provide a containment volume equal to at least two times the internal volume of the largest PCB article or container or 25% of the internal volume of all articles or containers stored there, whichever is greater; • No drain valves, floor drains, expansion joints, sewer lines, or other openings that would permit liquids to flow from curbed area; • Floors and curbing constructed of Portland cement, concrete, or a continuous, smooth, nonporous surface that prevents or minimizes penetration of PCBs; and • Storage facility must not be located at a site that is below the 100-year flood water elevation. • Storage area must be properly marked as required by 40 C.F.R. § 761.40(a)(10).	Storage of PCBs and PCB items at concentrations of 50 ppm or greater for disposal – **applicable**	40 C.F.R. § 761.65(b)(1) 40 C.F.R. § 761.65(b)(1)(i) 40 C.F.R. § 761.65(b)(1)(ii) 40 C.F.R. § 761.65(b)(1)(iii) 40 C.F.R. § 761.65(b)(1)(iv) 40 C.F.R. § 761.65(b)(1)(v) 40 C.F.R. § 761.65(c)(3)
Storage of PCB waste in a RCRA-regulated container storage area	Does not have to meet storage unit requirements in 40 C.F.R. § 761.65(b)(1) provided unit:	Storage of PCBs and PCB Items designated for disposal – **applicable**	40 C.F.R. § 761.65(b)(2)
	• Is permitted by USEPA under RCRA § 3004 to manage hazardous waste in containers and spills of PCBs cleaned up in accordance with Subpart G of 40 C.F.R. § 761; or		40 C.F.R. § 761.65(b)(2)(i)
	• Qualifies for interim status under RCRA § 3005 to manage hazardous waste in containers and spills of PCBs cleaned up in accordance with Subpart G of 40 C.F.R. § 761; or		40 C.F.R. § 761.65(b)(2)(ii)
	• Is permitted by an authorized state under RCRA § 3006 to manage hazardous waste in containers and spills of PCBs cleaned up in accordance with Subpart G of 40 C.F.R. § 761.		40 C.F.R. § 761.65(b)(2)(iii)

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Action	Requirements	Prerequisite	Citation
Temporary storage of Bulk PCB remediation waste in a waste pile	May be stored at the cleanup site or site of generation for 180 days subject to the following conditions: • Waste must be placed in a pile designed and operated to control dispersal by wind, where necessary, by means other than wetting;	Storage of PCB remediation waste or PCB bulk product waste in a waste pile – **applicable**	40 C.F.R. § 761.65(c)(9)(i)
	• Waste must not generate leachate through decomposition or other reactions.		40 C.F.R. § 761.65(c)(9)(ii)
	Storage site must have a liner designed, constructed, and installed to prevent any migration of wastes off or through liner into adjacent subsurface soil, groundwater or surface water at any time during the active life (including closure period) of the storage site.		40 C.F.R. § 761.65(c)(9)(iii)(A)
	Liner must be: • Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure because of pressure gradients, physical contact with waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;		40 C.F.R. § 761.65(c)(9)(iii)(A)(1)
	• Placed on foundation or base capable of providing support to liner and resistance to pressure gradients above and below the liner to present failure because of settlement compression or uplift; and		40 C.F.R. § 761.65(c)(9)(iii)(A)(2)
	• Installed to cover all surrounding earth likely to be in contact with waste.		40 C.F.R. § 761.65(c)(9)(iii)(A)(3)
	Has a cover that meets the above requirements and installed to cover all of the stored waste likely to be contacted by precipitation, and is secured so as not to be functionally disabled by winds expected under normal weather conditions at the storage site; and		40 C.F.R. § 761.65(c)(9)(iii)(B)
	Has a run-on control system designed, constructed, operated and maintained such that it:		40 C.F.R. § 761.65(c)(9)(iii)(C)
	• Prevents flow on the stored waste during peak discharge from at least a 25-year storm; and		40 C.F.R. § 761.65(c)(9)(iii)(C)(1)
	• Collects and controls at least the water volume resulting from a 24-hour, 25-year storm. Collection and holding facilities (e.g., tanks or basins) must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system.		40 C.F.R. § 761.65(c)(9)(iii)(C)(2)
	Requirements of 40 C.F.R. § 761.65(c)(9) may be modified under the risk-based disposal option of 40 C.F.R.§ 761.61(c).		40 C.F.R. § 761.65(c)(9)(iv)

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Action	Requirements	Prerequisite	Citation
PCB Treatment/Disposal			
Disposal of decontamination waste and residues	Such waste shall be disposed of at their existing PCB concentration unless otherwise specified in 40 C.F.R. § 761.79(g)(1) – (6).	Decontamination waste and residues – **applicable**	40 C.F.R. § 761.79(g)
	Are regulated for disposal as PCB remediation waste.	Distillation bottoms or residues and filter media – **applicable**	40 C.F.R. § 761.79(g)(1)
	Are regulated for disposal at their original concentration.	PCBs physically separated from regulated waste during decontamination, other than distillation bottoms and filter media – **applicable**	40 C.F.R. § 761.79(g)(2)
Disposal of PCB contaminated porous surfaces	Shall be disposed on-site or off-site as bulk PCB remediation waste according to 40 C.F.R. § 761.61(a)(5)(i) or decontaminated for use according to 40 C.F.R. § 761.79(b)(4).	PCB remediation waste porous surfaces (as defined in 40 C.F.R. § 761.3) – **relevant and appropriate**	40 C.F.R. § 761.61(a)(5)(iii)
Disposal liquid PCB remediation waste	Shall either: • Decontaminate the waste to the levels specified in 40 C.F.R. § 761.79(b)(1) or (2); or • Dispose of the waste in accordance with 40 C.F.R. § 761.61(b) or a risk-based approval under 40 C.F.R. § 761.61(c).	Liquid PCB remediation waste (as defined in 40 C.F.R. § 761.3) – **relevant and appropriate**	40 C.F.R. § 761.61(a)(5)(iv)(A) 40 C.F.R. § 761.61(a)(5)(iv)(B)
Disposal of PCB cleanup wastes (e.g., PPE, rags, nonliquid cleaning materials)	Shall be disposed of either: • In a facility permitted, licensed, or registered by a State to manage municipal solid waste under 40 C.F.R § 258 or nonmunicipal, nonhazardous waste subject to 40 C.R.R.§§ 257.5 through 257.30; or • In an RCRA Subtitle C landfill permitted by a State to accept PCB waste; or • In an approved PCB disposal facility; or • Through decontamination under 40 C.F.R. § 761.79(b) or (c).	Generation of nonliquid PCBs at any concentration during and from the cleanup of PCB remediation waste – **relevant and appropriate**	40 C.F.R. § 761.61(a)(5)(v)(A)
Disposal of PCB cleaning solvents, abrasives, and equipment	May be reused after decontamination in accordance with 40 C.F.R. §761.79; or For liquids, disposed in accordance with 40 C.F.R. § 761.60(a).	Generation of PCB wastes from the cleanup of PCB remediation waste – **relevant and appropriate**	40 C.F.R. § 761.61(a)(5)(v)(B) 40 C.F.R. § 761.60(b)(1)(i)(B)
Performance-based disposal of PCB remediation waste	May dispose by one of the following methods:	Disposal of nonliquid PCB remediation waste (as defined in 40 C.F.R. § 761.3) – **relevant and appropriate**	40 C.F.R. § 761.61(b)(2)
	• In a high-temperature incinerator approved under 40 C.F.R. § 761.70(b); • By an alternate disposal method approved under 40 C.F.R. § 761.60(e); • In a chemical waste landfill approved under 40 C.F.R. § 761.75; • In a facility with a coordinated approval issued under 40 C.F.R. § 761.77; or		40 C.F.R. § 761.61(b)(2)(i)
	• Through decontamination in accordance with 40 C.F.R. § 761.79.		40 C.F.R. § 761.61(b)(2)(ii)
	Shall be disposed according to 40 C.F.R. § 761.60(a) or (e), or decontaminated in accordance with 40 C.F.R. § 761.79.	Disposal of liquid PCB remediation waste – **relevant and appropriate**	40 C.F.R. § 761.61(b)(1)
Risk-based disposal of PCB remediation waste	May dispose of in a manner other than prescribed in 40 C.F.R. § 761.61(a) or (b) if approved in writing by USEPA and method will not pose an unreasonable risk of injury to human health or the environment. NOTE: USEPA Approval of alternative disposal method will be obtained by approval of the CERCLA document (e.g., ROD)	Disposal of PCB remediation waste – **relevant and appropriate**	40 C.F.R. § 761.61(c)

Table 3-3
Potential Action-Specific ARARs and TBCs
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
PCB Decontamination/Cleanup			
Decontamination of PCB-contaminated water	For discharge to a treatment works as defined in 40 C.F.R. § 503.9 (aa), or discharge to navigable waters, meet standard of < 3 parts per billion PCBs; or	Water containing PCBs regulated for disposal – **applicable**	40 C.F.R. § 761.79(b)(1)(ii)
	For unrestricted use, meet standard of 0.5 parts per billion PCBs.		40 C.F.R. § 761.79(b)(1)(iii)
Cap requirements for PCB bulk remediation waste left in place	Must do so in accordance with 40 C.F.R. § 264.310(a) and ensure it complies with the permeability, sieve, liquid limit and plasticity index parameters in 40 C.F.R. § 761.75(b)(1)(ii) through (b)(1)(v).	Designing and constructing a cap for on-site disposal of PCB remediation waste – **applicable**	40 C.F.R. § 761.61(a)(7)
	Must be of sufficient strength to maintain its effectiveness and integrity during the use of the cap surface which is exposed to the environment.		
	A cap may not be contaminated at a level greater than or equal to 1 ppm PCBs.		
	A cap of compacted soil shall have a minimum thickness of 15 cm (10 inches).		
	A concrete or asphalt cap shall have a minimum thickness of 15 cm (6 inches).		
	Repairs shall begin within 72 hours of discovery for any breaches which would impair the integrity of the cap.		
Disposal of PCB bulk product waste in a permitted Municipal Solid Waste / Non Municipal - Non Hazardous Waste landfill	Any person may dispose of the following PCB bulk product waste in a facility permitted, licensed, or registered by a State as a municipal or non-municipal non-hazardous waste landfill: Plastics (such as plastic insulation from wire or cable; radio, television and computer casings; vehicle parts; or furniture laminates); preformed or molded rubber parts and components; applied dried paints, varnishes, waxes or other similar coatings or sealants; caulking; Galbestos; non-liquid building demolition debris; or non-liquid PCB bulk product waste from the shredding of automobiles or household appliances from which PCB small capacitors have been removed (shredder fluff).	On-site disposal of PCB bulk product waste – **applicable**	40 C.F.R. § 761.62(b)(1)(i)
Cap drainage design, construction and maintenance requirements for PCB bulk product waste left in place	Owners and Operators of all facilities must design, construct and maintain: (1) A run-on control system to prevent flow onto the active and/or closed portions of the landfill during the peak discharge from a 25-year storm; (2) A run-off control system from the active and/or closed portions of the landfill to collect and control at least the water volume resulting from a 24-hour, 25-year storm. (3) On-site drainage structures to carry incident precipitation from the disposal site so as to minimize the generation of leachate, erosion and sedimentation.	Cap drainage specifications – **relevant and appropriate**	ADEM Admin. Code r. 335-13-4-.17 (1)-(3) 40 C.F.R. 264.301(g)-(h)

Table 3-3
Potential Action-Specific ARARs and TBCs
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
Cap requirements for Bulk PCB product waste left in place	The requirements for closure of existing and proposed landfill units shall include the following unless otherwise noted. (b) A final cover system must be installed which is designed to minimize infiltration and erosion. The final cover system must be comprised of an erosion layer(s) underlain by an infiltration layer(s) as follows: (1) The infiltration layer for MSWLF and ILF must be comprised of a minimum of 18 inches of earthen material and/or a synthetic layer that has a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than 1 x 10-5 cm/sec, whichever is less. (c) Final soil cover shall be graded so that: (1) Surface water does not pond over the landfill unit. (2) The maximum final grade of the final cover system shall not exceed 25 percent or as specified by the Department to minimize erosion. (3) Slopes longer than 25 feet shall require horizontal terraces, of sufficient width for equipment operation, for every 20 feet rise in elevation or utilize other erosion control measures approved by the Department. (4) The minimum final grade of the final cover system shall not be less than 5 percent or as specified by the Department to minimize ponding. (d) A vegetative or some other appropriate cover must be established to minimize erosion and, when applicable, maximum evapotranspiration. Within 90 days after completion of final grading requirements on each phase the owner or operator shall prepare the final cover for the establishment of a vegetative cover or alternative cover. Deep rooted vegetation (roots that may grow below 6 inch erosion layer) shall be prohibited as vegetative cover. Preparation of a vegetative cover shall include, but not be limited to, the following: (1) Placement of appropriate species of grass seed, fertilizer and mulch; and (2) Watering and maintenance necessary such that germination of grass will occur.	Final closure requirements for a MSW or Industrial landfill **– relevant and appropriate**	ADEM Admin. Code r. 335-13-4.20 (2)(b)-(d)

Table 3-3
Potential Action-Specific ARARs and TBCs
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
Run on / run off for control of capped areas for closed landfill	The requirements for the Post-Closure care include the following. The owner or operator must conduct post-closure care following closure of the landfill unit. Post-closure care must be conducted for a minimum of 30 years, except as provided under 335-13-4.20(3)(b), and consist of at least the following: (1) Eroded areas shall be filled with suitable soil cover, compacted, graded and appropriate cover established as described in 335-13-4-.20(2)(d). (2) Areas which provide for ponding of surface water shall be filled, graded and an appropriate cover established as described in 335-13-4-.20(2)(d). (3) Landfilled areas with extensive surface cracks in soil cover shall be corrected as necessary, or as determined by the Department, to prevent infiltration of surface water. (4) An appropriate cover shall be maintained on the facility at all times as described in 335-13-4-.20(2)(d). (5) Access control structures shall be maintained or erected and signs shall be posted stating that the facility is closed. (6) Any waste dumped at the landfill unit following closure shall be removed to an approved landfill unit. (d) Post-closure use of the property used for the disposal operation must never be allowed to disturb the integrity of the final cover, liner(s), or any other component of the containment system, or the function of the monitoring systems necessary to comply with the requirements of these Rules.	Post-Closure care requirements after final closure of a landfill**– relevant and appropriate**	ADEM Admin. Code r. 335-13-4.20 (3)(a)(1)-(6) ADEM Admin. Code r. 335-13-4.20 (3)(d)
Prevent unauthorized access	The owner or operator of the facility must control public access and prevent unauthorized vehicular traffic and illegal dumping of wastes by using artificial barriers, natural barriers, or both, as appropriate to protect human health and the environment.	Final closure of a landfill – **relevant and appropriate**	ADEM Admin. Code r. 335-13-4-.19
Transportation of Wastes			
Transportation of hazardous waste on-site	The generator manifesting requirements of 40 C.F.R. §§ 262.20-262.32(b) do not apply. Generator or transporter must comply with the requirements set forth in 40 C.F.R. §§ 263.30 and 263.31 in the event of a discharge of hazardous waste on a private or public right-of-way.	Transportation of hazardous wastes on a public or private right-of-way within or along the border of contiguous property under the control of the same person, even if such contiguous property is divided by a public or private right-of-way – **applicable**	40 C.F.R. § 262.20(f)
Transportation of hazardous waste off-site	Must comply with the generator requirements of 40 C.F.R. §§ 262.20-23 for manifesting, § 262.30 for packaging, § 262.31 for labeling, § 262.32 for marking, § 262.33 for placarding, §§ 262.40 and 262.41(a) for record keeping requirements, and § 262.12 to obtain USEPA ID number.	Preparation and initiation of shipment of hazardous waste off-site – **applicable**	40 C.F.R. § 262.10(h)
Transportation of PCB wastes off-site	Must comply with the manifesting provisions at 40 C.F.R. §§ 761.207 through 761.218.	Relinquishment of control over PCB wastes by transporting or offering for transport – **applicable**	40 C.F.R.§ 761.207(a)
Transportation of hazardous materials	Shall be subject to and must comply with all applicable provisions of the HMTA and HMR at 49 C.F.R. §§ 171-180 related to marking, labeling, placarding, packaging, emergency response, etc.	Any person who, under contract with a department or agency of the federal government, transports "in commerce," or causes to be transported or shipped, a hazardous material – **applicable**	49 C.F.R. § 171.1(c)
Land Use Restrictions/Institutional Controls			

Table 3-3
Potential Action-Specific ARARs and TBCs
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
~~Environmental Covenants~~Deed restrictions for closed landfills	~~The State of Alabama Uniform Environmental Covenant Act (UECA) sets forth the conditions and process for placing protective covenants on properties where engineered or other controls will remain over the long term to ensure that the final remedy meets the land use requirements of the property.~~(2) Closure. The requirements for closure of existing and proposed landfill units shall include the following unless otherwise noted. (i) Within 90 days after permit expiration, revocation or when final closure requirements in 335-13-4-.20 are achieved as determined by the Department, the permittee or owner of a facility shall record a notation onto the land deed containing the property utilized for disposal, and/or some other legal instrument that is normally examined during a title search, that will in perpetuity, notify any potential purchaser of the property that: 1. The land has been used as a solid waste disposal facility landfill unit; 2. Its use is restricted by the items contained in 335-13-4-.20(3)(c) and 335-13-4-.20(3)(d); 3. The locations and dimensions of the landfill unit with respect to permanently surveyed benchmarks and section corners shall be on a plat prepared and sealed by a land surveyor; 4. Contain a note, prominently displayed, which states the name of the Permittee or operating agency, the type of landfill unit and the beginning and closure dates of the disposal activity. 5. Certification by an Engineer or Land Surveyor that all closure requirements have been completed as determined necessary by the Department.	~~Final remedy where engineered or other controls are needed to meet the land use requirements of the property – **applicable**~~Closure of Industrial Waste Landfill – **relevant and appropriate**	ADEM Admin. Code r. ~~355.~~335-13-4.20 (2)(i)(1)-(5)
~~Remedy selection and best practices~~	~~Describes key principles and expectations, as well as "best practices" based on program experience for the remedy selection process under Superfund. Major policy areas covered are risk assessment and risk management, developing remedial alternatives, and groundwater response actions.~~	~~Remedy selection – **TBC**~~	~~USEPA Rules of Thumb for Superfund Remedy Selection EPA 540-R-97- 013, August 1997~~
~~Land use(s)~~	~~Presents information for considering land use in making remedy selection decisions at National Priority List sites.~~	~~Land Use – **TBC**~~	~~USEPA Land Use in the CERCLA Remedy Selection Process OSWER Directive No. 9355.7-04, May 1995~~
~~Management of sediment~~	~~Presents risk management principles that site managers should consider when making risk management decisions at contaminated sediment sites.~~	~~Sediment – **TBC**~~	~~USEPA Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites OSWER Directive 9285.6-08, February 2002~~
~~Remediation of sediments~~	~~Presents risk management principles that site managers should consider when making risk management decisions at contaminated sediment sites. Specific to consider the ecological impacts.~~	~~Ecological risks at sediment sites – **TBC**~~	~~USEPA Ecological Risk Assessment and Risk Management Principles OSWER Directive 9285.7-28P, USEPA October 1999~~
~~Sediment management~~Deed restrictions for caps, fences and low occupancy areas	~~Establishes an Agency-wide strategy for contaminated sediments, with the following four goals:~~ ~~1) Prevent the volume of contaminated sediments from increasing~~ ~~2) Reduce the volume of existing contaminated sediment~~ ~~3) Ensure that sediment dredging and dredged material disposal are managed in an environmentally sound manner~~ ~~4) Develop scientifically sound sediment management tools for use in pollution prevention, source control, remediation, and dredged material management~~Must maintain the cap or fence, in perpetuity.	~~Strategy for the~~Use of a cap or fence at PCB remediation ~~of sediment – **TBC**~~waste cleanup site - **applicable**	~~USEPA Contaminated Sediment Strategy EPA-823-R-98- 001, April 1998~~40 C.F.R. 761.61(a)(8)
~~Sediment management~~	~~Provides technical and policy guidance for addressing contaminated sediment sites nationwide primarily associated with CERCLA actions.~~	~~Sediment – **TBC**~~	~~USEPA Contaminated Sediment Remediation Guidance for Hazardous Waste Sites EPA-540-R-05-012, December 2005~~

Table 3-3
Potential Action-Specific ARARs and TBCs
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

Action	Requirements	Prerequisite	Citation
Five-year review	Provides guidance on conducting Five-Year Reviews for sites at which hazardous substances, pollutants, or contaminants remain on-site above levels that allow for unrestricted use and unlimited exposure. The purpose of the Five-Year Review is to evaluate whether the selected response action continues to be protective of public health and the environment and is functioning as designed:Within 60 days of completion of the cleanup activity the owner shall record, in accordance with State law, a notification on the deed to the property, or on some other instrument which is normally examined during a title search, that will in perpetuity notify any potential purchaser of the property:	Five-year review of remediated site —**TBC**	USEPA Five-Year Review Guidance Structure and Components of Five-Year Reviews (OSWER Directive 9355.7-02, May 1991) Supplemental Five-Year Review Guidance (OSWER Directive 9355.7-02A, July 1994) Second Supplemental Five-Year Review Guidance (OSWER 9355.7-03A, December 1995) 40 C.F.R. 761.61(a)(8)(i)(A)
Remedial design/remedial action	General reference manual that provides remedial project managers with an overview of the remedial design and remedial action processes.	Remedial design/remedial action process following the feasibility study and selection of a remedial action —**TBC**	USEPA Remedial Design/Remedial Action Handbook USEPA 540-R-95-059, OSWER Directive 9355.0-4B
Land disposal restrictions	- Guidance outlines that the processland has been used to determine whether RCRA land for PCB remediation waste disposal restrictions established under the Hazardous and Solid Waste Amendments are "applicable" tois restricted to use as a CERCLA response actionlow occupancy area as defined in 40 C.F.R. 761.3.	Land disposal —**TBC**	USEPA Area of Contamination Policy OSWER Directive 9347.3-05FS40 C.F.R. 761.61(a)(8)(i)(A)(1)
Off-site management of wastes	- The off-site policy describes procedures that should be observed when a response action under CERCLA involves off-site storage, treatment, or disposal of CERCLA waste. of the existence of the fence or cap and the requirements to maintain the fence or cap. - the applicable cleanup levels at the site, inside the fence, and/or under the cap.	off-site storage, treatment, or disposal of CERCLA waste —**TBC**	USEPA Off-Site Disposal Policy OSWER Directive 9834.11a40 C.F.R. 761.61(a)(8)(i)(A)(2) 40 C.F.R. 761.61(a)(8)(i)(A)(3)
Remediation	Memo defines USEPA Region 4's policy to enhance environmental benefits of federal cleanup programs by promoting technologies and practices that are sustainable.May remove a fence or cap after conducting additional cleanup activities and achieving levels specified in 40 C.F.R. 761.61(a)(4) which do not require a fence or cap and remove the notice on the deed no earlier than 30 days after achieving these levels.	Remediation policy —**TBC**	USEPA Region 4 Clean and Green Policy USEPA Region 4 Memorandum, 2/17/201040 C.F.R. 761.61(a)(8)(ii)

[1] ADEM Admin. Code r. 335-3-4-.02(1) and (2) were held unconstitutional for being unduly vague (335-3-4-.02(1)) and too restrictive (335-3-4-.02(2)). See Ross Neeley Express, Inc. v. Ala. Dep't of Envtl. Mgmt., 437 So.2d 82 (Ala. 1983).
[2] See supra n.1.

ADEM: Alabama Department of Environmental Management
ARAR: applicable or relevant and appropriate requirement
BMP: best management practices
CBMMP: Construction Best Management Practices Plan
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act
CMBST: high temperature organic destruction (combustion); 40 CFRC.F.R. 268.42; Table 1
C.F.R.: Code of Federal Regulations
CWA: Clean Water Act
DEACT: deactivation 40 CFRC.F.R. 268.42; Table 1
DOT: US Department of Transportation
> : greater than
< : less than
≥ : greater than or equal to
≤ : less than or equal to
HMR: Hazardous Materials Regulations
HMTA: Hazardous Materials Transportation Act
LDR: Land Disposal Restrictions; 40 CFRC.F.R. Part 268
NPDES: National Pollutant Discharge Elimination System
OSWER: Office of Solid Waste and Emergency Response
PCB: polychlorinated biphenyl
POLYM: polymerization; 40 CFRC.F.R. 268.42; Table 1
POTW: publicly owned treatment works
PPE: personal protective equipment
ppm: parts per million
RCRA: Resource Conservation and Recovery Act of 1976
RORGS: recovery of organics; 40 CFRC.F.R. 268.42; Table 1
TBC: To be considered
TSCA: Toxic Substances Control Act of 1976
US: United States
USEPA: United States Environmental Protection Agency
UTS: Universal Treatment Standards

ATTACHMENT C

Changes to the Names of the Remedial Alternatives

Name in 2016 FS	Name in Proposed Plan
RS-2 Complete the NTC Removal of Residential Soils and Soil Management	RS-2 Complete Non-Time-Critical Removal and Manage PCB Residuals Soil and Under Structures
RS-3 Removal of Residential Soils ≥1 mg/kg PCBs and Soil Management	RS-3 Excavate PCBs ≥ 1 mg/kg at all depths and Manage PCB Residuals
SU-2 NTC Removals in High Activity Areas and Soil Management	SU-2 Excavate Low Activity Areas to Non-Residential Goal and Manage PCB Residuals
SU-3 Complete the NTC Removals in High Activity Areas, Removal of Nonresidential Surface Soil from Low Activity Areas with PCBs ≥ 1 mg/kg and Soil Management	SU-3 Excavate Low Activity Areas to Residential Goal and Manage PCB Residuals
SU-4 Removal of Soils with PCBs ≥1 mg/kg from High Activity Areas and Low Activity Areas	SU-4 Excavate PCBs ≥ 1 mg/kg in High and Low Activity Areas and Manage PCB Residuals
IM-2 Expand Existing Measures, Address PTW if Present and ICs	IM-2 Expand Existing Interim Measures to Meet Non-Residential Goal; Excavate any Principal Threat Waste found within IMs if Leaching to Groundwater
IM-3 Expand Existing Measures, Address PTW if Present, Excavate and Off-Site Disposal of Soils at PB-RR-37, and ICs	IM-3 Expand Existing Interim Measures to meet Non-Residential Goal; Excavate Potential PTW at Railroad and McDaniel; and Excavate any PTW found within IMs if Leaching to
IM-4 Excavate Soils to Nonresidential PRGs where not Covered by Existing Measures and Dispose Off-Site, Address PTW if Present, and ICs	IM-4 Excavate around Existing Interim Measures to Meet Non-Residential Goals; Excavate any Principal Threat Waste found within IMs if Leaching to Groundwater
DSP-2 Excavate SC-8 and Off-Site Disposal	DSP-2 Excavate to Non-Residential Goal and Offsite Disposal
DSP-3Excavate SC-8 and On-Site and Off-Site Disposal	DSP-3 Excavate to Non-Residential Goal and Onsite Disposal
DSP-4 Excavate All Spoil Piles and Off-Site Disposal	DSP-4 Excavate All Dredge Spoil Piles and Offsite Disposal
DSP-5 Excavate All Spoil Piles and On-Site and Off-Site Disposal	DSP-5 Excavate All Dredge Spoil Piles and Onsite Disposal
UWDA-2 Stipulation Cap, O&M, and ICs	UWDA-2 Soil Cap with Marker Layer
UWDA-3 RCRA Subtitle D Cap, O&M, and ICs	UWDA-3 RCRA Subtitle D Cap
UWDA-4 Excavation and Off-Site Disposal, Restore to Natural Grade	UWDA-4 Excavate Waste and Offsite Disposal
NRS-2 Soil Cover, Limited Excavation, On-Site/Off-Site Disposal, and Soil Management	NRS-2 Combination Capping and Excavation, Onsite and Offsite Disposal, and Management of PCB Residuals
NRS-3 Excavation of Surface Soils, On-Site/Off-Site Disposal, and Soil Management	NRS-3 Excavate Soil, Onsite and Offsite Disposal, and Manage PCB Residuals
NRS-4 Excavation of Surface Soils, Off-Site Disposal, and Soil Management	NRS-4 Excavate, Offsite Disposal, and Manage PCB Residuals
NRS-5 Excavation of Surface Soils, Off-Site Treatment, and Soil Management	NRS-5 Excavate, Offsite Treatment of Soils and Manage of PCB Residuals
NRS-6 Excavation of Surface Soils, On-Site Treatment, and Soil Management	NRS-6 Excavate, Onsite Thermal Desorption of Soils and Manage PCB Residuals
GW-2 Excavate Area, O&M, and ICs	GW-2 Excavate High Concentrations and Surface Soils, Offsite Disposal, Soil Cap and Monitor Groundwater

Name in 2016 FS	Name in Proposed Plan
GW-3 Excavate Area, Low-Permeability Cap, O&M, and ICs	GW-3 Excavate of High Concentrations and Surface Soil, Offsite Disposal, Low-permeability Cap, Monitor Groundwater and Operations and Maintenance
GW-4 Excavate Area, Low Permeability Cap, Pore Volume Removal, O&M, and ICs	GW-4 Excavate High Concentrations and Surface Soil, Offsite Disposal, Low-permeability Cap, Pump and Treat Groundwater, Monitor Groundwater and Operation and Maintenance
SED-2 Excavation, On-Site/Off-Site Disposal, and MNR	SED-2 Combination Excavate, Onsite and Offsite Disposal, and Monitored Natural Attenuation
SED-3 Excavation and On-Site/Off-Site Disposal	SED-3 Excavate and Onsite and Offsite Disposal
SED-4 Excavation and Off-Site Disposal	SED-4 Excavate and Offsite Disposal

ATTACHMENT D

Changes to the Comparative Analysis of Alternatives Tables (OU-1/OU-2 FS Table 8-1a through 8-1h)

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and/or Volume by Treatment	Short-Term Effectiveness	Implementability	Cost in millions ($M)
RS-1	No ~~Further~~ Action	~~Provides~~Does not provide protection of human health and the environment~~, except for those properties~~ where removals have not been conducted	~~Does not comply with ARARs~~Not Evaluated Further	~~Previously conducted actions would be effective and permanent over the long-term. Properties where removals have not been conducted would have no long-term effectiveness or permanence. Does not provide soil management for residuals.~~	~~Does not include treatment, would not reduce toxicity, mobility, or volume~~	~~Effectiveness for completed removals is in place, no additional short-term impacts~~	~~Implementable~~	0
RS-2	Complete ~~the NTC~~Non-Time-Critical Removal ~~of Residential Soils~~ and ~~Soil Management~~Manage PCB Residuals	Provides protection of human health and the environment	Complies with ARARs	Effective and permanent over the long term provided subsurface residuals are not exposed through erosion and structures remain in place	Does not include treatment, would not reduce toxicity, mobility, or volume	Short-term impacts similar to previous removals and manageable	Implementable	7.3
RS-3	~~Removal of Residential Soils ≥~~Excavate PCBs ≥ 1 mg/kg ~~PCBs~~ at All Depths and ~~Soil Management~~Manage PCB Residuals	Provides protection of human health and the environment	Complies with ARARs	Effective and permanent over the long term provided structures remain in place	Does not include treatment, would not reduce toxicity, mobility, or volume	~~Additonal~~Additional short-term impacts as compared to the other alternatives including impacts to properties where surface soil removals previously occurred	Implementable	15.7

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and/or Volume by Treatment	Short-Term Effectiveness	Implementability	Cost in millions ($M)
SU-1	No Further Action	ProvidesDoes not provide protection of human health and the environment, except for those properties where removals have not been conducted	Does not comply with ARARsNot Evaluated Further	Does not provide soil management for residuals	Does not include treatment, would not reduce toxicity, mobility, or volume	Effectiveness for completed removals is in place, no additional short-term impacts	Implementable	0
SU-2	NTC Removals in HighExcavate Low Activity Areas to Non-Residential Goal and Soil ManagementManage PCB Residuals	Provides protection of human health and the environment	Complies with ARARs	Provides long-term effectiveness and permanenceEffective and permanent over longterm provided activity areas don't change, erosion does not expose PCB waste, and structures remain in place	Does not include treatment, would not reduce toxicity, mobility, or volume	Minimal additional impacts	Implementable	0.5
SU-3	Complete the NTC Removals in High Activity Areas, Removal of Nonresidential Surface Soil fromExcavate Low Activity Areas with PCBS ≥ 1 mg/kgto Residential Goal and Soil ManagementManage PCB Residuals	Provides protection of human health and the environment	Complies with ARARs	Provides long-term effectiveness and permanenceEffective and permanent over longterm provided erosion does not expose PCB waste and structures remain in place	Does not include treatment, would not reduce toxicity, mobility, or volume	Short-term impacts similar to previous removals and manageable	Implementable	3.1

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and/or Volume by Treatment	Short-Term Effectiveness	Implementability	Cost in millions ($M)
SU-4	~~Removal of Soils with~~Excavate PCBs ≥ 1 mg/kg ~~from~~in High ~~Activity Areas and Removal of Nonresidential Soil from~~ and Low Activity Areas ~~with PCBs ≥ 1 mg/kg~~and Manage PCB Residuals	Provides protection of human health and the environment	Complies with ARARs	~~Provides long-term effectiveness and permanence~~Effective and permanent over the long term provided structures remain in place	Does not include treatment, would not reduce toxicity, mobility, or volume	~~Additonal~~Additional short-term impacts as compared to the other ~~alternatives~~alternative including impacts ~~to properties~~ where surface soil removals previously occurred	Implementable	3.9

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and/or Volume	Short-Term Effectiveness	Implementability	Cost in millions ($M)
IM-1	No ~~Further~~ Action	~~Not protective in areas that have not been addressed~~Not Evaluated Further	~~Does not comply with ARARs.~~	~~Effective and permanent, except for areas that have not been addressed.~~	~~Does not include treatment, would not reduce toxicity, mobility, or volume.~~	~~No short-term actions or negative impacts.~~	~~Implementable.~~	0
IM-2	Expand Existing ~~Measures, Address~~IMs to Meet Non-Residential Goals: Excavate any PTW found within IMs if ~~Present, and ICs~~ Leaching to Groundwater	Provides protection of human health and the environment	Compliant with ARARs	Effective and permanent as long as caps and covers remain in place	Does not include treatment~~, would not~~ to reduce toxicity, mobility, or volume	Short-term impacts similar to other construction conducted for the Site	Implementable	2.6
IM-3	Expand Existing ~~Measures, Address~~IMs to Meet Non-Residential Goals: Excavate Potential PTW ~~If Present, Excavation~~at Railroad (RR) and ~~Off-Site Disposal of Soils at PB-RR-37,~~McDaniel: and ~~ICs~~ Excavate any PTW found within IMs if Leaching to Groundwater	Provides protection of human health and the environment	Compliant with ARARs	Effective and permanent as long as caps and covers remain in place: provide permanent fix for contaminated soil at RR and McDaniel	Does not include treatment~~, would not~~ to reduce toxicity, mobility, or volume	Short-term concerns with excavation of high-concentration materials in a drainage way	Implementable ~~Short-term impacts similar to previous removals. May be difficult to implement the excavation of high-concentration materials adjacent to an active railroad line~~	2.6
IM-4	Excavate ~~Soils to Nonresidential PRG Where Not Covered by~~around Existing ~~Measures and Dispose of Off-site,~~	Provides protection of human health and the environment	Compliant with ARARs	Effective and permanent as long as caps and covers remain in place: provide	Does not include treatment~~, would not~~ to reduce	Short-term concerns with excavation of high-concentration	~~Short-term impacts similar to previous removals.~~Implementable: May be difficult to ~~implement the~~	4.3

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and/or Volume	Short-Term Effectiveness	Implementability	Cost in millions ($M)
	~~Address~~IMs to Meet Non-Residential Goals: Excavate any PTW found within IMs if ~~Present, and ICs~~Leaching to Groundwater			permanent fix for PCBs outside current IMs	toxicity, mobility, or volume	materials in a drainage way	~~excavation of high-concentration materials~~excavate adjacent to an active railroad line	

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and/or Volume by Treatment	Short-Term Effectiveness	Implementability	Cost in millions ($M)
DSP-1	No Action	~~Provides protection of~~Does not protect human health ~~and the environment, but not as much as the other alternatives~~or Snow Creek Sediment.	~~Does not comply with ARARs~~Not Evaluated Further	~~Not effective or permanent over the long term~~	~~Does not include treatment, would not reduce toxicity, mobility, or volume~~	~~Current conditions continue~~	~~Implementable~~	0
DSP-2	~~Excavation SC-8~~Excavate to Non-Residential Goal and ~~Off-Site~~Offsite Disposal	Provides protection of human health and the environment.	Complies with ARARs.	Effective and permanent over the long term.	Does not include treatment~~, would not~~ to reduce toxicity, mobility, or volume.	~~Short-term impacts that are manageable and similar to those already experienced for the Site but includes more over-the-road truck traffic to haul PCB-containing soils than the other active remedial alternative (DSP-3)~~Manageable. Truck traffic more disruptive than DSP-3.	Implementable	0.9
DSP-3	~~Excavation SC-8~~Excavate to Non-Residential Goal and ~~On-Site and Off-Site~~Onsite Disposal	Provides protection of human health and the environment.	Complies with ARARs.	Effective and permanent over the long term.	Does not include treatment~~, would not~~ to reduce toxicity, mobility, or volume.	~~Short-term impacts that are manageable and similar to those already experienced for the Site, but less than DSP-2~~Manageable. Least long distance truck traffic.	Implementable	0.5
DSP-4	~~Excavation~~Excavate All Dredge Spoil Piles and	Provides protection of human health	Complies with ARARs.	Effective and permanent over the long term.	Does not include treatment~~, would not~~ to reduce	~~Short-term impacts that are manageable, would involve more areas of construction~~	Implementable	1.4

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and/or Volume by Treatment	Short-Term Effectiveness	Implementability	Cost in millions ($M)
	~~Off-Site~~Offsite Disposal	and the environment.			toxicity, mobility, or volume.	~~and would be more disruptive than DSP-2 or DSP-3~~Manageable. More area disrupted than DSP-2 and DSP-3. Higher level of truck traffic for long distance.		
DSP-5	~~Excavation~~Excavate All Dredge Spoil Piles and ~~On-Site and Off-Site~~Onsite Disposal	Provides protection of human health and the environment.	Complies with ARARs.	Effective and permanent over the long term.	Does not include treatment, ~~would not~~to reduce toxicity, mobility, or volume.	~~Short-term impacts that are manageable, would involve more areas of construction and would be more disruptive~~Manageable. More area disrupted than DSP-2 ~~or~~and DSP-3~~, would involve less off-site~~. Highest level of truck traffic ~~than DSP-4~~for long distance.	Implementable More access needed than DSP-2 and DSP-3	0.7

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility and/or Volume by Treatment	Short-Term Effectiveness	Implementability	Cost in millions ($M)
UWDA-1	No Action	Not protective of human health or the environment	~~Does not comply with ARARs since materials have been placed in an UWDA~~Not Evaluated Further	~~Does not provide long-term protectiveness or permanence~~	~~Does not include treatment, would not reduce toxicity, mobility or volume~~	~~No short-term benefit or negative impacts~~	~~Implementable~~	0
UWDA-2	~~Stipulation~~Soil Cap~~, Long-Term O&M,~~ and ~~ICs~~Marker Layer	Provides protection of human health and the environment if cap maintained	Complies with ARARs	Effective ~~and~~but not as permanent over the long term as other alternatives	Does not include treatment~~, would not~~ to reduce toxicity, mobility or volume	Short-term impacts from construction similar to other construction activities conducted for the Site	Implementable	1.6
UWDA-3	RCRA Subtitle D Cap~~, Long-Term O&M and ICs~~	Provides protection of human health and the environment if cap maintained	Complies with ARARs	Effective and permanent over the long term if cap remains in place	Does not include treatment~~, would not~~ to reduce toxicity, mobility or volume	Short-term impacts from construction similar to other construction activities conducted for the Site	Implementable	2.8
UWDA-4	~~Excavation~~Excavate Waste and Off-Site Disposal~~, Restore to Natural Grade~~	Provides protection of human health and the environment	Complies with ARARs	Effective and most permanent over the long term	Does not include treatment~~, would not~~ to reduce toxicity, mobility or volume with the possible exception of ~~the~~ treatment of ~~non-PCB compounds~~metals prior to disposal ~~(if necessary)~~	Significant short-term impacts ~~for~~, the ~~duration of removal. The~~ size and duration ~~are not certain but~~ would be significantly larger and deeper than other removals conducted elsewhere on the Site.	~~Although probably implementable,~~Implementable, but would ~~require~~need significant predesign work, engineering planning, and controls to conduct in a manner that would be safe for the Site, the workers, and the public	41.2

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and/or Volume by Treatment	Short-Term Effectiveness	~~Implementability~~Implement-ability	Cost in millions ($M)	
								a) 21 mg/kg	b) 9 mg/kg
NRS-1	No Action	Is not protective of human health or the environment	~~Does not comply with ARARs~~Not Evaluated Further	~~Does not provide long-term protectiveness or permanence~~	~~Does not include treatment, would not reduce toxicity, mobility, or volume~~	~~Current conditions and associated impacts continue~~	~~Easy to implement~~	0	0
NRS-2	~~Soil Cover, Limited~~ Combination Capping and Excavation~~, On-Site/Off-Site~~; Onsite and Offsite Disposal~~,~~; and ~~Soil~~ Management of PCB Residuals	Provides protection of human health and the environment	Complies with ARARs	Effective and permanent but slightly less so than NRS-3, NRS-4, and NRS-5	~~Does not include~~No treatment~~, would not~~ to reduce toxicity, mobility, or volume	~~Time to reach objectives and the ability to manage local impacts are~~Manageable over similar ~~among the active~~time period as other alternatives	~~Alternative can be implemented with available technologies~~Implement with existing technology	7.9	10.1
NRS-3	~~Excavation of Surface Soils, On-Site/Off-Site Disposal, and Soil Management~~Excavate Soil; Onsite and Offsite Disposal; and Manage PCB Residuals	Provides protection of human health and the environment	Complies with ARARs	Effective and permanent over the long term	~~Does not include~~No treatment~~, would not~~ to reduce toxicity, mobility, or volume	~~Time to reach objectives and the ability to manage local impacts are~~Manageable over similar ~~among the active~~time period as other alternatives	~~Alternative can be implemented with available technologies~~Implement with existing technology	10.0	12.7
NRS-4	~~Excavation of Surface Soils, Off-Site~~Excavate; Offsite Disposal~~,~~; and ~~Soil Management~~Manage PCB Residuals	Provides protection of human health and the environment	Complies with ARARs	Effective and permanent over the long term	~~Does not include~~No treatment~~, would not~~ to reduce toxicity, mobility, or volume	~~Time to reach objectives and the ability to manage local impacts are~~Manageable over similar ~~among the active~~time period as other alternatives	~~Alternative can be implemented with available technologies~~Implement with existing technology	10.4	14.6

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and/or Volume by Treatment	Short-Term Effectiveness	~~Implementability~~Implement-ability	Cost in millions ($M)	
								a) 21 mg/kg	b) 9 mg/kg
NRS-5	~~Excavation of Surface Soils, Off-Site~~Excavate, Offsite Treatment~~, and~~ of Soil ~~Management~~and Manage of PCB Residuals	Provides protection of human health and the environment	Complies with ARARs	Effective and permanent over the long term	Includes treatment to reduce the toxicity, mobility, and volume of PCBs	~~Time to reach objectives and the ability to manage impacts are~~Manageable over similar ~~to~~time period as other alternatives, with the exception of long-distance trucking under this alternative	~~Alternative can be implemented~~Implement with ~~available technologies recognizing the remote and limited nature of available~~existing technology but off-site treatment ~~(incineration)~~ facilities remote and limited	21.0	36.6
NRS-6	~~Excavation of Surface Soils, On-Site Treatment, and Soil Management~~Excavate, Onsite Thermal Desorption of Soil and Manage PCB Residuals	Provides protection of human health and the environment	Complies with ARARs	Effective and permanent over the long term	Includes treatment to reduce the toxicity, mobility, and volume of PCBs	~~Time to reach objectives would be~~Manageable over similar ~~to the~~time period as other alternatives. ~~The on-site treatment system would likely require additional~~; more community outreach and ~~many of the elements of a traditional permitting and approval process would be necessary~~approvals due to the potential for emissions ~~from the treatment system. Because this alternative would involve both on-site and an off-site treatment components, logistics of both local and long-distance trucking would be needed.~~	~~Alternative can be implemented~~Implement with ~~available technologies~~existing technology, assuming that a thermal treatment vendor ~~could be found that would~~ can meet operating requirements ~~and recognizing the remote and limited nature of available off-site treatment (incineration) facilities~~	19.1	46.2

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and/or Volume by Treatment	Short-Term Effectiveness	Implementability Implement-ability	Cost in millions ($M)
GW-1	No Action	Is not protective	Does not comply with ARARs (MCL)Not Evaluated Further	Does not provide long-term protectiveness or permanence.	Does not include treatment, would not reduce toxicity, mobility, or volume.	Current conditions and associated impacts continue.	Easy to implement.	0
GW-2	Excavate Area O&M.High Concentrations and ICsSurface Soil, Offsite Disposal, Soil Cap and Monitor Groundwater	Provides protection of human health and the environment	Will comply with ARARs in time	Effective over the long term and permanent if cap is not disturbed and leaching no longer occurs	Does not include treatment. would not to reduce toxicity, mobility, or volume	Impacts associated with construction are manageable and similar under GW-2 and GW-3	Can be implemented with available resources recognizing the challenges in working in this isolated area	2.2
GW-3	Excavate Areaof High Conc. and Surface Soil, Offsite Disposal, Low-Permeabilitypermeability Cap, Monitor Groundwater and Operations and Maintenance (O&M and ICs)	Provides protection of human health and the environment	Will comply with ARARs in time	Effective over the long term and permanent if cap is not disturbed	Does not include treatment. would not to reduce toxicity, mobility, or volume	Impacts associated with construction are manageable and similar under GW-2 and GW-3	Can be implemented with available resources recognizing the challenges in working in this isolated area	3.3

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and/or Volume by Treatment	Short-Term Effectiveness	~~Implementability~~ Implement-ability	Cost in millions ($M)
GW-4	Excavate ~~Area~~High Concentrations and Surface Soil, Offsite Disposal, Low-~~Permeability~~permeability Cap, ~~Pore Volume Removal,~~ Pump and Treat Groundwater, Monitor Groundwater and O&M ~~and ICs~~	Provides protection of human health and the environment	Will comply with ARARs in time	Effective over the long term and permanent	Reduces volume and toxicity through the treatment of groundwater but not principal threat waste in soil	Impacts associated with construction ~~include those associated with GW-2 and GW-3, but the impacts would be more pronounced and persist longer than under GW-2 and GW-3~~are manageable	~~Moderate implementability~~Can be implemented with available resources recognizing the challenges ~~associated with constructing and temporarily operating a groundwater extraction and treatment system~~in working in this isolated ~~location~~area	4.2

Alternative ID	Description	Protectiveness	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and/or Volume	Short-Term Effectiveness	Implementability	Cost in millions ($M)	
								a) 3mg/kg	b) 1mg/kg
SED-1	No Action	Is not protective	~~Does not comply with ARARs (AWQC)~~Not Evaluated Further	~~Does not provide long-term protectiveness or permanence.~~	~~Does not include treatment. Would not reduce toxicity, mobility, or volume.~~	~~Current condition and associated impacts continue.~~	~~Easy to implement.~~	0	
SED-2	~~Excavation, On-Site/Off-Site~~Combination Excavate, Onsite and Offsite Disposal, and ~~MNR~~Monitored Natural Attenuation	Provides protection of human health and the environment	Complies with ARARs including the AWQC	Effective over the long term and permanent; will take longer to reach sediment and surface water goals	Does not include treatment, ~~would not~~ to reduce toxicity, mobility, or volume	Fewer impacts than SED-3 or SED-4 based on less expansive sediment removal	Some implementability challenges exist, especially for sediment in the Highway 202 culverts	2.7	-
SED-3	~~Excavation~~Excavate and ~~On-Site/Off-Site~~Onsite and Offsite Disposal	Provides protection of human health and the environment	Complies with ARARs including the AWQC	Effective over the long term and permanent	Does not include treatment, ~~would not~~ to reduce toxicity, mobility, or volume	Potential impacts during construction can be managed	Some implementability challenges exist, especially for sediment in the Highway 202 culverts	2.9	4.1
SED-4	Excavation and Off-Site Disposal	Provides protection of human health and the environment	Complies with ARARs including the AWQC	Effective over the long term and permanent	Does not include treatment, ~~would not~~ to reduce toxicity, mobility, or volume	Potential impacts during construction can be managed	Some implementability challenges exist, especially for sediment in the Highway 202 culverts	3.1	4.5

APPENDIX D

Transcript March 23, 2017
Transcript March 24, 2017

ANNISTON PCB SITE

PROPOSED PLAN PUBLIC MEETING

MARCH 23, 2017

ANNISTON, ALABAMA

COMMISSIONER: JENNIFER LANDRUM, AL CCR #611

P R O C E E D I N G S

MS. BROWN: Good evening. I'm Stephanie Brown, community involvement coordinator for EPA Region 4. I want to thank everyone for coming out tonight for the proposed plan presentation on OU1, OU2 for the Anniston PCB site. Most of you are here because you did receive our fact sheet in the mail or you heard it on television or you saw the announcement in the newspaper.

So tonight this is what we're going to do: Pam is going to present to you the alternatives and the preferred alternative for -- for the proposed plan on OU1 and OU2. You'll have an opportunity to ask Pam any questions that you may have on the alternatives and the preferred alternative, and you'll also have an opportunity to get more information.

We have in the back a comment card -- comment sheet. If you do not get an opportunity or don't feel comfortable standing up asking your question, you can ask your question by writing it on this sheet. If you're comfortable enough, put your name and address and hand it to our court reporter. We have a court reporter here because we are required by law to record this particular

proposed plan meeting.

And with that, I'm going to ask you, if you can, to please hold your questions until Pam is finished, and she'll get to any and all questions as soon as she finishes her presentation. Again, thank you and we appreciate you coming out this evening.

I'm going to turn it over to Pam Scully, the RPM for the Anniston PCB site. Thank you.

MS. SCULLY: Hi. Thank you all for coming tonight. My name is Pam Scully. I've been on the site for about 14 years, and that's not very long compared to some of these people in this room. So, let's see. We're going to get started.

So what I'm going to do real quickly is go through an introduction of the program I work in, talk about background of the site, the field investigations that we conducted to determine what contaminants were present, the risk assessment results, the remedial action objectives we have in place. Then I'll describe the alternatives, the comparative analysis that we have to do as part of the Superfund program, and what the preferred alternative is.

So the Superfund process can take a lot

of time. EPA, you know, discovered there was a problem that we needed to work on out here in 1999. We began sampling and doing some early actions and removal actions out here. We also have done a remedial investigation feasibility study, a record of decision, and a remedial action at the facility itself during the -- between 1999 and 2014.

In 2014, we started work -- we finalized our risk assessments for -- and started the remedial investigation, so we'll go over some of that information.

In 2016, we asked the question "how can it be cleaned up?" So that started what we call the feasibility study where we look at different alternatives of how to clean something up.

So here we are in 2017. We have a plan that we're going to propose to address contamination in OU1, OU2. OU1, Operable Unit 1, is what we call the area where we do residential cleanup. Operable Unit 2 is the nonresidential cleanup. And they go from the Solutia facility, the former Monsanto Chemical Company facility, around that facility all the way down Snow Creek to Highway 78. That's the area we're looking at.

So mainly we're looking at things that are in the floodplain for Snow Creek.

After we present this information, there is a public comment period going on right now. We're required to come out to the community, consider all of your comments that we get. We will respond to all the comments in a responsiveness summary, and then we will issue a final decision. It's possible that if your comments cause us to want to do something different, then we might pause and do some additional investigation and come out with another proposed plan. If not, we will go forward with a record of decision which says how we officially are going to handle the contamination in this area.

Once we have a record of decision in place, there are a lot of things that happen. It doesn't happen right away, but we have to negotiate a consent decree with the responsible party to do the work that we've selected in the record of decision. Then we have to do -- oops -- well, that didn't work. We'll do -- design the remedy and conduct the remedial action, and then more than likely we'll have some operation and

maintenance we have to do for a number of years in order to make sure this remedy is protective.

During this whole time, we are engaging with the State and the community, and we've done that throughout this period. This site has a community advisory group that meets every other month. They just met this last Tuesday. And they also have a technical advisor that helps the community understand what action EPA is taking and what kind of activities are going on in the field.

So real quickly, because there's a lot of material here, the background. This is the facility. This is Highway 202, and this is the Solutia Eastman facility. It -- once there was a plant in here. There was an area where PCBs were produced. They were produced from 1929 to 1971. They're no longer produced at the plant. The -- all of the equipment is gone. The foundation is gone. So the things they make at the plant now are not -- have anything to do with PCBs. But it is still an operating chemical plant.

Again, surplus started -- the program I work in is the Comprehensive Environmental Response Compensation Liability Act. I call it Superfund, so. It's a lot easier to say.

So we did start out here in 1999. And this site -- normally a site like this we would list on what we call the National Priority List. If a site is -- scores enough on the way we think it's going to affect people, we add it to a list that goes into the federal register and its national list. This site is not on that list because the parties involved agreed to go ahead and do the investigation without us listing the site. Sometimes people won't do it. They won't do the investigation or the cleanup until we list the site. So, this is what we call a Superfund alternative approach, where we follow the same process as other Superfund sites, but we just don't go through the process of listing it, which can take years sometimes.

So we are a Superfund alternative site, but we're conducting it the same way we would any site listed on the NPL. And the work at this site, because there was a lot of issues when we got here -- the community was not very trusting of EPA and not very trusting of the responsible parties who were doing the work. And so, to provide another layer of oversight, we got it -- we entered the agreement to do this work under a

consent decree so that the Court would have oversight. So we have monitors from the Court that participate in the process also to make sure that everybody is working together and the work is actually getting done.

So, the site right now is four operable units. So Operable Unit 1 and 2 are this area along Snow Creek and around Anniston, Oxford, Hobson City, and Calhoun County that we have residential and nonresidential contamination in.

And the facility itself is Operable Unit 3. I know you're wondering why didn't we name the facility Operable Unit 1, and the answer is that we want -- we started this project by doing residential removal, so we named the residential area Operable Unit 1. And we didn't want anybody to think that we prioritized the facility over everybody else, so we named the nonresidential areas Operable Unit 2. And then we had that facility as Operable Unit 3.

After you go past Highway 78, past Quintard Mall, there's a stretch of Snow Creek along that area before it discharges into Choccolocco Creek. That small part, plus Choccolocco Creek, is OU4.

There's a possibility that we'll go look further downstream after we get this done, but this was a huge chunk of our site that we wanted to make sure we address.

So we did do -- we did look at the facility first, and we did come up with some cleanup remedy for the facility itself, which has primarily been -- it's almost complete. We have a couple of groundwater issues we're still working with, but for the most part we've completed that action.

So now we're looking at Operable Unit 1 and 2 in this area. It's about a five-mile stretch. It is the area outside the facility along Snow Creek to Highway 78. It includes Snow Creek and its 100-year floodplain.

The land use across this is variable. There's residential and there's nonresidential, and we're going to go over that. And PCB concentrations are variable also.

So what did we look at? We investigated residential soil, and then we investigated nonresidential soil. And we started out looking at just all nonresidential soil as being one big group, and we found out that there were some

special things happening that we needed to address separately. And one of those is what we call special use properties. What are special use properties? Schools, parks, recreation areas, churches, places that are not really residential but they're close to residential. They're in residential neighborhoods, and children tend to be in these locations. So we separated those properties out.

We also looked at interim measures. Before EPA got involved, the facility had taken a lot of preventative actions at -- around the facility -- at the facility and around the facility to prevent the migration of PCBs. And those are the interim actions. They were taken under the state program, and what we did was look at those again in this program.

So then we looked at dredge spoil piles. There were some areas where the City of Anniston had tried to clear out the ditch to alleviate some of the flooding that occurs along Snow Creek, and they had set those dredge spoil piles along the side of the creek. And they have PCBs in them, those dredge spoil piles. So we looked at those separately.

We also looked at -- we found -- while we were doing our investigation, we found two locations where we found auto fluff. I don't know how many of you are familiar with the auto fluff that we found on Carter Street that was remediated as part of another site, the Anniston lead site, but we found two locations with auto fluff. And because it wasn't reasonable to -- to do the same remedy that we were looking at for residential and nonresidential, we separated those out and looked at those separately.

Then we just have all other nonresidential soils, which is essentially transportation -- could be a transportation corridor, could be commercial industrial facility, something like that.

We also looked for groundwater contamination downstream. Most of the groundwater contamination we expected to find was at the facility. The facility has -- had -- before we got involved had an active groundwater pump-and-treat system to capture contamination from the facility and treat that water. When we investigated that OU3, we extended that -- that system, that treatment system in a couple of

places where it wasn't being captured.

So we've already looked at groundwater as part of OU3. We have multiple contaminants, but there were so much PCBs that we knew had gotten off the facility that we wanted to go along the floodplain and see if there were other areas where groundwater was contaminated.

We also looked at the sediment in Snow Creek and the surface water in Snow Creek, and as part of that we looked at the condition of the banks and whether they were eroding into the creek.

We also did a lot of sampling in the past. Between about 1998 and 2013, we've taken a lot of air samples also.

So, the basic ways we have that PCBs are released into the environment was primarily the surface water pathway, but we know when the plant was operating there was an air pathway contaminants; PCBs were being released into the air. We also know from talking to people that some of those dredged soils and soils in the floodplain or soils from other industrial processes have been used in fill on residential properties, inside and outside Snow Creek. So we

had that issue to contend with.

So, the residential part of the investigation extended well outside of Snow Creek, and I'm going to talk a little bit more about that when I talk about residential. But the nonresidential investigation was pretty much in the floodplain of Snow Creek.

And I know -- this is the Solutia facility at this location, and waters essentially flow from that facility through a ditch that we call the 11th Street ditch. And it discharges into Snow Creek and then comes down and joins up with other sources into Choccolocco Creek. So these are just blowups of some of these areas so you can see how complicated some of the water flow -- and when it gets to Choccolocco Creek, it tends to flow in both directions at times when it floods.

So, those are the kinds of things we're looking at and when we're looking for contamination.

The area we investigated is about 813 acres in the floodplain. The residential in this area -- although residential extended outside this area, the residential cleanup investigation. The

residential portion of this area is about a third of that area. Two-thirds of it is nonresidential.

So we did look at how far does the contamination extend, and then we use that information to produce a human health risk assessment.

So, many of you may be familiar with this map. This was a map that was generated as part of the Anniston lead site, which is the other site that was ongoing during our residential cleanup. And we didn't have this map when we started the PCB site, so there were -- we sampled in a lot of different places, but when this site came into being, we negotiated a stipulation between -- between EPA and the parties to the PCB site to -- to designate who was sampling where because the sites were sort of commingled. So Solutia sampled in the blue and the red area, so C and D, and they sampled every residential property that was in these areas. The parties that negotiated -- that settled on the Anniston lead site, they sampled all the residential properties in these green areas which were around facilities that may have contributed lead to the -- to the area. And they also sampled in this yellow area

anyone who called in and said they thought they had fill or they just wanted their property sampled.

So, the sampling for residential and the special use properties was done with five-point composite samples. And one of the reasons is that on the lead site, these special use properties were considered residential, so they were sampled as part of their residential effort. They were separated on our site because we were doing a long -- a large risk assessment, and we wanted to be able to look at them as nonresidential properties.

So we did sample them with composite samples. Typically, for a residential yard, it was the front yard and a backyard sample. And the top 12 inches is what we considered surface soil, and below that is considered subsurface soil. In the top 12 inches, if it was greater than 1 part per million -- I'm not sure how to describe 1 part per million to you, but it's a very small amount. But if it was greater than 1 part per million in residential soil or in the high-activity areas on nonresidential properties, which were the playgrounds and places where we -- or bus stops or

entrances to buildings, that was the area we considered high activity. And we cleaned those -- we would -- were looking to see if those areas were greater than one.

MS. HARRIS: May I?

MS. SCULLY: Yes.

MS. HARRIS: 1 part per million is a teaspoon in a swimming pool.

MS. SCULLY: Okay. A teaspoon in a swimming pool. That's pretty small, but that's what we did.

So, anyway, if we found it in the top 12 inches greater than one, then we would go and take a subsurface sample below that. And we also took, if it was -- if there was a structure present, we tried to get access to take interior dust samples. And if there was a crawl space identified, we'd take a crawl space sample.

Now, on the cleanup, if we identified PCBs greater than one, then we targeted those areas for cleanup. We also had a condition that we had to meet -- in subsurface soil, it had to be less than 10. So if it was greater than 10, we would dig more than one foot, and we -- we'd go until we got a concentration that was less than 10

for PCBs.

The other site, the Anniston lead site, cleaned up lead. And we cleaned up PCBs. And those were the two contaminants that were a concern on residential properties.

So, what we're concerned about now that we're doing the remedial investigation and feasibility study is, is there anything left on residential properties? So what's left out there for residential that we can take care of.

So we have about 21 properties that we haven't been able to get access to that have PCBs on them that we still need to clean up.

We have 43 wooded properties that are currently so wooded that there's not any exposure occurring for human health to those properties, so we didn't clean -- we didn't prioritize those for cleanup under the nontime-critical removal, but we still have that list of properties that are designated for residential use.

We have also about 433 properties that might have a structure that's potentially located over some PCBs. In some cases, we know there are PCBs because there's a crawl space in them. Some cases we don't, but we know there's a structure

and it's next to an area where we did an excavation, so it's on our list to keep track of.

We also know that there are about 104 properties out there that have PCBs greater than one but less than 10, which was our goal, in the subsurface. But we're keeping track of those because we don't want people to go out and dig in those areas and bring that soil to the surface and create another issue.

So, what we have is -- what Solutia has done is they've created a map to show us where all this residual contamination is. This is the facility and this is the floodplain, and you can see that the residuals are scattered all over the place out here. But we know where they are, and we know whether it's a structure we're worried about or subsurface contamination or whether we just haven't cleaned the property up yet.

And the special use properties are, again, a subset of nonresidential properties for us, and it includes schools and churches and day-care centers and community centers and playgrounds and parks, because -- and we prioritize the high-activity areas where children might play on those, and we've cleaned those up to

residential.

But what do we have left? We have low-activity areas on 19 of those properties that have PCBs above one. We have, potentially, PCBs under 14 structures, and we have three places where we know we have PCBs in the subsurface soil.

And again, we have another map that shows those locations. Although these look like big areas, the actual contamination is probably a small area on that location. But we show the whole parcel so -- on this map so you can just see how those areas are spread around.

Okay. Does anybody need a break?

All right. The next thing I'm going to talk about are the interim measures. So we've talked about residential. We talked about special use. Now we're going to talk about what happened with the interim measures. And again, I mentioned the interim measures. There were multiple actions that were taken in place to prevent -- prevent contamination from continuing to go off-site and prevent exposure on those properties.

And those -- the names we have are very creative. The northside properties are the properties north of the facility, and the eastside

properties are the properties that were east of the facility. And then there's a drainageway that went through the former Miller property. There were some actions taken on what we call the Hall Street properties. There were some actions taken at Quintard Mall when the mall was extended over Snow Creek. There were some actions taken at an APCO ditch and on the 11th Street ditch.

So what we did was we looked at, are these interim measures effective as they are, and are there any improvements that we might need to make to make sure that they're effective?

So this map just shows you generally where they're located. This is, again, the facility and the northside properties, the eastside properties, the eastside drainageway, the 11th Street ditch. The Hall Street properties are down on Hall Street in Oxford, and Quintard Mall.

So what we did -- and this is just a small piece of some of the data that we have on these properties, but the -- only PCBs were analyzed in these soils. Mercury was analyzed in the dredge soil piles, and in some -- in some of these areas, soil was removed and disposed of off-site. But in most of these areas, we have

caps that were installed. Either they were geomembrane caps or geotextile fabric with soil on top of it. But we catalogued all of that in the remedial investigation, and we looked at what do we know about these properties and is that going to be effective enough.

So the dredge soil piles, we -- I mentioned that there were some areas that were excavated. There were actually originally eight dredge spoil piles that were located along Snow Creek. They were sampled for PCBs and mercury, and we looked at those to see what is the condition of dredge spoil piles. Four of the piles were removed. One was removed when we did a remedial action on a property that was next to one of the piles, a residential cleanup. And three of the piles were removed when we were assisting -- the City of Anniston removed some sediment out of Snow Creek in the Glen Abbey neighborhood, but there are still four piles that remain.

So, basically, this is the location of the two -- of the piles that are left. So there were a bunch of them up on the north side of this area, and then there were two that were down on the south part of the area. So, four of these six

were removed, and two of them still remain in place. And those are these two. These are the Snow Creek 1, SC1, and SC2. Then we have the two piles that were down to the lower end. Those are SC7 and SC8. So we still have those in place.

Then we're going to talk real quick about the unauthorized waste disposal areas. That's what we're calling auto fluff areas that we found. Two areas were identified. They did show auto fluff that was probably deposited over a period of time. They're high for both lead and PCBs. We considered alternatives for those separately.

Okay. This is the facility (indicating), and just west of the facility on Legrande and Ashley, if you know where that is, in that neighborhood just west of the facility, is this area where we know we have some auto fluff. And this is just a blowup of that area so you can see that it is fairly residential, although I think there's a business on one side of it, and there's a railroad track that runs along that area. And this is the area where we have impacts.

If you go further -- if you go out of the facility and go down 10th Street, when you get

to where Snow Creek goes under 10th Street, this is another area where we found auto fluff. So those are the two areas we'll be talking about. We know they have high PCBs, and this is just a picture of what auto fluff looks like out on this area.

So then we have the rest of the area. How did we -- how did we sample the rest of the nonresidential soils? The floodplains are -- there's a lot of -- two-thirds of it is commercial industrial in nature. We analyzed for PCB air cores, but we also looked at other contaminants. We looked at a wide range of contaminants to say, what else is out there in these areas that might be a concern for us? So 10 percent of our samples were for a real wide list, and we did some subsurface investigation. In areas where we found high concentrations of PCBs, we looked to see is that in the subsurface, should we be worried about groundwater in this area.

So what we did was we divided this 813 acres up into 30 characterization areas, and then we looked at the characterization areas and said, okay, is the -- is the exposure fairly even across it, because we don't want to average out areas

that are high from areas that are low. And we came up with these exposure units. And what we have in our documents that are in the record center -- our record centers are at the library, the main library, and also at the Carver Center Library. We have all of the records and all of sampling results so that you can go look at them yourself if you're interested. But in -- in these characterization areas, each one we blow up so you can see what's going on in that characterization area.

So if you live in one of these neighborhoods and you're interested in which properties are contaminated and what other contaminants are in there, you can see that there are a number of properties where we didn't find any contamination that are green. Then there are properties in yellow where we did a cleanup. There might be a property in here where we haven't gotten access yet to do a cleanup. All of this information is in that report and available if you want to see it.

But, so the areas that were nonresidential, you'll see there's not very many nonresidential samples in this area. I think

there's a community center in this area that we took some samples at. If we had a gas station or something over here, we might have taken a sample. But each one of these samples was looked at to see is it mostly residential or are there a lot of industrial areas that we could sample for nonresidential.

So, what we did then was -- you'll see that in our records we looked at each area. We said, okay, this area is 63 acres, but it's only -- 12 percent of it is nonresidential. Most of it's residential. So in that smaller area, we determined how many samples we needed to take, and we listed for people, you know, what was the maximum concentration we found? What was the average concentration? And what was the upper competence limit? It's more of a statistical average, the concentration that we use for exposure at EPA.

And what we found was PCBs -- we had a lot of samples for PCBs, and we can tell you a lot about that. We also found that -- what I've listed here is the other contaminants that we were concerned about based on the data. We had arsenic. We had chromium. We had PAHs, and we

had some dioxin. But interestingly enough, most of these contaminants were -- the averages turned out to be pretty low. So we were looking at some real hot-spot locations just -- it wasn't high across the whole area. It was just in certain locations.

So then we looked at groundwater. Again, this is up at the facility. And so, we -- we knew PCBs came off the facility. So we went to areas where we knew we had high deposits of PCBs out in the floodplain, and we put in wells. So these are all wells that were installed.

This is an area around the facility that we looked for potable wells back when we did the OU3 investigation, the facility investigation. And we found that there were some potable wells out there, but people weren't using them for drinking water. They were using them for other purposes, for irrigation or something. Because most people in this area get their water from Coldwater Springs, and -- so we weren't too concerned about people actually drinking it, but we had to be concerned because in the state of Alabama all water is considering drinking water. It has to be available for drinking water, so we

had to clean it up and restore it so that it can be used.

So we did find one location, and because we're so creative, it's the T-11. T-11 is the name of the well, and we'll call it -- the groundwater at T-11 is what you'll see when we look at alternatives of what can we do for groundwater at T-11, because that was one location where we found some lighter contamination that was leeching to groundwater. We didn't find leeching to groundwater in all these other locations, just in that one, and it happens to be where the 11th Street ditch -- close to where the 11th Street ditch discharges into Snow Creek.

We also looked at sediment. We looked at PCBs in sediment as well as mercury in sediment. There were about 51 samples. The PCBs ranged from .6 to 60. We had about 12 samples that were analyzed for a lot of different contamination. And in the documents that are available for you to look at, we looked at, you know, where do we have high contamination, where do we not have high contamination. And there are large -- there are a lot of drawings that will show you what was found where. And it turns out

that there are just -- there's a lot of contamination greater than one. It's all greater than one. But there are some locations that have higher concentrations than others.

We also have some surface water samples upstream of the area where we discharge into Snow Creek and then downstream where we discharge -- before we discharge into Choccolocco Creek. So we have some surface water data.

As I mentioned, we -- we took a lot of air samples over the years. There have been a number of different programs. Each one of these, there's stars and squares colors and numbers and letters that -- that label these stations, but -- because we had to keep coming up with something new to call them so they didn't sound like something we had already done.

But we have a lot of locations where we sampled, and all of that data was looked at to see what the issues were with PCBs and air.

So we did a risk assessment. This diagram is really in here to show you that, you know, you can have a child, a receptor playing in dirt and he's exposed to that dirt, but if there's no risk in it or there's no hazard there, then

there isn't any risk. And you can have, you know, some potential exposure but don't have a receptor for it, so you have no risk. Or you could put in a barrier that prevents a receptor from contacting that hazard, and then you have no risk. You need to have a receptor and some exposure and a hazard to create risk.

So what we did was -- this, again, is the areas that we investigated, and we tried to look at what are the statistical average concentrations in each of these areas. So we could see that there are some areas here and here and even here that are higher concentrations than the other areas. So there are a lot of areas we don't have a lot of high concentration, but there are some areas we particularly do have high concentrations.

And what found was that arsenic, chromium, PAHs, and dioxins, we had some risk to human health from those, but it was being driven by a number -- just a couple of samples of each one of them were super high and were driving the risk across the area.

We didn't look -- we didn't do a human health risk assessment of groundwater again,

because we had already done that in Operable Unit 3, but we did take the results that we found in groundwater and compared that to the drinking water standards. And again, we found one location where we had issues exceeding the drinking water standard for PCBs.

We also looked at the ecological risk, and we started out with a screening level ecological risk assessment. And we decided early on that although there were hazards to terrestrial receptors on land, you know, birds or -- or something that might have been on land, a raccoon, there were some risks, but the habitat was very fragmented. And we know we're doing a real large ecological risk assessment down on Choccolocco Creek, so we opted to not do the ecological risk assessment for terrestrial areas for the land because we were cleaning that up already for human health in nonresidential and residential areas.

But we did decide that we needed to evaluate any aquatic receptors in Snow Creek, because that is an area we knew that most receptors would at least go to for water or -- and may come in contact with contaminated sediment. So what we did was a streamlined ecological risk

assessment for Snow Creek.

Originally we weren't going to do a risk assessment for Snow Creek. We were going to wait until we finished Choccolocco Creek and come back and look at Snow Creek after we got that assessment. But we decided because we had finished some studies already on the wildlife and biota that are available in Choccolocco Creek, we would use those studies and go ahead and do it at this time so that we could wrap up this area so people didn't have -- we didn't have to come back and forth into OU1, OU2.

So, at that point, we have to set what we call remedial action objectives. We have the data. We know we have risks. We know what contaminants we have risks to. So we look at what are our remedial action objectives. What are we trying to prevent, what are we trying to achieve, and what kind of goals should we look at?

So we have those long lists, and they're very wordy, but basically, we're trying to prevent any receptor -- and receptors we had were residential receptors. We had commercial workers. We had commercial visitors. We had trespassers. We had schoolchildren, recreational users. We

needed to prevent those people from contacting any contaminants of concern above a level that would create a risk, an unacceptable risk. There's always risks in the environment, but what we want to make sure of is that we don't have an unacceptable risk.

We also looked at utility workers and construction workers that might contact subsurface soil. We want to prevent the soil that's in the surface soil from migrating into the creek once we get the creek clean, so we need to make sure that doesn't occur. And we want to prevent anything that's in the surface from leeching down to groundwater, so we need to make sure that that's not on issue.

In Snow Creek sediment, we need to make sure that the ecological receptors are protected from both the sediment and from the creek, and that the creek banks are stable. We don't want the -- to clean up the sediment out of the creek and then have the contamination that's up on the banks erode back into the creek.

So for surface water, we need -- and groundwater, what we want to do is meet what we call applicable, relevant, and appropriate

requirements. That just means they're laws, laws that are out there for water. Whether it's surface water or groundwater, there are a lot of them that are out there and have been promulgated by either the state or EPA, and we need to make sure that we can meet those. And for groundwater, we had an added requirement that we actually restore groundwater to its beneficial use.

So, in doing this, we set up what we call remedial goals. Now, they're preliminary remedial goals right now because it's a proposed plan. When we come out with a record of decision, there will be final cleanup levels or there will be the final remedial goal. They have to comply with laws. Any of our goals -- if there's a law out there that says PCBs have to be at a certain level, I can't set a different level. I have to meet any laws that are out there. But I can also use the risk assessment to help me decide what level I want to clean up to.

And we had already established our residential goal because we've done a residential cleanup already, so our residential goals were 1 part per million in the surface and less than 10 part per million in the subsurface.

So, what we then did was say, okay, let's look at the -- what exposures we have in nonresidential. Well, we set the special use properties aside because we've already partially cleaned those up. We cleaned those high-activity areas up to one already. So what we have left is low-activity areas. And our decision is, should we clean them up to a nonresidential goal, just like nonresidential soil, or should we clean it up at a level that's closer to what the high-activity areas were cleaned up.

And I'll talk more about that, but for the interim measures, dredge spoil piles, the unauthorized waste disposal areas, and the nonresidential soil, we looked at a couple of different goals. For the top 12 inches of -- where we have PCBs, we looked at a goal of 21 part per million, which is the one times 10 to the minus five cancer risk for a commercial industrial worker.

EPA has a range of risks that we operate in. First of all, in order for us to take any action at a site, we have to show that there's risk greater than one times ten to the minus four, or one in 10,000 chance of someone getting cancer

because of this contamination. So we have to have a risk higher than that. If we don't have a risk higher than that, we can't take an action.

But once we establish that, we do have some risks out there that could lead to that, we then have a range of risks that we look at. And it's -- one times ten to the minus six is one in a million cancer risk, and one times -- to one times to the minus four, which is one in 10,000.

We also look at noncancer effects, and we have a lot of information out there about noncancer effects, whether it's heart disease or diabetes, and things like that. And we have levels that we have to meet. What we do is we calculate an index called a hazard index of -- and we have to be less than one. So we look for our hazards and we add those up, and if we're less than one, then we don't think we'll cause an effect.

So, for all of these contaminants -- and I know that might be some confusing, and I have some people here who can answer that question later.

So what we do is we have that range of risk that we operate in. So what we proposed was

two different numbers, 21 and 9, which represents a ten to the minus six cancer risk for a commercial visitor on these properties. So we looked at both of those cleanup goals to see what the difference would be.

For subsurface soil, what we want to do is protect construction and utility workers, so our goal is a little higher because those workers don't come in contact with this soil very often. They have less opportunity for exposure. So they can be exposed to PCBs at a higher concentration, and our goal was 97 parts per million.

We also looked at the other contaminants and we selected numbers. We selected numbers that they're at the ten to the minus four cancer risk range. They were less than one on a noncancer effect, and the reason we did this was because a lot of these contaminants are spread in areas upgradient and all around in Anniston because of the types of industries that are located in this area. So we didn't want to have a number that we didn't think we could sustain because of the industry in the area. So these are the numbers we selected. We selected specific numbers for those.

We also looked at dioxins, and the reason we looked at dioxins -- we looked at dioxins in general, and dioxins are a contaminant that is very persistent and very difficult to address and get rid of. So, we looked at the whole area, and we didn't find a lot of dioxin. The issue is that there's been a lot of work done on PCBs, and PCBs are actually 209 different configurations of compounds. 12 of those act like dioxins. So because it's a PCB site, we had to look at -- look at dioxin first, but we also had to look at what is the effect if we add in those dioxin-like PCBs. Does that change the risk and does that change what we would do at the site. So we have all of that information. And for dioxins, we just used a screening level to determine whether we had an issue.

So, I'm just showing you this table. There's a table in the actual proposed plan. What you guys have seen is a fact sheet. The proposed plan is about 100 pages long and has about a hundred pages of tables and figures attached to it, and it is available on our website if you want to see the whole plan. But I didn't think you-all would want the read that whole plan, so you have a

fact sheet. But it is available -- Stephanie is modeling it. It is available on our website now, so -- if you want to take a look at that. And it's also available in the information repositories. So it's available at the main library and the Carver Community Center library.

So now, finally, does anybody need a break? You're ready to go? Okay.

Identification of alternatives. Now we're going to say, okay, we've looked at everything we found and -- and what we found risk for, and what are we going to do with it? Well, we're putting together a puzzle of eight pieces here, and we have eight categories of alternatives. We have residential soil alternatives, special use property alternatives. What can we do with interim measures? We have dredge spoil piles, unapproved waste disposal areas or auto fluff areas. We have nonresidential soil. We have groundwater and principle throw-out waste that are at T-11, and we have sediment and creek banks to look at.

And when we look at these, the Superfund law requires that we evaluate these against each other using nine specific criteria that are laid

out in the law. Two of these criteria are threshold criteria. If you can't pass this criteria, then you don't go any further in the process as an alternative.

So the first one is you have -- it has to be protective of human health and the environment, and the second one, it has to meet all the laws, the ARARs. And if you can't do that, then it's not a good alternative and we don't look at it any more.

Next we look at what are our primary balancing -- what we call primary balancing criteria. We look at how -- is it effective in the long term? Is it a permanent remedy? Does it reduce toxicity, mobility, and volume of contamination by treatment, because EPA has a preference for treatment.

Is it short -- is it effective in the short term, meaning, is it going to be too disruptive to your business if I come out there and make you stop work for six months while I clean up? That's a short-term effect. It's not a long-term effect, but it is a short-term effect. So that's an issue we look at.

Is it implementable? Is it something

that we can do? Do we have the technology to do it? Do we have a way to do it without causing too many problems? And what does it cost? Cost is not the most important driving factor. We have five criteria we have to look at.

The last thing that we don't evaluate until after the proposed plan comment period is the State's acceptance of what we're going to do and what we're proposing to do, and the community's acceptance. And that's why these meetings and your comments are very important to us, because we can't gauge that without having some information from you.

So residential soil, we had three alternatives we looked at. We have to, as part of our law, look at what happens if we take no action. Is the no action -- is taking no action a viable alternative? And in some cases you'd be surprised it is. It turns out, occasionally, it is a good idea.

But in this case, while we have a lot of residential cleanup that has occurred in town, we still have some properties that haven't been cleaned up. So -- so, we look at what if we finish the nontime-critical removal, the removal

we've been doing where we clean up surface soil above one and subsurface soil above ten, and then we just manage those residuals? We pay attention to when a house is torn down and we go out and resample underneath the house, or we work with people when they want to dig in a part of their yard that might have some subsurface contamination.

The last alternative we looked at was, what if we go out to the yards and dig up what's in the subsurface that's above one? Even if we've already cleaned up the surface, we go back to those 104 properties and dig up that subsurface soil, and then we just have less to manage? We finish our -- we finish this nontime-critical removal, we clean up everything that's above one even in the subsurface, and we just manage what's under the structures?

So, the second alternative again is just looking at -- we have 64 properties out there that haven't been cleaned up yet. Those would get cleaned up. We have to dispose of that material. If it's got a PCB concentration less than 10 part per million, it would go to the on-site soil management area that we've been using in the past.

If it is a different concentration than that, then it has to go off-site for disposal. We would replace that soil that we took out with clean backfill, and we would stabilize the erosion potential for that area by putting sod in place or whatever surface needed to be in place at that property.

And then we would manage the residuals that were in the clean backfill -- under the clean backfill at the 104 locations and under 433 structures potentially.

And then, the third one, again, we added this step where we would go in and remove the PCBs that are in -- at depth on -- I think that's supposed to say 104 properties, but it says 95. And we would basically manage -- only be left with managing residuals at the 433 properties.

So we -- and if you have a copy of the propose plan -- I know you can read this. But you can't really read it probably from where you're sitting. But we do look at each of these criteria and try to describe what we think -- whether we meet the protectiveness of it. In this case, we decided no action doesn't meet the protectiveness of it, and so we didn't evaluate it any further on

these criteria. But the other two can meet these criteria, and we evaluated it all the way through.

EPA is proposing RS2, primarily because we're already out there keeping track of 433 structures. It's not that much more for us to keep track of the subsurface contamination and address that when people need that addressed. So that's what EPA recommends. It is $7.3 million to execute that.

Special use properties, same thing. We have, excavate low-activity areas to the nonresidential goal. Excavate the low-activity areas to more of a residential goal. It's a nonresidential goal, but it's the lowest nonresidential goal. It's essentially the same as a residential goal and manage the PCB residuals. Or we could excavate all PCBs greater than one on these properties, just like the last residential one, in high- and low-activity areas and manage the residuals.

And again, this description is just going into how many properties are associated with this. In this case, it's important to note that we really -- we don't know -- some of these numbers might change once we go out and sample in

the low-activity areas. If we don't know what's at depth in those areas, we might have more properties that fall under one of these categories. And again, the SU3 is to excavate it to a lower number of 1 part per million. It would affect 21 properties. And then we would still be managing residuals. And alternative 4 would take us to where we're only managing residuals under structures.

EPA, again, is recommending the -- we're recommending that we clean up the low-activity area the same way essentially as the high-activity areas, primarily because it keeps us from having to keep track of whether someone wants to move their playground or they move their bus stop or they move an entrance on their property. It's just one less thing we have to keep up with. It's $3.1 million.

The interim measures. The alternatives we looked at for the interim measures were, in areas where we found contamination that's too high around the interim measures -- for some reason there are areas that didn't get incorporated into the caps or excavated in those interim measures. So we -- we used the data that was collected to

identify those areas, and we looked at what can we do in those areas?

And one of the alternatives is just to extend the existing interim measure. If we put a cap out here, then we could extend the cap to cover those additional areas where we have soil that's contaminated. And we found one area where we didn't have a well close enough to determine whether or not it was leeching, so we wanted during design to go in and put a well out there. If that area which is currently under a geomembrane has leeching, we would have to take more action in that area. But based on the data we have for all the other interim measures, we don't think we have leeching to groundwater. We just don't have the type of contamination that we feel is going to be leeching to groundwater. So our assumption is we don't have it, but we noted on here that we are going to check that during design.

The third alternative would be to, again, extend the measures that we have, except at this one location. There's an isolated location, which I'll show you on a map, that is away from the other areas, and we could just excavate in

that area. It's a fairly high concentration, and we could just excavate that out. But the other alternative is don't extend any of the coverage, just excavate it all out and dispose of it off-site.

So, again, the areas that we found that are affected are up around the facility in the eastside properties, the former Miller property, and north of the facility. And these are just figures that -- the orange in these figures is areas that are capped, so you can see there's -- there might be a sample over here where we didn't get capped. There's a couple of samples here. And these figures just show you the areas where we think we need some additional work. That's the eastside drainageway, and then this is the eastside properties. They are areas, for whatever reason, did not get incorporated into the cap and have some fairly-large concentrations.

So, again, this is just a description. I'm not going to go through it again because I already told you what it was. But it's a description of what we would do at those properties. We did look at them with all of the threshold of balancing criteria.

What EPA is proposing is that we don't extend the measures any more. That we just excavate the material that's outside these measures and dispose of it off-site. It's a 4. -- it's estimated at a 4.3 million dollar alternative.

The dredge spoil piles. We could excavate just the piles that exceed the nonresidential cleanup goal, or we could excavate all the piles and just get rid of them. And those are what the alternatives are. So the difference is, we excavate just to the nonresidential goal and dispose of it off-site, or we dispose of it on-site. This is a new disposal. Previously, in our on-site soil management areas, we have only disposed of soils from special use of residential properties and only lower concentrations by composite samples that are less than 10 part per million. And this proposal is that anything less than 50 part per million would be disposed of in those on-site areas.

So, again -- I've shown you this picture before. These are the dredge spoil piles. So the first two alternatives are to excavate just to the nonresidential goal. That means that really

Dredge Spoil Pile 8 is the only one that will be removed, and it would be disposed of either on-site or off-site.

And the other alternatives are just excavate all the dredge spoil piles, because they're sitting right next to the creek. They'll get back in the creek. They have PCBs in them. So they're all -- most of the concentrations that we know of are less than 50 in those dredge spoil piles. So one alternative is to dispose of them on-site because they're all less than 50, or dispose of them off-site.

So what EPA is proposing is that we excavate all of the dredge spoil piles next to the creek, and that we dispose of them off-site. It's a 1.4 million dollar remedy.

For the unauthorized waste disposal areas or the auto fluff areas, we looked at -- we could take no action or we could put in just a soil cap, a one foot of soil to protect receptors that might walk across the property in a marker layer so you'd know that below that there was contamination. Or we could put in a regular landfill cap with a geomembrane, or we could excavate all of it and dispose of it off-site.

And again, I've shown you where these two are located.

And, in this case, the soil would be 12 inches thick, and there would be a marker layer of fabric to tell you if you dug in that area that you were going into a waste. It would require that we put some sort of control on the property so people didn't dig, an easement or something like that, and that we go back out and take care of this cap, do operation and maintenance to take care of the cap.

Same thing with the RCRA subtitle D cap. We would -- it's a thicker cap so we would have excavate 18 inches of soil over the area, put in an 18-inch cap. And actually, the excavation of the 18 inches depends on whether or not we're in a floodplain. If we're in an area that floods, we would have to make sure we're not creating more flooding. If we're out of the flood plain, we wouldn't likely excavate all 18 inches. We would put a cap on top. But we would still have to do O&M of that cap. It involves a much thicker layer of plastic called a geomembrane and a drainage layer on top of that to make sure that it stays intact. It's what would be put in place on a

landfill.

And the other alternative is to dig it all up. There's about 100,000 cubic yards of material we'd have to dig up. It would be pretty intensive with trucks on the highways. We would not bring in fill to fill that area back up to where it is because it's a waste area. So we would try to create a slope. We would -- we would reslope the area so that it didn't erode, and try to establish some vegetation out there. But there wouldn't be any O&M, and there wouldn't be any restrictions on the property.

So what EPA is proposing is that we do alternative three and we install a RCRA cap, and it's a $2.8 million estimate.

For nonresidential soil, we looked at six different alternatives in total.

One, we looked at a combination of -- there are areas that are not in the floodplain, not -- that it wouldn't be disruptive to install a cap. So there are some areas we could install a cap, and then we'd do excavation in the other areas and install clean soil over any subsurface PCBs that we might have to manage long term to make sure they didn't make their way to the

surface again.

Alternative 3 would be to just do excavation. Don't worry about trying to cap any place. Excavate it, do some on-site disposal of lower-level contamination and off-site disposal of higher contamination. And, again, manage any residuals in the subsurface.

Alternative 4 is to do the excavation. Do all off-site disposal, don't put any of it on-site, and manage the PCB residuals in the subsurface.

Alternative 5 is to excavate the soil and then ship it off-site somewhere that it could be treated. Well, these are -- I believe these are located in Texas and -- I can't remember where else. Texas and Texas? We'd have to ship the soil to Texas to get it incinerated, basically, in order to remove the PCBs. So that's an option we could do.

We could also bring in a thermal desorption unit, which is still heating the soil, but it's not as high a temperature as incineration, and you end up with smaller amount of concentrated contamination that you can then deal with. And that's an option.

So, we looked at, okay, if 21 is our goal, where do we need to clean up? And as it turns out, the areas -- the exposure areas that you see in gold are the ones where we had contamination that needed to be addressed, but the darker areas along here -- they are difficult to see, and I'm going to show you a little bit more, but the maps -- you can get more information on the next few maps, but you can see that there are just small areas, along the creek usually, where we have high concentrations that need to be addressed.

And all this is, I'm just going to flash through these pictures. We've tried to show you that there is areas where we have some PAHs. There's a couple of PAH locations. Most of these are PCB areas that we need to address.

There are some -- a couple of areas where we have high chrome. There's an area where we have high dioxin, and it just runs along the creek. There's an area along Highway 202 outside the facility that never got picked up. So, we've tried to identify where these areas are, and then we also looked at, okay, what if we cleaned up to nine part per million? And you can see it adds a

few areas. Like the areas in gold are the exposure units that are affected for 21, and then we have some more areas in gold, when we go to a cleanup goal of nine, but the areas that we would actually have to do the cleanup to meet that goal are relative small. They're -- and they're usually in drainage areas.

So, again, we -- I went through this already, but there's a combination capping and excavation. We know which areas we could use a cap and where we would have to use excavation. Disposal would be on-site if it's less than 50, and we'd have to manage residuals in the subsurface.

And for alternative 3 in this case, we would just do all excavation. We wouldn't worry about trying to install a cap, and it would be on-site and off-site disposal. Alternative 4 is all off-site disposal. Alternative 5 is transporting it -- oh, Kansas -- Texas or Kansas to incinerate. And then we would dispose of the nonPCB contaminated soil off-site. It wouldn't have to go for incineration since it's a smaller volume. And we would backfill and revegetate areas and manage anything in the subsurface.

And again, this is the one where we would bring in thermal desorption unit near the facility, and we would run the soil through that heat process to concentrate the PCBs in a smaller volume. We would put the treated soil on-site in the soil management area, and we would dispose of that concentrate off-site. And we'd still, you know, have to manage PCBs and the residuals.

So what we have recommended is Option Number 4, and it is -- and we've recommended staying with the 21 milligram per kilogram cleanup goal. So it's a remedy of 10.4 million. Primarily because it didn't seem logical -- and the places where we were cleaning up to nine didn't seem to be places where you would really have a commercial visitor, so going to a commercial visitor cleanup goal didn't seem logical for those locations. And we recommend hauling it all off-site primarily because the community has been not very receptive to bringing a lot of material on-site and having more contamination located near west Anniston. So we've recommended off-site disposal.

Groundwater, we looked at -- we can go in, just excavate some soil and monitor

groundwater and see if it recovers after we get those high concentrations of PCBs out of the soil. We've looked at, okay, we could go excavate the soil and then put in a low permeability cap to reduce any groundwater going in and that might restore the groundwater. Or we could excavate the soil, put in a low permeability cap, and pump and treat the groundwater.

So this is the area -- okay. Let me orient you here. This is the where the -- this is -- 11th Street runs right here, and this is where 11th Street crosses Snow Creek. And it's an area that's pretty isolated between a railroad track and Snow Creek. The only way to access it is behind Missionary Baptist Church, and we'd have to build something to get over there. But this is T-11 right here, and we know that there are high concentrations around T-11, but we know we also have concentrations around this whole area.

So again, this is just showing you what these soil cap would look like if we just went in and excavated a foot of soil and took out all the high concentration soil and then monitored groundwater, or we put in a low permeability layer. Or this one would be where we would also

do a groundwater pump-and-treat. We would extract the soil and run it through a carbon filter, and then discharge the clean water into the creek.

EPA is recommending that we do Option 4, which is -- because it's difficult to get groundwater restored, we think it's more important take every action we can to try to hit that groundwater and get it restored. It's a $4.2 million alternative.

Finally, we're at Snow Creek. This is the last of the eight categories. Snow Creek and the creek banks. We looked at a combination of excavation, on-site and off-site disposal, and monitored natural attenuation. We looked at excavation on-site and off-site disposal. We looked at excavation and just off-site disposal.

In -- if you look -- we made individual fact sheets for each of these categories, so there's a fact sheet out there that's about 32 pages long that just talks about sediment. And it has all these -- a lot of these figures in it. If you want a copy of it, it's available on our website, or you can leave your name with us and we can mail you a copy.

But what it did was, it looked at all

these areas along the creek and what was found in the sediment of those areas. And there are figures for both a cleanup goal of three in sediment, which is one protective layer level, and then we have also a cleanup goal of one that we looked at in sediment, which impacts all the sediment in Snow Creek.

We also have figures that show you the condition of the banks, which banks are eroding, which banks are stable. So, what we looked at again is the biggest part of the sediment remedy is under the -- in the culverts under Highway 202. There's been a lot of sediment built up under those culverts. It's about 1600 cubic yards. So all of these alternatives will address the sediment in those culverts.

And the first alternative is -- let's just -- we'll get everything out of the culvert, but then let's just pick up the sediment that's greater than 10 part per million PCBs, and then we'll let it naturally recover or naturally attenuate, meaning that cleaner soil will come in eventually and cover it up and we'll be at our goal of 3 part per million for sediment.

We also have to stabilize the banks and

then monitor the banks and the sediment to make sure that it's -- remains protective. And again, this proposal is for on-site disposal of the sediment. Most of the sediment is less than 50 part per million, and this is a proposal to use the on-site soil management area.

So, again, every alternative includes the culvert excavation, but this alternative, SED3, is assuming that, let's go in and get all the sediment that's greater than three and take it out. It still has on-site disposal and off-site disposal, if we have any high contamination. Still does the bank stabilization. This option, of course, is just like the previous option except that everything is shipped off-site. None of it is allowed to go on-site.

And EPA is, again, recommending that we do the total off-site shipment, but we did look at two different options. Cleaning up all of the sediment in Snow Creek, which would mean a cleanup goal of one, or cleaning up the sediment that's above three, or that's above three milligrams per kilogram or 3 part per million. And the reason I'm recommending this one is because we do have some PCBs in streams upstream from where 11th

Street ditch discharges into Snow Creek, and I think that the three milligrams per kilogram is just -- we'll be able to achieve that and maintain it. I'm worried that we won't be able to maintain a goal of one with some contamination further upstream.

So, here it is in all its glory, all eight categories. It's a cost of $36.6 million. Again, the justification is, it does provide protection for all the receptors. It does provide for stabilization of the creek banks and gets a lot of sediment out of the creek at a level that will be protective for the biota that are in that area. It provides for all off-site disposal of soil, except for the residential and special use soils, which have always in the past gone to the on-site facility if they were less than 10 milligrams per kilogram PCBs.

It does not provide treatment, which is a big deal at EPA because EPA prefers to treat soil. The reason we didn't do off-site treatment is because for you, you're getting the same effect whether we send it off to incinerate or send it off to a landfill. So it's just as protective for you because it's getting out of the community.

If we did on-site treatment, there's always an issue with air concentrations. And this community has been very sensitive to PCBs in air, so we did not select on-site treatment.

So, we have a 30-day comment period normally for a proposed plan. The community advisory group wisely asked us to extend the comment period, so we've extended it to a 60-day comment period. It began on March 13th, and it ends at midnight on May 12th.

You can send in comments to me. I prefer comments in writing. Tonight, you can make comments and they'll be recorded for you. Or you can send me a letter, or you can fill out one of these comment forms, or you can just send me an e-mail and tell me what your comment is. This is all my pertinent information. And all comments that relate to this plan will be responded to in the responsiveness summary for the record of decision.

Let's see. I think that's it. I know you're amazed. Let's see. How long did that take me?

Okay. So now we're ready for public comments. Do you want to handle it?

MS. BROWN: So like I said earlier, we do have a court reporter here. She is going to officially take any comments. If you have any questions or comments on what Pam presented this evening, just please state your name so that the court reporter can record that and your comment or question.

I see a hand in the back?

MS. CATE: I'm sorry. I'm late.

MS. BROWN: Can you stand up so she can hear you?

MS. CATE: Pam, can you please explain the alternative that you did for Snow Creek so we have the natural -- whatever you said is supposed to replenish that sediment or something to a PRG of three?

MS. SCULLY: Okay. Well, one of the alternatives was to remove the sediment that was at a higher concentration than 10 milligrams per kilogram or 10 part per million. And what naturally happens in a sediment environment is that soil comes from upstream and comes from other locations, and the reason you have sediment is because soil gets in -- gets washed with surface water. And the assumption is that there are clean

soils out there that will wash in and cap over, essentially, contamination so that the sediment that's at the surface will eventually, over a period of time, meet the 3 part per million goal. That was sediment Alternative Number 2.

MS. CATE: Okay.

MS. SCULLY: It will never meet the 1 part per million goal.

MS. CATE: How is that going to be monitored, and who is going to monitor that?

MS. SCULLY: Well, we didn't propose that alternative.

MS. CATE: Well, I'm just asking you how you going to know it reaches a three? I mean --

MS. SCULLY: Well, if we had selected that alternative -- or if we select that alternative or if we had proposed that alternative, we would have to have a monitoring plan, and we would have to set up when -- how long we think this will take. It would have to be a reasonable period of time, and we'd have to go out and monitor the progress to see if it's actually capping over. It's -- it would all be done during remedial design. I don't know that I can give you a specific right now, but we would have to do a

lot of monitoring to make sure we achieve that goal.

MS. CATE: Okay. So I'm confused then. You're giving me an alternative that there's no way to monitor that that alternative is actually going to be that.

MS. SCULLY: Well, what I'm doing is presenting to you the alternatives and the costs that we looked at in the feasibility study. We did not develop the monitoring plan yet. If we had picked -- if we picked that remedy, the first thing we would have to do is come up with a plan to monitor it. And if we don't achieve the goals in the time frame we set up in a monitoring plan, then we would have to take additional action. That's how a monitored natural attenuation would work. But we did not propose to do that alternative.

MS. CATE: Okay. So I need to make the comment that that's the alternative I would pick, because otherwise you just --

MS. SCULLY: That's the -- that's the one you propose?

MS. CATE: -- you're telling me you're going to do something or you're picking something

that is -- as far as I'm concerned is haphazard and it has no way of being -- of knowing that --

MS. SCULLY: I did not propose to do natural attenuation. I proposed to --

MS. CATE: Oh. That wasn't in that plan that you said?

MS. SCULLY: No. What I proposed was that we go in and remove all the sediment greater than 3 part per million, not just the 10 part per million. I proposed that we removed it up to 3 part per million.

MS. CATE: Okay.

MS. SCULLY: So, theoretically, with natural attenuation, if I clean up to three, theoretically, the sediment will go to a lower number as time goes by because of sedimentation. But I'm just not making that as part of the remedy.

MS. CATE: Well, as a matter of record, I would like to recommend that you take the alternative where there's a monitoring process in place so that you will know what --

MS. SCULLY: Oh, in all of the alternatives we would do monitoring. We would have to monitor in some way. But what I'm saying

is Sediment Alternative Number 2 requires that you clean up to less of a goal than you eventually want to reach, and then you just allow that process to happen and that's how you reach your goal.

What I'm saying is, let's clean up to our goal and then we'll monitor to make sure that we can maintain that goal.

MS. CATE: Okay.

MS. SCULLY: Rather than monitoring to reach that goal. It's just a matter of how long you're willing to give it to reach the goal. With SED 2, you have to -- you don't have to reach your goal until a period of time has elapsed. With what we proposed, you would reach your goal right away when you excavate that sediment, but you still have to monitor it to make sure you're maintaining that because of the environment it's in.

Any other questions?

MR. BADGETT: Yes.

MS. SCULLY: Can you tell us your name?

MR. BADGETT: Billy Badgett.

Was there any checking or whatever in that sewage plant down there in Oxford?

MS. SCULLY: The plant is in the floodplain, and there have been some samples that have been collected around there. That's what we're considering part of Operable Unit 4, so that's the next plan that will come out. And we'll talk about that data then and what we can do to fix that. But we do have samples near the sewage plant and downstream of that in the floodplain of Choccolocco Creek. That's just not part of Operable Unit 1 and 2. But we do have that data.

MR. BADGETT: Okay.

MS. SCULLY: Does anybody else have a question?

You're all tired, aren't you?

Yes, sir?

MR. BADGETT: I got a comment.

MS. SCULLY: Okay.

MR. BADGETT: Billy Badgett. I helped fix a water line on that old -- all I say is Old Birmingham Highway --

MS. SCULLY: Okay.

MR. BADGETT: -- out there at that -- above that Shell station, you know, right where -- the drain-off of that location.

MS. SCULLY: Okay.

MR. BADGETT: I was working with the water department, Anniston Water Department.

MS. SCULLY: Right. Well, part of our -- part of the plan, you can see that managing residual PCBs is a big part of all of these alternatives. And if you look in the feasibility study, which again is in the record center, there's a draft of a plan that we could put in place. And part of it requires that Solutia has agreements with the utilities that might dig in the area to -- to not only provide them with information about what might be in place in certain areas, but also to educate them on how to handle that and to -- to go in and dispose of any hazardous waste that they might encounter. So -- not hazardous waste but PCBs greater than one. PCBs are not really considered hazardous waste, and they're not regulated for disposal unless they're greater than 50, although there is a lot of provisions in the law that say anything greater than one can also be controlled.

And so that's why we're looking at anything greater than 1 part per million, we want to know where it is, but it's not necessarily

hazardous waste. So I don't want to use that term inappropriately.

But there is a plan of how we would go about working with all the local utilities and local governments to make sure people remain protected.

And if you want to look at that, that is in the library.

Anything else? Yes?

MR. BROOKS: Doug Brooks, Anniston Housing Authority. You mentioned earlier that there was eight dredge piles. The three that were removed in Glen Abbey, do you happen to know the number of them, which numbers they were?

MS. SCULLY: They were number 3, 4, 5, and 6.

Well, I'm sorry. 4, 5, and 6 were removed with sediment. 3 was removed with a residential cleanup that occurred on Pine -- I want to say Pine.

MR. BROOKS: So 4, 5, and 6 were removed?

MS. SCULLY: Yes.

MR. BROOKS: Okay.

MS. SCULLY: And one of those had

concentrations greater than 50. I remember we had to ship that to Emelle, Alabama, because it was considered hazardous.

MR. BROOKS: And I've got a second part to that question.

MS. SCULLY: Yes.

MR. BROOKS: How much effect has natural filtration such as rainfall and so forth had on lowering the levels of PCB in these areas? Because I know this has been going on for quite --

MS. SCULLY: Well, PCBs do not degrade very quickly.

MR. BROOKS: That was my question.

MS. SCULLY: I mean --

MR. BROOKS: Are they there no matter what?

MS. SCULLY: They may degrade over amount of time, but it's not anything that's going to be in my lifetime. So, you know, there is some degradation. But it's a very stable compound. That's why it was so good. It was very stable until it got out in the environment, and then it became a problem.

MR. BROOKS: It would be similar to asbestos then?

MS. SCULLY: Right. It was very good at doing what you used it for, but if it got into the environment, it was a big problem. So, we have to do something to get rid of this. It's not going to get ride of -- it's not going to go away on its own.

MR. BROOKS: Okay. That was the question I had, if there was any natural filtration of that?

MS. SCULLY: Not that I know of.

MR. BROOKS: Okay. Thank you.

MS. SCULLY: Yes?

MS. TRUSSLE: Bella Trussle. I was looking at the proposed plan fact sheet, and on some of the said -- proposals, some of the pages have footnotes, but there are no corresponding numbers in the body of the text.

Does that mean the footnote applies to all of the text on that page?

MS. SCULLY: No. There should be a number. So if you'll tell me where it is, I'll try to --

MS. TRUSSLE: I'll do it after.

MS. SCULLY: I can fix it on the online version, but I'm probably not going to mail it out

again. So if you want to know what it is, you've got to look online.

MS. TRUSSLE: Okay.

MS. SCULLY: Anything else?

Well, thank you-all for coming tonight. I appreciate you sitting through a very long presentation. And we really, really, really want your comments and your input, so please feel free to leave that with us or send it to us in any way.

Also, we are having another meeting just like this, in case you want to hear it again, tomorrow night in Oxford at the civic center. And we are going to be available to talk to people individually on whatever your question might be on Saturday at the Carver Community Center from 10:00 to 2:00.

So if you have any follow-up questions, you can see us tomorrow night and Saturday.

And thank you. We appreciate it.

(The proceedings were concluded at 7:35 p.m.)

C E R T I F I C A T E

STATE OF ALABAMA)
JEFFERSON COUNTY)

I hereby certify that the above and foregoing deposition was taken down by me in stenotype, and the questions and answers thereto were reduced to computer print under my supervision, and that the foregoing represents a true and correct transcript of the deposition given by said witness upon said hearing.

I further certify that I am neither of counsel nor of kin to the parties to the action, nor am I in anywise interested in the result of said cause.

_____
Jennifer L. Landrum, Commissioner
CCR #611

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ANNISTON PCB SITE

PROPOSED PLAN PUBLIC MEETING

MARCH 24, 2017

OXFORD, ALABAMA

COMMISSIONER: JENNIFER LANDRUM, AL CCR #611

P R O C E E D I N G S

MS. BROWN: So we're going to get started. Good evening, and thank you for coming out. I'm Stephanie Brown. I'm the community involvement coordinator with EPA, EPA Region 4 out of Atlanta. And tonight, as you're aware, we're going to talk to you about the proposed plan for Operable Units 1 and 2 associated with the Anniston PCB site.

Pam is going to go through a presentation tonight and then you'll have an opportunity to ask her questions or make comments on the plan. We do have extra copies here of the proposed plan fact sheet. We also have a comment sheet if you want to write your comments down and turn them in to myself or to Jennifer, our court reporter, so they'll be sure to get into the record.

It's a lot of information, so we ask that you hold off asking your questions until the end of Pam's presentation that way the court reporter can record your comment or your question. I'll give more further instructions about that after the presentation. But right now, I'm going to turn it over to Pam Scully, the remedial

project manager for the Anniston PCB site.

MS. SCULLY: Thank you, Stephanie. Thank you all for coming out tonight. I know it's hard to compete on a Friday night, but I appreciate it. Tonight I'm going to tell you about the Anniston PCB site areas. The site was divide up into Operable Units. Operable Unit 1 is the residential areas that we cleaned up. Operable Unit 2 is the nonresidential areas around the facility, the former production facility downstream along Snow Creek to Highway 78. Below Highway 78, that part of Snow Creek as well as all of Choccolocco Creek is Operable Unit 4, and we'll be coming out with some information about that.

We come out with information as we get it, so when we finish the risk assessment we'll probably come to the community and talk about that. But by the time we get to the proposed plan, it will be at least another year, but we will be working on Operable Unit 4 also.

So, tonight I'm just going to give you a real brief introduction as to what Superfund is, what the process is we go through. I'm going to talk a little bit, just a very little bit about the background of the site. I'm going to talk

about the field investigations we did to sample to find out what the concentrations were of contaminants. And I'm going to talk about how we use that information in a risk assessment to determine what kind of cleanup goals we needed, and then we'll talk about what alternatives we looked at to make the environment more protective in this area. We'll talk about the comparative analysis of those 1 alternatives and what EPA is proposing as a preferred alternative.

What EPA is proposing is out for public comment period right now. The comment period started on March 13th, and it goes through May 12th. So any information you want to give us about these alternatives or what we have recommended as a preferred alternative, that's what we're looking for over the next 60 days or the next 50 days.

So, the Superfund process, Superfund is a law that was created in about 1980 in response to some hazardous waste areas that were abandoned that the government had to step in and try to make more protected for the communities that lived around it. And in Anniston, the work that EPA is doing now really began in 1999. And from 1999 up

until 2014, we have been doing a lot of work on residential properties doing removal work. We also did investigation at the facility itself, the former facility, which is now a Solutia facility, but it was formally a Monsanto production facility.

And we've done that work up until now. But we've now been able to get all our information together. I guess the first -- I don't even see it -- this one, but this was supposed to say "what's the problem," but we -- we knew there was a problem in 1999. We got involved. What were the risks at the site? That's why we do what we call a remedial investigation to go out and sample all the different media that might be impacted, and we use that information to develop risk assessments. Then we look at how can that be cleaned up, and that document is called a feasibility study. Then we are where we are right now where we take that feasibility study and come to the community with a proposal to clean up that area.

And we're in the public comment period right now. When we finish this period, we'll take all the public comments we get. We are required

by law to respond to all the comments in a written format and issue a final decision that's called a record of decision. And when that is in place and we have a record of decision, we will then have a lot of activity going on. We will have to negotiate an agreement with the parties involved for cleaning up -- for going ahead and implementing that record of decision. Then we'll have to do a remedial design of those activities and do the remedial action. And inevitably, there's a period of operation and maintenance where we have to maintain those remedies that we put into place.

During all this time, the State and the community are engaged. We have a very active community advisory group that meets every other month. They met this past week, and they'll meet again toward the middle of May.

And Solutia and EPA and their technical advisor -- they have a technical advisor on board -- we all meet with them to discuss where we're at, what activities we're taking and to get input from the community. The State has also been involved. They're not represented here tonight, but they have been involved throughout this

process.

So, just real briefly, I know many of you know that the former facility is located on Highway 202 in Anniston. They produced PCBs at that facility from 1929 to 1971. The facility is still operating. They no longer produce PCBs. All the equipment that was used to produce PCBs has been taken out and put into a landfill. There is no more production that goes on there for PCBs.

We became involved, again, in 1999. And this site, when -- normally when Superfund gets involved, we will take the site and go to the federal register and list the site on with we call the national priority list. It's a list of sites that it's EPA's priority to go out and clean up. In this case, the responsibility parties agreed to work with us and do the investigation and feasibility study under an agreement that -- under an agreement so that we didn't have to list the site right away. We -- we can list the site, but we're working under a Superfund alternative approach. It takes time to get a site listed on the MPL, and we all agreed that it was important that we take actions now. So we haven't listed this site, but we're executing the work the same

way we would for any site that's listed on MPL.

The work at this site, because there was a lot of mistrust in the community with both EPA and with the parties that were doing the work, we went an extra step and filed this agreement with the Court under what's called a consent decree so there is third party oversight with the Court. The Court watches what we do. The Court has appointed two special masters that work with us, so that they -- we make sure we follow the process and get the work done.

So this is just a map to show you the first four Operable Units. And the area -- this is the Solutia facility. It is Operable Unit 3. Downstream from -- around it and downstream from it is Operable Unit 1 and 2. And it's residential and nonresidential properties. And then downstream from Highway 78 all the way down to Lake Logan Martin is Operable Unit 4.

So generally, it's the area outside the facility. It follows along Snow Creek, goes to Highway 78. It includes Snow Creek and its floodplain. The land use across the area, for those of you who have been out there, I know you know that it's variable. We have some industry.

We have some residential. And likewise, the PCB concentrations across the area are also variable.

So what did we investigate? We did a lot of investigations on residential soil, about 7500 properties across Anniston were sampled on residential soils. We also sampled nonresidential soils. We sampled what we call special use properties, which are churches and ball fields and schools and parks; areas where children might play on as playground. We sampled -- or we have sampling, we looked at sampling around some interim measures.

Over time, Solutia took some action before EPA got involved. Solutia took actions to prevent contaminants from going further downstream and to sort of contain areas that there was contamination, and those are what we refer to as interim measures.

We also have some areas where the cities have excavated sediment in order to improve the drainage or the flooding in an area. They excavated sediment and set them on the side of the bank, so we have what we call dredge spoil piles that we know have PCBs in them.

Then we also found what we're calling

unauthorized waste disposal areas. We found two areas that were essentially dump areas for auto fluff. And autos fluff has PCBs and lead in it. So we found two of those areas, and we looked at those separately.

Then we have all the other nonresidential soil that we looked at, which is primarily -- it could be a transportation corridor. It could be commercial industrial properties that are in the floodplain. We also sampled groundwater looking to see if we had any off-site groundwater contamination. Most of the groundwater investigation was associated with the facility itself. The facility has been operating for a long time. And they produced a number of different chemicals. And as part of their work with the state of Alabama, they had already instituted a lot of groundwater protection remedies. They were pumping and treating groundwater.

So we knew there were issues with groundwater around the facility as part of our record of decision for Operable Unit 3, the facility, which we signed in 2011. We expanded some of that groundwater capture areas, and we're

working on groundwater associated with the facility. But we wanted to look off-site, because a lot of PCBs we knew were in the environment. We went to look at areas where we might have higher concentrations of PCBs to see if we also had a groundwater issue outside of the facility. We also sampled the sediment in Snow Creek and the surface water in Snow Creek, and we sampled ambient air concentrations for PCBs.

PCBs, how are they released? Well, we know that the there was a surface water pathway as water ran off the plant in the facility areas. It carried PCBs with it into the drainage areas, which is why a lot of our investigation is in the floodplain. We knew that in the past when the PCBs were being produced, there were some air releases, so the air pathway was potentially a way that PCBs got into the environment. We also had heard from people that contaminated soil either in the floodplain or from the dredge spoil piles or from other industries in the area -- contaminated soil had been taken to residential properties and used because of the flooding issues. So we had a number of different ways that PCBs could've gotten into the environment.

Obviously, the residential -- and I'm going to go over that in a minute, but the residential investigation took us well outside the 100-year floodplain. For residential, we're looking at a much lower concentration effect, and so we wound up going outside the 100-year floodplain. But for the nonresidential investigation, we stuck to the floodplain area. And most of our data shows us that that's probably the correct way to look at it.

And just so you know, this is the Solutia facility. And this is just a blowup of that area to show you how some of the water comes down from upgradient, and it all flows into Snow Creek and comes down past Highway 78 right here. So this is where OU2 ends, OU1/OU2 ends. There is one neighborhood over here that's part of OU1, but. And then after Highway 78, this becomes more of a rural-type environment. It's a better habitat, and we looked at this all and Choccolocco Creek as OU4. So what do we know about OU1 or OU2 area.

This area doesn't show all the residential that's outside this area that we impacted. But essentially this area is what

Solutia sampled and investigated. And these black outlines are where we really looked at the floodplain for nonresidential soils.

This area is 813 acres. About a third of it is residential and two/thirds is nonresidential. And we looked to find out what is the extent of the contamination, and we used that information to support risk assessments.

I don't know how many of you might have had properties sampled, residential property sampled. This is a map that was developed as part of another site that developed that's called the Anniston lead site. And it was associated with foundry sand and other industrial discharges that might have had lead in them.

And when this project came into be after the PCB project had already started, this project developed. And they came one this map -- it really doesn't show up on here. There are some little circles that are supposed to be green on this map, but they're just not showing up in this light. But basically, this defined the area that we were going to look at for residential. As I said, we sampled about 7500 properties between the two projects in this area.

Solutia sampled in the -- well, I don't know what color that looks like to you, but this is supposed to be blue and red. Solutia sampled all residential properties in here. There are some circular areas in here around old facilities, old industrial facilities, where every residential property was sampled also by the lead site. And then this greater area, we had what we call a call-in period where people could call in if they thought they had fill or they just wanted their property sampled. And we went out and sampled those properties. Both sites sampled for lead and PCBs, and then we traded properties back and forth on who cleaned it up. The PCB site primarily cleaned up PCBs.

So, how did we do this? The residential -- the special use properties I know I mentioned to you are the schools and the parks. Those areas, they were high-activity areas where children tended to congregate. They were either at the entrance of the building or where the school buses loaded or it could've been in just a playground area. Those areas, we called those high-activity areas. And we prioritized those to clean up to a residential standard, and we cleaned

those up with the residential program. So there's been a partial cleanup on the special use properties.

We used a five-point composite sample. And typically in a residential yard, that meant that we would collect a front yard sample and a backyard sample. The sample was collected to represent the top 12 inches, the surface soil, associated with those properties. And if PCBs were greater than one in that sample, then we would also take a depth sample below that 12 inches, and we would try to take a dust sample in the house as well as a crawl space sample if there was a crawl space. We didn't always get access to take dust samples or -- and there weren't always crawl spaces that we could sample.

And then we -- as we discovered properties, you know, we would attempt to get access, and we would go out and remove the top foot of soil or -- or if it was greater than one. We also removed subsurface soil if it was greater than 10 part per million. For the most part, our cleanup was in the surface soils, there were a few properties we also had to go down further to get to a less than 10 concentration. We do have some

properties where we haven't been able to get access, and I'll talk about that in a minute. But when we did get access, we would excavate the soil and backfill with clean soil and typically we put sod in place.

So, what are we doing now? I mean, if we've already done this cleanup under a removal action, what do we have left? And this is what's left on residential properties. We have 21 properties that we haven't been able to get access to. We have 43 properties that were very wooded and overgrown, and there wasn't any exposure occurring, so we didn't prioritize those for cleanup. If a person came to us and said they were going to take the trees out and they wanted the property cleaned up, then we would go clean it up. But we typically didn't prioritize those. Sometimes, you know, we would cleanup a property or we'd try to get access and the property would be abandoned and then trees would grow up all over and we wouldn't be able to get in to do the cleanup either. So the wooded properties just vary as to why we haven't been able to clean them up.

We also have properties where we had a

structure. And some of those properties we sampled under the crawl space and we know whether or not they have high levels of PCBs. But a lot of them we weren't able to get access to the whole crawl space. So we have 433 properties with structures that we monitor. If those structures are torn down, then we go out and sample where the foundation is. And in some cases, we have to do additional removal.

We also have -- on about 104 properties, we have some subsurface PCBs between 1 and 10 because that's the goal we cleaned up to. And we have been keeping track of those properties also in case someone wants to go out and dig in that part of their yard and they're concerned about that. We send letters to people every year saying, if you dig in this area, just know there's some PCBs below the top foot and you should call us and we can help you with that.

So, what this map is, is you can see it's that outline that you saw earlier on the previous map. And you can see across this area where you see a colored area, it's either a property that we haven't had access and we haven't cleaned up or where we have subsurface PCBs or

where we have structures. So this just helps us visually get an idea of how they're spread across the area.

Special use soils. So again, the special use is a subset, again, that schools, churches, daycares, community centers, playgrounds, and we have cleaned up the high-activity areas on these properties. So -- for right now what we're looking at is, okay, we have what we call low-activity areas that might be a big open field next to a parking lot or something where -- that there's not really a lot of activity there. It might be a large field. But there are 19 areas -- low-activity areas on these special use properties that have PCBs greater than one.

There are 14 structures that are close to areas where we cleaned up PCBs that may have PCBs under the structure, and there are three areas where we know we have some subsurface PCBs. And again, we have another map showing that same outline and where these areas are for special use that we have been tracking residual PCBs.

So, the next thing I want to talk about is the interim measures that were taken. They're

across the facility. A lot of them are up next to the facility. They are the northside properties, eastside properties, eastside drainage way, Hall Street properties, Quintard Mall. We have an interim action there. An APCO ditch and the 11th Street ditch. And what we did, because those actions have already taken place, we said, well, let's look and see if what was done is still effective and whether we can just build on that.

And this map shows you that this is the facility, so of course the northside properties and the eastside properties and the eastside drainage way are located very close to the facility. The 11th Street ditch is the ditch that water coming off the facility flows in -- the storm water; not the process water, but storm water flows in and goes to the Snow Creek.

Then further down Snow Creek in Oxford on Hall Street is where the Hall Street property interim measure is and then at Quintard Mall. So, what we did -- and we have separate fact sheets for all of these if you want to see in more detail exactly where these interim measures are and what they look like and what the concentrations are under them. They're available on our website, or

you can give us your name and let us know you want one of these fact sheets so we can send it to you.

But what we have done is looked at what the concentrations are out there, whether they're under a cop, a soil cap, a geomembrane cap. We looked at groundwater concentrations around these areas. In most cases, we have PCB data. The dredge spoil pile areas, we have mercury.

In some cases, there was some soil removed and disposed of off-site, because a lot of these areas are old ditches where surface water used to flow through that we ended up with high concentrations, so there has been some soil removed. And we just looked at all the different types of activities that went on out there. And all of that information is what we use to -- to look at the effectiveness of those.

The dredge spoil piles, again, are along Snow Creek. Seven of them were sampled for PCBs and mercury. There are eight piles. Four of them were taken out as part of removal actions. There was a -- one was removed with a residential removal that was close to Snow Creek. Three were removed when Solutia assisted the city of Anniston -- removed some sediment from Snow Creek

where they thought they were getting -- I think it was affecting a bridge area -- a bridge abutment, and they helped the City remove some sediments in that area. It also addresses flooding. And three of them were removed at that time. So we're left with four dredge spoil piles.

And here -- this map, this little map right here shows you that area that we've been talking about for OU1/OU2, and some of the dredge spoil piles are up at the north end of that area and some are at the south. This one, you can't really see, but this is where six of the dredge spoil piles were up in this area, and two were down in this area. So the two we have left are in this northern area just north of Highway 202, and those are SC-1 and SC-2. Then in this southern area, we have pile number 7 and pile number 8, basically.

For the waste disposal areas, I'm going to show you where these two areas are located. We had -- did find that there was a lot of auto fluff in these areas. In some cases it goes to seven or eight feet deep. And in another case it goes to about 20 feet deep. So, there is high lead and PCBs in the soil that's intermixed in this fluff,

and we looked at these differently than we looked at other properties.

And this, again, is the facility. And just west of the facility on LaGrande and Ashley streets are where this area is. It's one of the pile areas. And then if you go further down 10th Street where 10th Street crosses over Snow Creek, there's an area located just next to the creek. And this is a picture of what the surface looks like out -- that has auto fluff.

And then the rest of the nonresidential soils, it's probably -- as we said earlier, it's two-thirds of it is commercial/industrial in nature. We did sample soils for PCB Aroclor. Aroclor is the product name of the PCB mixtures that Monsanto manufactured.

We validated the data from the RCRA program and used all the data from the RCRA program and the CERCLA. CERCLA is another -- the acronym for the law that is really -- I call it Superfund. It's easier to understand if I just call it Superfund. But the two laws are the Resource Conservation Recovery Act, and I'm not even going to try to say that one.

But, we did validate all -- we used all

of the valid data from both programs in our nonresidential soil investigation. And 10 percent of the samples we collected, we analyzed for a wide list of constituents. We wanted to see what else was out there besides the PCBs. And we did a surface -- subsurface soil, we looked at in areas where we had high PCB concentrations. We looked to see how deep those concentrations were. And if they were deep enough, we used that information to guide our groundwater investigation.

So, what we did was we divided the area up into 30 exposure units is what we looked at. So, we had -- this is the facility, and we divided it up based on areas that looked like they were divided by highways or there might have been an area that had a railroad track that went past. And we used natural barriers and manmade barriers to determine what are boundaries for these exposure units.

In all the documents that are in the record center -- we have two record centers. One is at the Carver Community Center and one that is at the main Anniston Library, and they have a copy -- I believe most of them are electronic, but they have computers there that you can look at

them on. All of these areas are mapped out if you wanted to see these maps. But what we have is, you can say, I live in this area and I want to know what's going on here. There is a map that will show me how many residential properties there are, which ones were sampled, which ones were cleaned up, and what the nonresidential soil concentrations look like in that area.

And then basically we took that information -- and there's a lot of tables of information available to you if you go to the record center. You can see in that exposure unit that it might be 60 acres. 12 percent of it is nonresidential, meaning that most of this area is a residential area, so there are not as many sample locations as there might be in some of the areas where you had 89 percent of the area as residential you have more samples. And you can see the concentrations that were found and used in the risk assessments.

And what we found was we have a lot of PCB samples, but we also had some concern that showed up in the risk assessment for arsenic, chromium, poly aromatic hydrocarbons, PAHs, and dioxins. And we looked at dioxins dioxin-like

PCBs and without dioxin-like PCBs. I guess I could tell you more about those chemicals if you have questions about them. I'm not sure I know everything about them, but somebody in this room probably does.

Groundwater. We looked at groundwater again at areas where we had PCBs at depth. So, around the facility, we have a lot of wells that are in that area. We used those wells and the concentrations from those wells to help us figure out whether or not the interim measures in place up there were effective. And we sampled down the floodplain in various places. One sample down here in Oxford Lake park.

And what we found was we only had one location off-site, and that location is T -- T-11 is the name of the well. And so, part of this discussion tonight when we talk about groundwater, we'll talk about groundwater at T-11 and what we can do for you groundwater at T-11. And it is located right here. It's located in a piece of property right where the 11th Street ditch carries surface water off the facility and discharges into Snow Creek. It's very near that area. But we did sample in other areas downstream, and we did not

find PCB contamination.

So, sediments. The last thing we looked at sediments in Snow Creek. We looked at the creek banks, the stability of the creek banks, the sediment, any surface water concentrations. We took a number of samples. Concentrations in sediment range from .6 to 60 part per million. And we also looked at other contaminants that were present. And again, I know I keep referring to these documents, but the documents in the record center, if you're curious, you can go in and look in certain -- in all the different areas that were sampled, and you can look at the different sediment deposits and see what was collected in those deposits.

And surface water, we really looked upstream of our discharge area and downstream before you get to OU4. Those were collected from 1999 to 2006. They were analyzed for PCBs and some other parameters. And the data indicate that PCBs are being transported primarily during high flows. When a huge storm comes through, it picks up sediment, and it carries it.

We also looked, and there's been a lot of concern in the community in Anniston -- you can

come on up here to the front.

We did sample ambient air -- PCBs in air. And there were six or seven different programs that went on for sampling from 1999 to 2003 -- 2013, I'm sorry. And they all have different numbers and labels. All of that information is available in the record center. Also, I think there's a summary of the data in the actual proposed plan. What you have is a fact sheet that talks about the proposed plan, but the actual proposed plan is in the record center and it's available, again, on our website if you want to read the proposed plan itself.

And all this data is available, but what we found was -- we only analyzed for PCBs, exposure to ambient air isn't a risk driver in OU1/OU2, but it has been a continuing concern for the community.

So the risk assessment, when we look at the risk assessment, we look at what are our receptors -- what are the receptors that could be out there? What are they exposed to? These receptors are exposed to soil. Are they exposed to groundwater? Are they exposed to sediment or surface water? Are they exposed to subsurface

soil? And then we also look at, okay, is there a hazard in that soil? That's why we needed to collect all that data. Because you need a receptor, you need him to be exposed in some way and have that hazard for there to be a risk.

And -- can you see those colors at all? No? I don't know why they wash out on this -- this projector. There -- this is a really colorful diagram normally. These areas that you're seeing in blue are typically red, and these are areas where we have higher concentrations. So, what this is intended to show you is the results of the risk assessment. These are the statistical mean number we call the -- that we use in our risk assessment. And it shows you that there's less conc -- lower concentration areas and then there are these higher concentration areas along the creek.

What we found is that PCBs in floodplain soil are our primary concern. The PCBs in soil are the biggest concern. We also have some arsenic, some chromium, some PAHs, and dioxin Furan that elevate the risk. But what we found with those is that there are typically one or two hot spot areas that are driving the risk for those

contaminants.

Groundwater, we also indicated that it primarily was evaluated as part of OU3. We didn't evaluate the risk from groundwater. What we did was we sampled groundwater, and we compared it to the laws that exist for what concentrations are allowable in drinking water. And that's where we found that at T-11 we did have some exceedances of that drinking water standard.

So, we also looked at ecological risk in this area, and we first conducted what we call a screening level ecological risk assessment. And what we decided as part of that was that the -- the habitat for terrestrial or land-based receptors was very fragmented because we had areas where we had, you know, an industrial area, and then we had very, very little residential that's right next to the creek, or we had areas that were well maintained and mowed and developed. And so what we decided was we weren't going to look at terrestrial ecological risk assessment in this operable unit. We're doing a full ecological risk assessment downstream in Operable Unit 4 where we have a more rural area and it's a better habitat, and we are looking at terrestrial there. But we

decided we did need to look at the aquatic receptors that might be using Snow Creek.

So we did what we call a streamlined ecological risk assessment for Snow Creek. And we did find that PCBs are an issue in Snow Creek as we expected. But there are also some metals in Snow Creek: Chromium, Lead, Manganese, Mercury, Nickel, Vanadium that create risk to ecological receptors. With this information, we then had to sit down and think about how are we going to clean this up? So the first thing we do is say, what are our objectives? We know what we found out there, so we know what the risks are. So what are we trying to achieve by doing this clean up? Those are our remedial action objectives. And then we look at some -- what kind of goals should we look at? We looked at a couple of different goals. And this is a long -- a lot of words. But basically what this is saying is for soil, we need to protect residents. We need to protect commercial workers, commercial visitors, trespassers, school children, recreational users from any COCs that might be out there -- contaminants of concern, I'm sorry. I tend to talk in acronyms times.

We also want to protect construction workers and utility workers. We want to prevent surface soil from migrating that -- with contamination from migrating further into the sediment, and we want to protect subsurface soil for being contaminated and maybe contaminating groundwater -- contaminating groundwater.

In the creek, we want to reduce the risk to ecological receptors, and we want to prevent those contaminated PCBs from moving further downstream into Operable Unit 4.

In groundwater and surface water, there are some laws out there: That ambient water criteria we need to meet, the drinking water standards we need to meet. And as in the case in most states, states protect their groundwater, and it has to be restored so that it could be used for drinking water in the future.

So, then we establish the preliminary remedial goals based on -- once we've sat those objectives, those are the things we're trying to achieve, we look at what kind of goals do we need to meet. And first of all, we always have to comply with the laws; the applicable or relevant appropriate requirements are just whatever laws

are out there that say for PCBs in drinking water have to be less than 0.5 micrograms per litter. That's the concentration you have to be able to meet for drinking water standard.

So we have some ARARs is what we call it, but laws that we have to meet. And then we can also use the risk assessment to guide what those goals would be. So, I've told you we've already done primarily the residential cleanup, and we already set goals for residential. The residential goals were one part per million in the surface soil and less than 10 part per million in the subsurface soil. And so then we looked at the special use properties. We know that we've already cleaned up parts of the special use properties that are high-activity areas such that it matches the residential cleanup.

But we still have low-activity areas. So, we looked at that and we said let's look at a couple of different things. We looked at cleaning up those areas just to whatever a nonresidential soil goal is. But we also said what if we cleaned up those areas the same way we did the high-activity areas so that the whole property meets that residential -- essentially, a

residential standard.

Then, we looked at the other nonresidential soils and said what kind of remedial goal -- preliminary remedial goal do we want to achieve there? And for surface soil, the top 12 inches, we proposed using a goal of 21 parts per million, which is essentially what we call the mid range of our cancer risk range, so. EPA is required to go out and assess risk. If -- if the risk of -- and this doesn't mean that anybody will get cancer. What this means is if there's a probability that 1 in 10,000 people could get cancer because of these contaminants in the environment, then EPA is allowed to take an action. So we have to have what we call greater than a 1 times 10 to the minus 4 risk in order to be able to take an action. Well, we were able to find that at this site; and therefore, we can take an action.

So then we have to decide, do we want to clean all the way up to -- do we want to clean up down to a one times 10 to the minus 6 or one in a million probability risk for cancer, or do we want to cleanup anywhere in that range; anywhere in the 10 to the minus four or 10 to the minus six range

is where we can clean up.

We also have another requirement. We have a requirement for non cancer effects because there are some non cancer effects associated with these contaminants. And for PCBs, we call that a hazard index, and the hazard index we calculate has to be less than one.

So, the hazard index usually will prevent you from cleaning up to a 10 to minus four risk, especially for PCBs. So, what we proposed was, let's look at what it would take to clean up to 21, which is the 10 to the minus 5 midrange cancer risk. It's also protective for non cancer exposures.

And then we also evaluated a goal of nine part per million, which is a 10 to the minus six cancer risk to a commercial visitor. We just wanted to see how much more we would be cleaning up for that. Subsurface soil, we looked at what is protected for construction worker and a utility worker. We used a goal of nine -- 97 part per million, and that's based on the hazard index of one. And it represents a 1.7 times 10 to the minus six cancer risk.

So, we also looked at the other

contaminants we had out there. And we said because a lot of these contaminants are located in -- in areas outside the area we were essentially investigating, and we -- we didn't know that we could maintain anything below a 10 to the minus four cancer risk level, which is also protected for the hazard index. So we set goals based on the 10 to the minus four cancer risk for each of these contaminants. And then we -- this is just a summary of all those remedial goals. We have goals for residential surface and subsurface soil. We have them for nonresidential soil. We have them for sediment and groundwater. Again, we're using the law to determine what we do for groundwater. And same where surface water. There are goals that are established in laws that we use to set goals -- preliminary remedial goals for those two media.

So then we had to look at, okay, what do we need to do? And we have eight pieces to this puzzle because we wanted to look at -- in particular at these properties. We knew residential was different, special use is different because it's already been partially cleaned up, but it hasn't been fully cleaned up.

We looked at the interim measures, the dredge spoil piles, the waste areas, the nonresidential soil, groundwater and sediments.

And boy, these colors are bad. I promise we -- we are better at this than it appears. These are supposed to be different colors.

But when EPA does this detailed comparative analysis, Congress established early on that there were certain threshold requirements that if -- if an alternative can't meet these threshold requirements, then we are not to consider it any further. And those threshold requirements are that it has to be protective of human health and the environment, and it has to comply with all the laws that are out there. So, those are our threshold criteria.

Then we have five balancing criteria, the long-term effectiveness: Is it going to be a permanent remedy? Is it going to be long-term effective? Does it reduce mobility, toxicity -- toxicity, mobility and volume by treatment. EPA has a preference to treat contaminants to eliminate them from the environment. So we -- that's one of our criteria. We also look at is it

a short-term -- is there a short-term effectiveness? Are we going to impact businesses and communities excessively with the remedy that we're proposing? Is it something that we're able to implement? Is it something that we're going to have to design something that nobody has ever done? Of is it something that typically is done and so it's easy to implement? Then we consider cost.

After -- so this is the analysis. These first seven criteria is really the analysis we do and present to you in the proposed plan. Based on what we find out from you during this comment period, we consider the State's acceptance for what we've proposed as well as the community's acceptance for what we've proposed.

So, we have three alternatives that we looked at for residential soils. The -- well, the first alternative that we have to consider and compare everything to is a no action alternative. So we have two other alternatives.

The second residential soil alternative we looked at was that let's complete the remaining cleanups on 64 properties, 21 where by don't have access yet but we will eventually and 43 that are

wooded or overgrown. We need to complete those cleanups. We'll dispose of all that material off-site or at -- that material -- part of the nontime-critical removal was that the soils that had concentrations less than 10 part per million go to an on-site soil management area and anything greater than 10 part per million is disposed of off-site. And we would continue to do that. We would replace the soil that we take out with clean backfill, and we would stabilize the area with sod. And then we would have to manage the PCB residuals that are in the environment. And we know that there are 104 locations where we have PCBs at depth on these properties. And then there are 433 locations where we have structures that may be over PCBs that we need to sample when those structures come down.

The third alternative is to go out and just take all PCBs whether they're at the surface or subsurface and -- that are greater than one part per million and dig those up and get rid of them and then all we'll be left with is managing what's under the structures as the structures come down.

So these alternatives, I know you can't

read this, but it is available in the fact sheet if you want to read it in more detail. But what we do is we look at these cri -- the threshold and the balancing criteria, and we try to analyze whether we can do these remedies. EPA is recommending that we do RS-2, which is to complete the nontime-critical removal and manage the PCB residuals. The reason we're proposing this is because it's less disruptive to go back to the properties we've already cleaned up. And because we're going to be managing the PCBs under structures anyway, we can easily manage what's at depth on these properties. It's a 7.3 million dollar remedy. But you can see how it compares to the other remedies, and you can provide comments on that.

The special use properties, it's similar to residential except for, remember on special use we already -- we only have a partial cleanup. So we have areas of low activity that we haven't cleaned up yet. So the first alternative we looked at it let's clean up the low-activity areas to 21 part per million, which is the nonresidential goal. And then we would have to manage whether or not someone changed the activity

on their property, whether they changed a high-activity area -- or a low-activity into a high-activity area. So if they moved their playground or they moved where they loaded buses or something like that, we would have to manage that as well as manage the PCBs that might be in the subsurface and manage any PCBs under structures.

And the next alternative would be okay, well, let's cleanup those low-activity areas so that PCBs are less than -- or any PCBs greater than one, let's go ahead and remove those so that it looks -- the low-activity areas look similar to the high-activity areas. And then all we're left with is managing what's in the subsurface and managing what's under structures.

Can probably guess, the next one is that we would remove PCBs at depth and we would be left just managing what's under structures and when they're torn down.

And EPA, again, has proposed that we don't go in and excavate additional soils on properties we've already cleaned up but that we manage those along with the structures. That is a 3.1 million dollar alternative.

So, then the interim measures. When we looked at the interim measures, for the most part, we had groundwater wells out there that told us that we didn't have leeching from any of those areas. So, what we looked at primarily was we had one location where we couldn't tell, the well isn't close enough. But based on all the other data we have, we don't think it's leeching. So, we went ahead and said, look, let's expand the interim measures. If we have caps in place out there and there are places that were missed, let's just expand those caps on those areas. These areas are primarily -- especially the northside and eastside properties are already fenced off. They can be restricted. The deed can be restricted. Since Solutia owns most of these properties and they can prevent construction from happening on them, and we can just expand the measures to meet that nonresidential goal. And then we'll go ahead and put a well in in that one area that we -- we don't have enough information on. And then if we have a groundwater issue there, then we'll have to take an additional action.

The third alternative is to, again,

expand the measures except for one location, which is off sort of in an isolated area next to the railroad track. And we could go in because it's a very high concentration and excavate that area but expand the measures everywhere else.

The fourth alternative is just to not not expand any of the measures, just excavate all of it that's outside of those interim measures and dispose of it off-site.

So, the areas that we're concerned about are, there is a couple locations on the northside area. There are some locations on the area that's the eastside drainage way. And there's some areas on the eastside area -- there are some locations on the eastside area. And these maps are just showing you -- it's difficult to see where this is, but this is the northside area, and these colors are doing us no favors at all tonight. But this area is supposed to be orange, and it indicates where there's already a cap in place, but -- and if you could see this in color, this -- this is a location where we have contamination that's outside the cap as well as right here that we need to do some -- take action. There are some several locations along this railroad track and in

this eastside area that need to be addressed; eastside drainage way area. And then we go to the eastside area, there are a couple locations that we identified that were not picked up by the caps and covered that were installed as part of the interim measures.

So again, the second one is to expand all the caps. I went over these already. Excavate near the railroad track but still expand all the caps or just excavate everything.

And when we look at that, EPA is proposing that we just excavate the areas where we have additional contamination and dispose of it off-site. It is a 4.3 million dollar alternative.

The dredge spoil pile alternatives, we looked at -- there's really two alternatives here, but they each have a on-site and an off-site disposal option. This is the first time we've looked at taking soil to the on-site soil management area that we created as part of the residential cleanup and disposing of something other than residential soil at that location.

So, again, I'm just going to show you, again that these are the two piles that are north -- in the northern part of this area right next to

Highway 202, and then these are the piles that are down in the southern part of the area. And, so the first option is let's only excavate what's above our nonresidential cleanup goal of 21 part per million. And that means that we would just remove soil pile number 8. We would dispose of it at an off-site -- in one case, we would dispose of it on-site. In one case we would dispose of it off-site.

The next two options are let's excavate all of the dredge spoil piles. There are piles of soil that came from the creek and they're sitting right next to the creek. So to keep them from getting back in the creek, let's just excavate them. Most of them are less than 50 part per million. I don't -- I think there might be one concentration that's -- no, I don't think these piles are all less than 50. So they could go either go on-site or off-site. Option Number 4 is to dispose of it off-site and Option Number 5 is dispose of it on-site.

And what we're recommending is that we do Option Number 4, which is excavate all of the piles next to the creek and dispose of them off-site. It's a $1.4 million alternative.

The unauthorized waste disposal areas where we have auto fluff, we looked at four alternatives. Again, these areas are -- here is the facility. One is them is west, and one of them is to the east of the facility. And this is just a blow up than shows you what that area looks like.

The first alternative is to just go in and level the area out and put in a layer of fabric and a foot of soil and some grass and just main a soil cap over the area.

The next alternative is to say, well, these are -- these are waste disposal areas, and let's treat them like waste disposal areas. And let's put a RCRA cap which involves putting a, again, a layer of fabric, a geomembrane plastic cover, 18 inches of protective soil and a vegetative cover. We'd also in both cases have to put ICs or institutional controls to protect that cap. We'd have to restrict that property in some way so people wouldn't dig. And we'd have to do operation and maintenance of that cap. We'd have to maintain it so that it stayed in place.

And the fourth option is to go out and just excavate all of that soil up. It's about

100,000 cubic yards of waste that we think is disposed of in these two locations. It would involve a lot of truck traffic and a lot of -- it -- it would be fairly disruptive in those two areas, but -- and we would not re-establish the grade to where it is now. Someone wanted that area filled, but we would take it back to its natural grade and re-establish vegetation so it wouldn't erode. That's part of that alternative.

So we looked at that, and what EPA is proposing is that we treat these as waste areas and we put on a substantial landfill-type cap. It's a 2.8 million dollar alternative.

You can see it ranges from 1.6 million for a soil cap to 41.2 million to excavated it all and hall it off to the landfill.

The nonresidential soil alternatives we looked at, we looked at some areas we could cap and some areas we could excavate and make them protective and then do some on-site and off-site disposal depending on concentrations. We also looked at excavating soil; totally just excavation and disposing on and off-site. Then we looked at excavation and just disposing all of it off-site. We looked at excavating it and shipping it to

Texas or Kansas so that it could be incinerated to get rid of the PCBs and treatment. And we looked at excavating and bringing a thermal disorption unit, which is a heating unit but it's not as high a heat as incineration; bringing that on-site and treating the soil and then just dis -- managing -- in all cases, we would have to manage any residuals that were in the subsurface.

We looked at it -- we looked at two different goals I told you. We looked at 21 part per million as a goal for PCBs, and we had separate goals for the other four contaminants, and we looked at all those locations. But, what we found was these -- if you look at the exposure unit map, this is the facility. And the -- what's in the yellow on this -- I guess that's yellow -- are the areas where we -- these are the exposure units where we had -- that did not meet that goal. The exposure concentration from those areas did not meet -- were higher than 21 PPM.

And -- but the areas, if you'll look, you can see some darker areas, those are the actual areas where we would have to remove soil. And in most cases, they're very close to the creek.

I'm just going to real quickly go through these to show you that there are maps in the documents that show you that this is an area where we had high PAHs. This is an area where we had high PCBs. And we went through all the exposure units and just identified the areas where we would have to do work. In some cases, we had some chromium. In this area, we had some dioxin concentrations that were high. Obviously, there would be more sampling that was done to further define those areas in remedial design. But this is a general idea of where these areas are, and we had to make estimates of the extent of those areas. But there are maps that have all that in there.

And this is -- I wanted to show you, we also looked at a goal of nine. And you can see that the exposure units, the gold areas increase when you go to a cleanup goal of nine. But the darker areas where we would actually do cleanup are much smaller parts of those, and they're typically located next to the creek.

So, again, I'm -- you know, we had the partially cover -- partially capping and partially excavating alternative. And we have the excavate

everything and dispose of it on-site and off-site if it was -- on-site if it was less than 50 part per million and off-site if it was greater than 50 parts per million. And then we'd still be managing PCB residuals in the subsurface.

The fourth alternative is to excavate and dispose of everything off-site that we excavate. We'd still manage PCBs in the subsurface. The fifth alternative, again, is to send it to incineration in either Texas or Kansas. And the sixth one is to do an on-site thermal treatment.

EPA is recommending that we do Alternative Number 4. And we're recommending that we stick to the cleanup goal of 21, so it's a 10.4 million dollar alternative. The reason we selected this rather than the treatment alternatives, we didn't want to go to a thermal treatment on-site, primarily because the community is extremely concerned about PCBs in the air. And there's always possibility of release of PCBs to the air during that treatment, so we didn't want to do that one.

So we were really looking between shipping off-site or -- off-site for treatment or

off-site for disposal. And it's a dig difference in cost, and it won't really impact you. For you, it will be the same whether we ship it to an incinerator or ship it to a landfill. So we decided to go with the ship -- ship it to a chemical waste landfill rather than incinerate it. You get the same protective measure with either one of those alternatives for the community.

So then we looked at the groundwater at T-11. We looked at four different alternatives there. This is the area where we have a groundwater impact. And just up at the top of this map is 11th Street in Anniston. And where 11th Street goes over Snow Creek, that's where the 11th Street ditch right here discharges into Snow Creek, and so it's the area just on the other side of the railroad tracks. This area is very isolated. It is surrounded by basically the creek and the railroad track. There's no -- not a lot of exposure there, but it's right behind Missionary Baptist -- First Missionary Baptist Church.

And the area that's highly impacted is around this well. We know there are high concentrations there that are leeching to

groundwater, but we also have effects generally in this area. So, our alternatives looked at, let's excavate the top foot of the whole area so that we can install a soil cap because we don't want to impact flooding in the area. And it is an area that floods, so we can't build up right away. We need to take the surface soil out. So we would take off the surface soil. We would take the high concentrations out that are around the T-11 well, and we would disposes of those off-site. And then we would put in a one-foot soil cap layer with -- and vegetate the cover. We would maintain that cover and we would just monitor groundwater to see if it recovers.

And the third alternative is to, again, excavate the soil around T-11 and put in a low permeability cap so we would put in a cap like you'd find in a landfill with a geomembrane, a plastic layer as it prevents infiltration of groundwater -- infiltration of surface water to groundwater. And that would further help improve the groundwater situation. It involves taking 18 inches off the whole area and disposing of it off-site as well as the soil around T-11. And installation of the cap, of course we would have

to conduct operation and maintenance of that cap. We would have to put institutional controls in place to prevent people from accessing groundwater or -- or going through that cap. And then we would have to just monitor groundwater.

And the fourth alternative is excavate the soil, put in the low permeability cap and extract the groundwater and treat the groundwater and discharge it. Put clean -- the clean water into Snow Creek. We would have to do operation and maintenance and we would have to put institutional controls in place on the property. But it would get -- get us to clean faster than the other two alternative.

EPA has proposed the fourth alternative. It's a 4.2 million dollar alternative. The reason we propose that is because groundwater is extremely difficult to get cleaned up and get restored. And we feel like that it will take all -- all of those activities in order the get groundwater clean in that area.

Snow Creek sediment and creek banks, we looked at four different alternatives. Of course, one is no action. So, again, if you look in the documents that are in the repository or -- I'm

trying to get some of these put online so you could actually see them from our website, but they're not there yet. Some of these documents are in the proposed plan that's on the website or in some of the fact sheets. But sediment deposits were cataloged. There's tables, there's figures that show all this data in there. The creek banks, we looked at stability of the creek banks. All that information is in the documents.

So what we looked at are we could go out -- the first alternative we looked at other than no action, so Alternative Number 2 for sediment is that we would go out and all -- all of these sediment alternatives involve going out to the 202 culvert, which has a lot of sediment in it. There's 1600 cubic yards of sediment in those culverts. And we would get all the sediment out of those culverts. We would -- and in this case, in this alternative, we would clean up all the sediment deposits that are greater than 10 part per million. And then we would dispose of those off -- on-site if they were less than 50 and off-site if they were greater than 50.

And then we would monitor those sediments and see over time if clean soil -- as

clean soil gets washed anyway with storm water, it would cover those sediments and bring it down to a -- the goal for sediment that we looked at, which is 3 part per million. That would be what we would call natural attenuation or natural restoration of the sediment.

We would stabilize the banks as needed, and we would monitor the bank stability and the sediment concentration. The third alternative was that we would still take out the Highway 202 culvert sediment and then we would just excavate all the sediment greater than three, so let's just reach our goal right away. We still have to monitor to make sure we can maintain that goal. We would ship the -- use the disposal of those sediments would be both on-site and off-site. So on-site if it was less than 50 parts per million. We would stabilize the banks as we needed to and monitor bank stability and sediment concentrations. The 4th alternative is to, again, remove the sediments out of the 202 culvert but to excavate -- and excavate all the sediments above three, but just to dispose of them off-site, not bring any of it on-site. We would stabilize the banks and monitor the banks and the sediment.

EPA has proposed that we do Option Number 4. And we also propose. We -- we did look at two concentrations for sediment. I'm sorry I didn't mention that earlier. We looked at what would it take to clean up sediment to three milligrams per kilogram versus one milligram per kilogram. If we cleaned up sediment to one milligram per kilogram, it would essentially mean we impact all the sediment deposits in Snow Creek. At three, some of the sediment deposits further down Snow Creek toward -- I'm trying to think of where that area -- the Hall Street area, that area, some of those are a little above one, and they wouldn't be picked up if our cleanup goal was three. And they would be picked up if our cleanup goal was one.

But we're proposing that we use the cleanup goal of three and that we dispose of everything off-site. The reason for that is the community has been pretty resistant to us bringing soils on-site. We've been doing it for residential, but, I -- I've had indications from the community advisory group that they're not excited about us bringing material on-site. So I'm proposing that we dispose of it off-site. I'm

also proposing this cleanup goal be three, primarily because we do have PCBs upstream of us, of this area that we're talking about cleaning up. And I'm not sure if we clean up to one that we'll be able to easily maintain one as our -- as a goal in the creek because of some of the upstream contamination. Both goals are protective. they're just protective to a different extent. Just like when we have a range of goals for human health, we have a range of goals for ecological health also.

So anyway, the preferred alternatives, if you look at all the alternatives we've proposed, the total cost of those alternatives is $36.6 million. The justification for choosing these alternatives is they are protective of residents of parks, schools, churches. They're protective on the industrial/commercial workers. They're protective of any of the organisms that might be in contact with the sediments and the surface water in the creek. They provide for stabilization of the creek banks and sediments -- removal of sediments in the culvert, and they remove the dredge spoil piles from the creek so they can re-enter the creek.

They provide for off-site disposal of all excavated soils except for the residential and special use properties which were part of the original program not-time critical. But concentrations less than 10 were brought to the on-site soil management area. And they do not provide for treatment -- even though that's a preference of EPA's, we don't do on-site treatment primarily because we're concerned about air concentration, and we didn't recommend off-site treatment because it was an added expense that doesn't really provide more protection to this community.

So, I know you are all excited that I'm reaching the end of this. The proposed plan comment period. Normally, we have a 30-day comment period. The community advisory group that's very active a this site has requested that we extend that comment period. It's been extended to a 60-day comment period -- actually, 61, I believe, if you count those days. But, it began on March 13th, and it ends on May 12th. We would love to hear from you, whether you agree with what we're doing, you think we should choose something else that's in this plan. If you think there's

something that we haven't thought of that we should have thought of, we'd like to hear anything you have to say. We would like written comments. And if you're here tonight and give us a comment, it will be transcribed and we'll have that in writing. You can also send it to me on e-mail. You can mail it to me. You can use the forms we have on this table, or you can just send any format you have. All the comments that we get, we are required to respond to, and they will be part of the record of decision. The back part of the record of decision we'll respond to all the comments, and you can read the response to those comments. And I think that's it.

So, if anyone has a comment, they'd like to -- or a question you'd like to ask, we're happy to respond at this time.

MS. BROWN: If you could, let me just ask, as the official -- this is an official hearing or proposed plan, and we're required by law to have any comments or questions recorded. So if you could when you ask your question, if you could get up, state your name for the record, and -- so that we'll have that recorded.

Thank you.

MR. WOOD: I'm mainly just going to make a comment.

MS. BROWN: Okay, that's fine.

MR. WOOD: My name is Donald Wood. There's so much talk about the -- the runoff and -- and rain water and all, when they came through our neighborhood, there was a about seven residences that were stripped of the --

MS. SCULLY: Soil.

MR. WOOD: -- soil and then soil brought in and then replanted.

Three of -- two of these were up stream -- up hill from me. And all of the rain water run off of that property right across ours, and I've tried to talk to one of the guys that was taking the soil samples, and he just flat out refused. He wasn't rude, but he just wouldn't answer any of my questions.

MS. SCULLY: Okay.

MR. WOOD: And I just don't understand how -- and in one area ere you're worried about run off, and then yet in another area it doesn't matter.

MS. SCULLY: I -- what neighborhood do you live in?

MR. WOOD: Two blocks from here, Bruce Street.

MS. SCULLY: Okay.

MR. WOOD: The next to last house on the right on Bruce. And there's only one other house between me and Snow Creek.

MS. SCULLY: Okay. Well, I mean, I'd be happy to look at a map of that area with you and try to see if we can talk about it anymore. I don't know what area it's in, so it's not -- I mean, I can't picture it in my head. I know you said it's close to here -- to see what we sampled around there. So your property wasn't sampled?

MR. WOOD: Oh, yes. It was.

MS. SCULLY: Oh, it was. But it had low concentration?

MR. WOOD: That's what I understood.

MS. SCULLY: Okay, okay.

MR. WOOD: And -- but yet two properties higher than me that the rain --

MS. SCULLY: Right.

MR. WOOD: -- for 30 years had been coming -- washing down across our property. I just don't see how -- it was like it was a hop, skip and a jump as --

MS. SCULLY: And we found a lot of that in the neighborhood. You know, PCBs stick to soil. And so, if the soil particle they're stuck to doesn't move, they stay where they are. I don't know what the condition of these other properties were before, whether they had a lot of vegetation that prevented a lot of the soil coming off of them. But, you know, we've dealt with this for the past 14 years here. Because some properties were cleaned up and then the next door neighbor wasn't cleaned up, and it's -- it's hard to explain to people. I think it's good when you don't have contamination, but --

MR. WOOD: Well, I do too.

MS. SCULLY: -- I am happy with that, but I understand your concern. And I think the community advisory group has, in the past, discussed whether we need to do just some confirmatory sampling later when we finish all of the sediment work because they're concerned about flooding and whether things are being redistributed. So, you know, it may be at the end of the process we could do some of that confirmation sampling just to make sure things are okay. But that's not unusual. It's happened at a

lot of properties that we've looked at. We stand really behind our process of how we -- how we sampled and how we evaluate these properties. And a lot of it, I know, doesn't make sense to some people, but, you know, the data is the data, and we believe we have good valid data and we -- that's how we designated areas for cleanup.

MR. WOOD: I'm not asking for anything else.

MS. SCULLY: I'd be happy to talk to you separately if you want to.

MR. WOOD: No. I just --

MS. SCULLY: I understand your concern, yes.

MR. WOOD: -- wanted to make that comment.

MS. SCULLY: Yes, yes. I understand.

MS. MOSLEY: I'm Patricia Mosley, and I did have PCBs on my property that's on 230 Teague Street in Oxford. It's right cross the street from Hall Street.

MS. SCULLY: Q. Okay.

MS. MOSLEY: And it does flood there or it did. It hasn't in a while.

MS. SCULLY: Right.

MS. MOSLEY: But they cleaned Teague Street, which is right across the street from that. They cleaned the property right behind that, all around that, but they did not clean the property that I own.

MS. SCULLY: That you have -- you didn't have concentrations that were -- exceeded one?

MS. MOSLEY: Oh, yes.

MS. SCULLY: You did?

MS. MOSLEY: Yes.

MS. SCULLY: You had -- your concentrations exceeded one part per million?

MS. MOSLEY: Yes. I got a check.

MS. SCULLY: But nobody asked you for cleanup of your property?

MS. MOSLEY: No.

MS. SCULLY: Well, we'll be happy to check --

MS. MOSLEY: I've called you before. I talked to you on the phone, and you were supposed to look into it, but I never did hear from you again.

MS. SCULLY: Okay. We're happy to -- the people that are doing that cleanup are right back there.

That man right there wants to talk to you. He probably can tell you your results. But we'll get you the information. If we -- if we didn't clean up your property, because I know you're in an area that sampled. All the residential properties were sampled. And if we didn't cleanup your property and you would have given us access, then it's probably because it didn't exceed our cleanup goal. We were -- what we were doing --

MS. MOSLEY: I think it was 17 percent.

MS. SCULLY: What we were doing is separate than the lawsuits that happened.

MS. MOSLEY: Yeah.

MS. SCULLY: The lawsuits --

MS. MOSLEY: I think Mr. Stewart told me there was 17 percent on the property.

MS. SCULLY: Yeah. And that number doesn't sound familiar to me, but what we did was the -- the information that was used in the lawsuits is different than the procedures we had to use.

MS. MOSLEY: Now that house that was originally on the property, I bought it from some other people --

MS. SCULLY: Uh-huh.

MS. MOSLEY: -- and I was planning to rent the house out, but it was in such bad shape when I started to getting it ready to rent that I ended up tearing the house down. So there's no house on it now.

MS. SCULLY: Okay. Okay. What was the property address?

MS. MOSLEY: 230 Teague street.

MS. SCULLY: 230 Teague.

MS. BROWN: 230 Teague.

MS. SCULLY: Okay. You want to talk to her.

MS. MOSLEY: It's right cross where they got that stuff that generates electricity.

MS. SCULLY: Okay. Well, I -- we'll let you -- we'll talk to Mike at the end of the meeting and just see if we can get you some information about your property.

MS. MOSLEY: Okay.

MS. SCULLY: Does anybody else -- yes?

MS. MARTIN: I'm Angela Martin, and several times with these potential plans, you mentioned the word "remove" "manage" and "disposal on-site or off-site."

Now you mentioned disposing off-site to Kansas and Texas?

MS. SCULLY: What I'm -- for most of the alternatives -- most of what we're doing is digging and hauling the soil away, so --

MS. MARTIN: Is that legal?

MS. SCULLY: PCBs -- digging and hauling?

MS. MARTIN: To go across state lines?

MS. SCULLY: Only if you have hazardous waste and you have to go to a specific hazardous waste facility. We have a hazardous waste landfill that can handle this material in Alabama, in Emelle, Alabama. And that's where most of the waste goes. If we shipped it to be incinerated, there are only a couple of locations that you can ship it to. And one is in Kansas, and I think there's a couple in Texas. So we'd have to haul across state lines to get to those facilities. That's not the alternative we propose. We propose to haul it to Emelle, Alabama.

But, yeah, we -- it is legal to do. You have to manifest the load and it has to be hauled in a protective way so that you don't have any releases along the way. It's a long way to go to

haul that soil, but that -- that is -- yeah, most of the work we're doing is just excavation and hauling the dirt somewhere to dispose of it.

MS. MARTIN: Where?

MS. SCULLY: We do have on-site -- we have soil management areas that we have been managing the low level concentrations that we found on residential properties, but that's all we've been doing on-site, and that's all we're proposing to do in this -- in these alternatives.

MR. DOUGLAS: I'm Ben Douglas.

MS. SCULLY: Yes.

MR. DOUGLAS: And I've got a question and then a comment.

MS. SCULLY: Okay.

MR. DOUGLAS: I thought I heard you mention Furan. So, have you found core dumps or anything along Snow Creek? That's the question. And my comment is, when you start digging up there in that culvert 202, how are you going to keep the sediment from washing down the stream and -- and messing up Snow Creek? Snow Creek where I am, I'm right next to it. I'm like 20 feet from the creek and it's beautiful.

MS. SCULLY: Right.

MR. DOUGLAS: I've got fish down there. I've got birds that live down there. We've got beavers, muskrat. It's a healthy -- seems to be a healthy creek, and I'd like to keep it that way. When y'all start digging, I'm really concerned it's going to tear the creek up because it's beautiful.

MS. SCULLY: Well, you know, we'll have to use best management practices to try to keep that from happening to a minimum.

MR. DOUGLAS: Uh-huh.

MS. SCULLY: I -- we will take whatever action we have to to try to maintain that sediment because we don't want the releases either. If it releases into Snow Creek, then it releases into Choccolocco Creek and we have issues.

But we do have to get it out of the environment. In order to -- you know, our ultimate goal eventually for the creeks is going to be restore the fish that are in Choccolocco Creek so that people can eat those fish. Right now, there's a no fish advisory for any fish in Choccolocco Creek because of the PCB contamination. So --

MR. DOUGLAS: There are fish -- there are fish in Snow Creek. There's bream down in there. There's minnows.

MS. SCULLY: Down -- where exactly are --
MR. DOUGLAS: I don't -- I don't think you know Anniston very well. But it's the very end of Noble Street where the railroad tracks cross.
MS. SCULLY: Right, right. I know where that is.
MR. DOUGLAS: Well, they've got a scrap yard sitting there.
MS. SCULLY: Right. Williams Scrap Yard?
MR. DOUGLAS: Williams, right.
MS. SCULLY: Right.
MR. DOUGLAS: Well --
MS. SCULLY: As you go around it.
MR. DOUGLAS: Where Snow Creek bends and goes under the bridge, I'm sitting right there.
MS. SCULLY: Okay.
MR. DOUGLAS: That's -- we fish.
MS. SCULLY: Well, you shouldn't eat those either.
MR. DOUGLAS: And I wouldn't drink the water either.
MS. SCULLY: Right.
MR. DOUGLAS: But -- but the creek is alive.
MS. SCULLY: Right.
MR. DOUGLAS: I know 50 years ago it was --

it was killed.

MS. SCULLY: Well, and the area you're talking about is where the lower concentrations of PCBs are. The higher concentrations are further upstream. Most of the high concentrations are between Highway 202 and the 11th Street ditch.

MR. DOUGLAS: Well, I've got a concern about that particular property because of dioxins and Furan.

MS. SCULLY: The dioxins and Furan, those contaminants.

MR. DOUGLAS: Are you going to be going after those?

MS. SCULLY: We have a couple locations where we have high concentrations that we would go after. They're on the soil.

MR. DOUGLAS: Uh-huh.

MS. SCULLY: We don't as big an issue in the sediment.

MR. DOUGLAS: This is city -- oh, God. I hate to tell you this is on my property. I've probably got 20 or 30 tons of core butts up there. There's a core butt down in Snow Creek that's probably as big as the a Volkswagen.

MS. SCULLY: What's a core butt, I'm sorry?

MR. DOUGLAS: Well, years ago, there -- they

were producing coil pipe out here.

MS. SCULLY: Okay.

MR. DOUGLAS: And they use cores and they used Furan to make these cores harden so they can set them inside the molds and they cast around them.

MS. SCULLY: Uh-huh?

MR. DOUGLAS: Well, this is all waste is what it is, and they were dumping out there. And it's illegal. The dumps --

MS. SCULLY: Yeah.

MR. DOUGLAS: The dumping is illegal.

MS. SCULLY: Yes, it is.

MR. DOUGLAS: And it's been there. And I'm just surprised that y'all have been up and down and y'all have never found this. I mean, it's --

MS. SCULLY: Have you ever found that, Gayle? You guys?

MR. DOUGLAS: This stuff needs -- it really needs to go, but.

MS. HARRIS: Found the what?

MS. SCULLY: Core --

MR. DOUGLAS: It's a core dump.

MS. HARRIS: Yeah. We have samples of it in some of our excavations and stuff. It was part of the -- our Hall Street property.

MS. SCULLY: The Hall Street properties?

MS. HARRIS: I'd have to dig them out. They're from different properties, but -- and we had some of the stuff discovered under our -- what do you call it? The cost recovery --

MS. SCULLY: Uh-huh.

MS. HARRIS: So, we had gathered all of that information.

MS. SCULLY: Okay. We can look at that.

The other site we were working with worked with a lot of the foundries. Is that what you're talking about?

MR. DOUGLAS: It's -- yeah, there was a whole string of foundries. That used to be -- I think it was Rudon Hayes used to have that whole property up there.

MS. SCULLY: Is it the U.S. Pipe -- the old U.S. Pipe property

MR. DOUGLAS: U.S. Pipe was further south. I'm a little bit north of them.

MS. SCULLY: North of them, okay.

MR. DOUGLAS: Uh-huh. But there used to be a railroad spur up there. And from what I understand is that they -- they built that spur up there next to -- and they shoveled a bunch of -- I mean, they were pushing -- they were reenforcing the bank with core --

with core butts.

MS. SCULLY: Uh-huh?

MR. DOUGLAS: Which is great stuff. I mean, it won't wash away. But it's not a good idea.

MS. SCULLY: Well --

MR. DOUGLAS: I run a I've got a little shop up there, and I run a green shop and everything is recycled and sent out. Nothing gets dumped.

MS. SCULLY: We can look at that further. I think there must be information in our records somewhere because --

MR. DOUGLAS: And there is a monitoring well. I think it's T-14.

MS. SCULLY: T-14?

MR. DOUGLAS: I think that's the number, yeah.

MS. HARRIS: I'll have to check with Jerry.

MS. SCULLY: Okay. We'll look at that. We'll look at that a little further.

MR. DOUGLAS: If you spend all this money, I'd love to see that cleaned up.

MS. SCULLY: I know. Well, there's a lot of things. We want to make sure this environment once we get it cleaned up it stays clean. That's important to all of us, I think.

Does anybody else have a question or a comment you want to make at this time?

Well, I do thank you all for coming tonight. I know it's -- you've got better things to do than this, but we appreciate it. And if you have any comments that you want to send us, please do.

It can only improve our process the more information we have from citizens, helps us make better decisions, so thank you all.

(The proceedings were concluded at 7:34 p.m.)

C E R T I F I C A T E

STATE OF ALABAMA)
JEFFERSON COUNTY)

I hereby certify that the above and foregoing deposition was taken down by me in stenotype, and the questions and answers thereto were reduced to computer print under my supervision, and that the foregoing represents a true and correct transcript of the deposition given by said witness upon said hearing.

I further certify that I am neither of counsel nor of kin to the parties to the action, nor am I in anywise interested in the result of said cause.

_____
Jennifer L. Landrum, Commissioner
CCR #611

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50 4:18 44:15,18 49:2,3 53:22,23 54:17 69:25

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6 26:7 33:22
60 4:17 24:13 26:7
60-day 57:20
61 57:20
611 1:23 75:21
64 37:24

7

7 21:17
7.3 39:13
7:34 74:11
7500 9:5 13:24
78 3:11,12 8:18,22 12:15,18

8

8 21:17 44:6
813 13:4
89 24:17

9

97 34:21

APPENDIX E

HHRA Tables

TABLE E-1

SELECTION OF EXPOSURE PATHWAYS

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current	Surface Soil	Surface Soil	OU-1	Resident	Adult, Young Child	Dermal	Quant	Residents may have exposed skin surfaces come into contact with soil
						Incidental Ingestion	Quant	Residents may incidentally ingest soil
						Inhalation of Fugitive Dust	Quant	Residents may inhale fugitive dust in air
	Air	Ambient Air	OU-1	Resident	Adult, Young Child	Inhalation of Volatiles	Quant	Residents may inhale volatiles in ambient air
Future	Surface/ Subsurface Soil	Surface/ Subsurface Soil	OU-1	Resident	Adult, Young Child	Dermal	Quant	Residents may have exposed skin surfaces come into contact with soil
						Incidental Ingestion	Quant	Residents may incidentally ingest soil
						Inhalation of Fugitive Dust	Quant	Residents may inhale fugitive dust in air
				Intrusive Worker	Adult	Dermal	Quant	Workers may have exposed skin surfaces come into contact with soil
						Incidental Ingestion	Quant	Workers may incidentally ingest soil
						Inhalation of Fugitive Dust	Quant	Workers may inhale fugitive dust in air
	Air	Ambient Air	OU-1	Resident	Adult, Young Child	Inhalation of Volatiles	Quant	Residents may inhale volatiles in ambient air
				Intrusive Worker	Adult	Inhalation of Volatiles	Quant	Workers may inhale volatiles in ambient air
	Groundwater	Tap Water	OU-1	Resident	Adult, Young Child	Dermal	Quant	Residents may shower or bathe in potable water
						Incidental Ingestion	Quant	Residents may incidentally ingest potable water
						Inhalation of Volatiles	Quant	Residents may inhale volatiles in ambient air
Current / Future	Surface Soil	Surface Soil	OU-2	Industrial / Commercial Worker	Adult	Dermal	Quant	Workers may have exposed skin surfaces come into contact with soil
						Incidental Ingestion	Quant	Workers may incidentally ingest soil
						Inhalation of Fugitive Dust	Quant	Workers may inhale fugitive dust in air
				Commercial Visitor	Adult, Young Child	Dermal	Quant	Visitors may have exposed skin surfaces come into contact with soil
						Incidental Ingestion	Quant	Visitors may incidentally ingest soil
						Inhalation of Fugitive Dust	Quant	Visitors may inhale fugitive dust in air
				School / Day Care Occupants	Adult, Young Child	Dermal	Quant	Occupants may have exposed skin surfaces come into contact with soil
						Incidental Ingestion	Quant	Occupants may incidentally ingest soil
						Inhalation of Fugitive Dust	Quant	Occupants may inhale fugitive dust in air
				Recreational User	Young Child, Adolescent	Dermal	Quant	Recreational users may have exposed skin surfaces come into contact with soil
						Incidental Ingestion	Quant	Recreational users may incidentally ingest soil
						Inhalation of Fugitive Dust	Quant	Recreational users may inhale fugitive dust in air
				Trespasser	Older Child, Adolescent	Dermal	Quant	Trespassers may have exposed skin surfaces come into contact with soil
						Incidental Ingestion	Quant	Trespassers may incidentally ingest soil
						Inhalation of Fugitive Dust	Quant	Trespassers may inhale fugitive dust in air

TABLE E-1

SELECTION OF EXPOSURE PATHWAYS

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current / Future Continued	Surface/ Subsurface Soil	Surface/ Subsurface Soil	OU-2	Intrusive Worker	Adult	Dermal	Quant	Workers may have exposed skin surfaces come into contact with soil
						Incidental Ingestion	Quant	Workers may incidentally ingest soil
						Inhalation of Fugitive Dust	Quant	Workers may inhale fugitive dust in air
	Air	Ambient Air	OU-2	Industrial / Commercial Worker	Adult	Inhalation	Quant	Workers may inhale volatiles in ambient air
				Commercial Visitor	Adult, Young Child	Inhalation	Quant	Visitors may inhale volatiles in ambient air
				School / Day Care Occupants	Adult, Young Child	Inhalation	Quant	Occupants may inhale volatiles in ambient air
				Recreational User	Young Child, Adolescent	Inhalation	Quant	Recreational users may inhale volatiles in ambient air
				Trespasser	Older Child, Adolescent	Inhalation	Quant	Trespassers may inhale volatiles in ambient air
				Intrusive Worker	Adult	Inhalation	Quant	Workers may inhale volatiles in ambient air
	Surface Water	Surface Water	OU-2	Recreational User	Young Child, Adolescent	Dermal	Quant	Recreational users may have exposed skin surfaces come into contact with surface water
						Incidental Ingestion	Quant	Recreational users may incidentally ingest surface water
						Inhalation Volatiles	Quant	Recreational users may inhale vapors released from surface water
				Trespasser	Older Child, Adolescent	Dermal	Quant	Trespassers may have exposed skin surfaces come into contact with surface water
						Incidental Ingestion	Quant	Trespassers may incidentally ingest surface water
						Inhalation Volatiles	Quant	Trespassers may inhale vapors released from surface water
		Sediment	OU-2	Recreational User	Young Child, Adolescent	Dermal	Qual	Recreational users may have exposed skin surfaces come into contact with sediment
						Incidental Ingestion	Qual	Recreational users may incidentally ingest sediment
				Trespasser	Older Child, Adolescent	Dermal	Qual	Trespassers may have exposed skin surfaces come into contact with sediment
						Incidental Ingestion	Qual	Trespassers may incidentally ingest sediment

Qual = Qualitative discussion is provided.

Quant = Quantitative risk analysis performed.

TABLE E-2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
Anniston PCB Site, Operable Units 1/2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface and Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Unit	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (5)	Screening Toxicity Value (nc/ca) (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (3)
Sitewide		**VOCs & SVOCs**													
(Non-Residential)	71-55-6	1,1,1-Trichloroethane	ND	ND	mg/kg	NA	0 / 59	0.004 - 1.5	ND	NA	9.00E+03 sat	NA	NA	NO	ND
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	mg/kg	NA	0 / 59	NA - NA	ND	NA	5.90E-01 ca	NA	NA	NO	ND
	76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	ND	ND	mg/kg	NA	0 / 58	NA - NA	ND	NA	4.30E+04 sat	NA	NA	NO	ND
	79-00-5	1,1,2-Trichloroethane	ND	ND	mg/kg	NA	0 / 59	NA - NA	ND	NA	1.10E+00 ca	NA	NA	NO	ND
	92-52-4	1,1'-Biphenyl	0.019	0.67	mg/kg	CA-05-1782-06	13 / 73	0.19 - 37	6.7E-01	NA	3.90E+03 sat	NA	NA	NO	BSL
	75-34-3	1,1-Dichloroethane	ND	ND	mg/kg	NA	0 / 59	NA - NA	ND	NA	3.40E+00 ca	NA	NA	NO	ND
	75-35-4	1,1-Dichloroethene	ND	ND	mg/kg	NA	0 / 59	NA - NA	ND	NA	2.50E+02 nc	NA	NA	NO	ND
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	mg/kg	NA	0 / 63	NA - NA	ND	NA	8.70E+01 nc	NA	NA	NO	ND
	96-12-8	1,2-Dibromo-3-chloropropane	ND	ND	mg/kg	NA	0 / 58	NA - NA	ND	NA	5.60E-03 ca	NA	NA	NO	ND
	106-93-4	1,2-Dibromoethane	ND	ND	mg/kg	NA	0 / 58	NA - NA	ND	NA	3.40E-02 ca	NA	NA	NO	ND
	95-50-1	1,2-Dichlorobenzene	ND	ND	mg/kg	NA	0 / 63	NA - NA	ND	NA	2.00E+03 sat	NA	NA	NO	ND
	107-06-2	1,2-Dichloroethane	ND	ND	mg/kg	NA	0 / 59	NA - NA	ND	NA	4.50E-01 ca	NA	NA	NO	ND
	540-59-0	1,2-Dichloroethene (total)	ND	ND	mg/kg	NA	0 / 10	NA - NA	ND	NA	7.00E+02 nc	NA	NA	NO	ND
	78-87-5	1,2-Dichloropropane	ND	ND	mg/kg	NA	0 / 59	NA - NA	ND	NA	9.30E-01 ca	NA	NA	NO	ND
	541-73-1	1,3-Dichlorobenzene	ND	ND	mg/kg	NA	0 / 63	NA - NA	ND	NA	5.31E+02 nc	NA	NA	NO	ND
	106-46-7	1,4-Dichlorobenzene	ND	ND	mg/kg	NA	0 / 63	NA - NA	ND	NA	2.60E+00 ca	NA	NA	NO	ND
	108-60-1	2,2'-oxybis(1-Chloropropane)	ND	ND	mg/kg	NA	0 / 57	NA - NA	ND	NA	3.50E+00 ca	NA	NA	NO	ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	mg/kg	NA	0 / 78	NA - NA	ND	NA	6.11E+03 nc	NA	NA	NO	ND
	88-06-2	2,4,6-Trichlorophenol	ND	ND	mg/kg	NA	0 / 78	NA - NA	ND	NA	4.40E+01 ca	NA	NA	NO	ND
	120-83-2	2,4-Dichlorophenol	ND	ND	mg/kg	NA	0 / 78	NA - NA	ND	NA	1.83E+02 nc	NA	NA	NO	ND
	105-67-9	2,4-Dimethylphenol	ND	ND	mg/kg	NA	0 / 78	NA - NA	ND	NA	1.22E+03 nc	NA	NA	NO	ND
	51-28-5	2,4-Dinitrophenol	ND	ND	mg/kg	NA	0 / 72	NA - NA	ND	NA	1.22E+02 nc	NA	NA	NO	ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	mg/kg	NA	0 / 78	NA - NA	ND	NA	1.22E+02 nc	NA	NA	NO	ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	mg/kg	NA	0 / 78	NA - NA	ND	NA	6.11E+01 nc	NA	NA	NO	ND
	78-93-3	2-Butanone	0.0048 J	0.5 EJ	mg/kg	CA-24-6098-14	53 / 59	0.041 - 0.72	0.5	NA	2.80E+04 sat	NA	NA	NO	BSL
	91-58-7	2-Chloronaphthalene	ND	ND	mg/kg	NA	0 / 78	NA - NA	ND	NA	6.30E+03 sat	NA	NA	NO	ND
	95-57-8	2-Chlorophenol	ND	ND	mg/kg	NA	0 / 78	NA - NA	ND	NA	3.90E+02 nc	NA	NA	NO	ND
	591-78-6	2-Hexanone	0.0011 J	0.0011 J	mg/kg	CA-05-1782-06	1 / 59	0.0011 - 0.72	0.0011	NA	NA	NA	NA	NO	IFD
	91-57-6	2-Methylnaphthalene	0.023 J	1 J	mg/kg	CA-10-1807-02	26 / 78	0.34 - 37	1	NA	3.10E+02 nc	NA	NA	NO	BSL
	95-48-7	2-Methylphenol	ND	ND	mg/kg	NA	0 / 78	NA - NA	ND	NA	3.10E+03 nc	NA	NA	NO	ND
	88-74-4	2-Nitroaniline	ND	ND	mg/kg	NA	0 / 78	NA - NA	ND	NA	1.83E+02	NA	NA	NO	ND
	88-75-5	2-Nitrophenol	ND	ND	mg/kg	NA	0 / 78	NA - NA	ND	NA	NA	NA	NA	NO	ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	mg/kg	NA	0 / 77	NA - NA	ND	NA	1.08E+00 ca	NA	NA	NO	ND
	99-09-2	3-Nitroaniline	ND	ND	mg/kg	NA	0 / 77	NA - NA	ND	NA	1.83E+01 nc	NA	NA	NO	ND
	72-54-8	4,4'-DDD	0.0064 N	0.077 J	mg/kg	CA-4-EPA-904-401	4 / 76	0.035 - 2	7.7E-02	NA	2.00E+00 ca	NA	NA	NO	BSL
	72-55-9	4,4'-DDE	0.003 J	0.29 N	mg/kg	CA-6-EPA-2189-601	16 / 76	0.003 - 2	2.9E-01	NA	1.40E+00 ca	NA	NA	NO	BSL
	50-29-3	4,4'-DDT	0.0038 JN	2.20 J	mg/kg	CA-6-EPA-2189-601	37 / 67	0.035 - 2	2.2E+00	NA	1.72E+00 ca	NA	NA	YES	ASL
	534-52-1	4,6-Dinitro-2-methylphenol	ND	ND	mg/kg	NA	0 / 72	NA - NA	ND	NA	6.11E+00 nc	NA	NA	NO	ND
	101-55-3	4-Bromophenyl-phenylether	ND	ND	mg/kg	NA	0 / 78	NA - NA	ND	NA	NA	NA	NA	NO	ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	mg/kg	NA	0 / 78	NA - NA	ND	NA	NA	NA	NA	NO	ND
	106-47-8	4-Chloroaniline	ND	ND	mg/kg	NA	0 / 77	NA - NA	ND	NA	9.00E+00 ca	NA	NA	NO	ND
	7005-72-3	4-Chlorophenyl-phenylether	ND	ND	mg/kg	NA	0 / 78	NA - NA	ND	NA	NA	NA	NA	NO	ND
	108-10-1	4-Methyl-2-pentanone	0.0017 J	0.026 J	mg/kg	CA-24-6098-14	5 / 59	0.0017 - 0.72	0.026	NA	5.28E+03 sat	NA	NA	NO	BSL
	106-44-5	4-Methylphenol	0.041 J	0.041 J	mg/kg	CA-24-6098-14	1 / 57	0.041 - 37	0.041	NA	3.06E+02 nc	NA	NA	NO	IFD
	100-01-6	4-Nitroaniline	0.062 J	0.062 J	mg/kg	CA-09-1722-17	1 / 78	0.062 - 93	0.062	NA	2.32E+01 ca	NA	NA	NO	IFD
	100-02-7	4-Nitrophenol	ND	ND	mg/kg	NA	0 / 78	NA - NA	ND	NA	NA	NA	NA	NO	ND
	83-32-9	Acenaphthene	0.02 J	9.2 J	mg/kg	CA-14-3002-01	26 / 78	0.016 - 4.1	9.2	NA	3.40E+03 nc	NA	NA	NO	BSL
	208-96-8	Acenaphthylene	0.02 J	0.68 J	mg/kg	CA-12-2737-01	19 / 78	0.016 - 37	0.68	NA	NA	NA	NA	NO	NTX
	67-64-1	Acetone	0.012 J	2.2 EJ	mg/kg	CA-05-8583-15	57 / 59	0.016 - 37	2.2	NA	6.10E+04 nc	NA	NA	NO	BSL
	98-86-2	Acetophenone	0.024 J	0.31 J	mg/kg	CA-24-6098-14	10 / 73	0.016 - 37	0.31	NA	7.82E+03 sat	NA	NA	NO	BSL
	309-00-2	Aldrin	0.16 JN	0.16 JN	mg/kg	CA-24-6098-14	1 / 76	0.0017 - 2	0.16	NA	2.86E-02 ca	NA	NA	NO	IFD
	319-84-6	Alpha-BHC	ND	ND	mg/kg	NA	0 / 76	NA - NA	ND	NA	7.70E-02 ca	NA	NA	NO	ND
	5103-71-9	Alpha-Chlordane	0.002 JN	0.11	mg/kg	CA-17-3592-05	9 / 76	0.0017 - 2	0.11	NA	1.60E+00 ca	NA	NA	NO	BSL
	120-12-7	Anthracene	0.018 J	20 J	mg/kg	CA-14-3002-01	45 / 78	0.016 - 4.1	2.0E+01	NA	1.70E+04 nc	NA	NA	NO	BSL
	1912-24-9	Atrazine	ND	ND	mg/kg	NA	0 / 73	NA - NA	ND	NA	2.19E+00 ca	NA	NA	NO	ND
	100-52-7	Benzaldehyde	0.027 J	0.28 J	mg/kg	CA-24-6098-09	9 / 73	0.016 - 37	0.28	NA	7.80E+03 sat	NA	NA	NO	BSL

TABLE E-2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
Anniston PCB Site, Operable Units 1/2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface and Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Unit	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (5)	Screening Toxicity Value (nc/ca) (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (3)
	71-43-2	Benzene	0.0011 J	39 JN	mg/kg	CA-4-EPA-1186-400	19 / 60	0.0041 - 0.72	3.9E+01	NA	1.10E+00 ca	NA	NA	YES	ASL
	56-55-3	Benzo(a)anthracene			mg/kg	CA-14-3002-01	69 / 79	0.016 - 4.1	0.0E+00	NA	1.50E-01 ca	NA	NA	NO	BSL
	50-32-8	Benzo(a)pyrene			mg/kg	CA-14-3002-01	67 / 79	0.018 - 9.3	0.0E+00	NA	1.50E-02 ca	NA	NA	NO	BSL
	NA	Benzo(a)pyrene Equivalent	0.091	104.8	mg/kg	CA-14-3002-01	70 / 79	9.69E-06 - 4.53255	1.0E+02	NA	1.50E-02 ca	NA	NA	YES	ASL
	205-99-2	Benzo(b)fluoranthene			mg/kg	CA-14-3002-01	68 / 79	0.016 - 9.8	0.0E+00	NA	1.50E-01 ca	NA	NA	NO	BSL
	191-24-2	Benzo(g,h,i)perylene	0.029 J	54	mg/kg	CA-14-3002-01	60 / 78	0.029 - 0.45	54	NA	1.70E+03 nc	NA	NA	NO	BSL
	207-08-9	Benzo(k)fluoranthene			mg/kg	CA-14-3002-01	66 / 79	0.016 - 4.1	0.0E+00	NA	1.50E+00 ca	NA	NA	NO	BSL
	319-85-7	Beta-BHC	0.0035 JN	0.0045	mg/kg	CA-20-4643-03	2 / 76	0.0017 - 2	0.0045	NA	2.70E-01 ca	NA	NA	NO	IFD
	111-91-1	bis(2-Chloroethoxy)methane	ND	ND	mg/kg	NA	0 / 78	NA - NA	ND	NA	NA	NA	NA	NO	ND
	111-44-4	bis(2-Chloroethyl)ether	ND	ND	mg/kg	NA	0 / 78	NA - NA	ND	NA	1.90E-01 ca	NA	NA	NO	ND
	117-81-7	bis(2-Ethylhexyl)phthalate	0.017 J	57 EJ	mg/kg	CA-24-6098-14	54 / 64	0.34 - 37	5.7E+01	NA	3.47E+01 ca	NA	NA	YES	ASL
	74-97-5	Bromochloromethane	ND	ND	mg/kg	NA	0 / 58	NA - NA	ND	NA	NA	NA	NA	NO	ND
	75-27-4	Bromodichloromethane	ND	ND	mg/kg	NA	0 / 59	NA - NA	ND	NA	1.00E+01 ca	NA	NA	NO	ND
	75-25-2	Bromoform	ND	ND	mg/kg	NA	0 / 59	NA - NA	ND	NA	6.16E+01 ca	NA	NA	NO	ND
	74-83-9	Bromomethane	0.00093 J	0.0042 J	mg/kg	CA-24-6098-09	4 / 59	0.00093 - 0.72	0.0042	NA	7.90E+00 nc	NA	NA	NO	BSL
	85-68-7	Butylbenzylphthalate	0.036 J	2.7 J	mg/kg	CA-17-3592-05	17 / 78	0.036 - 37	2.7	NA	2.60E+02 ca	NA	NA	NO	BSL
	105-60-2	Caprolactam	ND	ND	mg/kg	NA	0 / 73	NA - NA	ND	NA	3.06E+04 nc	NA	NA	NO	ND
	86-74-8	Carbazole	0.018 J	13 J	mg/kg	CA-14-3002-01	39 / 78	0.18 - 4.1	1.3E+01	NA	2.43E+01 ca	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	0.00079 J	0.015 J	mg/kg	CA-02-1467-01	19 / 59	0.00079 - 0.72	0.015	NA	6.70E+02 sat	NA	NA	NO	BSL
	56-23-5	Carbon Tetrachloride	ND	ND	mg/kg	NA	0 / 63	NA - NA	ND	NA	2.51E-01 ca	NA	NA	NO	ND
	108-90-7	Chlorobenzene	ND	ND	mg/kg	NA	0 / 63	NA - NA	ND	NA	3.10E+02 nc	NA	NA	NO	ND
	75-00-3	Chloroethane	ND	ND	mg/kg	NA	0 / 63	NA - NA	ND	NA	3.03E+00 nc	NA	NA	NO	ND
	67-66-3	Chloroform	ND	ND	mg/kg	NA	0 / 63	NA - NA	ND	NA	3.00E-01 ca	NA	NA	NO	ND
	74-87-3	Chloromethane	ND	ND	mg/kg	NA	0 / 63	NA - NA	ND	NA	1.50E+01 ca	NA	NA	NO	ND
	218-01-9	Chrysene			mg/kg	CA-14-3002-01	70 / 79	0.019 - 4.1	0.0E+00	NA	1.50E+01 ca	NA	NA	NO	BSL
	156-59-2	cis-1,2-Dichloroethene	ND	ND	mg/kg	NA	0 / 63	NA - NA	ND	NA	7.80E+02 nc	NA	NA	NO	ND
	10061-01-5	cis-1,3-Dichloropropene	ND	ND	mg/kg	NA	0 / 63	NA - NA	ND	NA	1.70E+00 ca	NA	NA	NO	ND
	110-82-7	Cyclohexane	0.00085 J	0.008	mg/kg	CA-09-1720-10	4 / 58	0.0015 - 0.72	0.008	NA	7.20E+03 sat	NA	NA	NO	BSL
	319-86-8	Delta-BHC	ND	ND	mg/kg	NA	0 / 80	NA - NA	ND	NA	NA	NA	NA	NO	ND
	53-70-3	Dibenzo(a,h)anthracene		J	mg/kg	CA-10-1807-02	28 / 78	0.021 - 37	0.0E+00	NA	1.50E-02 ca	NA	NA	NO	BSL
	132-64-9	Dibenzofuran	0.02 J	2.8 J	mg/kg	CA-14-3002-01	27 / 78	0.02 - 2.8	2.8	NA	1.45E+02 nc	NA	NA	NO	BSL
	124-48-1	Dibromochloromethane	ND	ND	mg/kg	NA	0 / 63	NA - NA	ND	NA	5.80E+00 ca	NA	NA	NO	ND
	75-71-8	Dichlorodifluoromethane	ND	ND	mg/kg	NA	0 / 62	NA - NA	ND	NA	1.90E+02 nc	NA	NA	NO	ND
	60-57-1	Dieldrin	0.0039	0.12 JN	mg/kg	CA-24-6098-14	9 / 76	0.0034 - 2.000	1.2E-01	NA	3.04E-02 ca	NA	NA	YES	ASL
	84-66-2	Diethylphthalate	ND	ND	mg/kg	NA	0 / 82	NA - NA	ND	NA	4.89E+04 nc	NA	NA	NO	ND
	131-11-3	Dimethylphthalate	0.3	0.49	mg/kg	CA-24-6098-09	2 / 78	NA - NA	0.49	NA	1.00E+05	NA	NA	NO	IFD
	84-74-2	Di-n-Butylphthalate	0.025 J	1.8	mg/kg	CA-24-6098-09	8 / 82	NA - NA	1.8	NA	6.11E+03 nc	NA	NA	NO	BSL
	117-84-0	Di-n-Octylphthalate	0.13 J	3.5 D	mg/kg	CA-24-6098-14	2 / 82	NA - NA	3.5	NA	2.44E+03	NA	NA	NO	IFD
	115-29-7	Endosulfan I	0.0076	0.0076	mg/kg	CA-2-EPA-1589-207	1 / 80	NA - NA	7.6E-03	NA	3.70E+02 nc	NA	NA	NO	IFD
	33213-65-9	Endosulfan II	0.014 JN	0.014 JN	mg/kg	CA-12-2737-01	1 / 80	NA - NA	0.014	NA	3.70E+02 nc	NA	NA	NO	IFD
	1031-07-8	Endosulfan Sulfate	0.0045	0.035 JN	mg/kg	CA-23-5801-04	3 / 80	NA - NA	0.035	NA	3.70E+02 nc	NA	NA	NO	IFD
	72-20-8	Endrin	0.004 JN	0.065 JN	mg/kg	CA-05-1782-06	9 / 80	NA - NA	0.065	NA	1.83E+01 nc	NA	NA	NO	BSL
	7421-93-4	Endrin Aldehyde	0.0042 JN	0.1 JN	mg/kg	CA-05-1782-06	13 / 65	NA - NA	0.1	NA	1.83E+01 nc	NA	NA	NO	BSL
	53494-70-5	Endrin Ketone	0.004 J	0.15	mg/kg	CA-23-5801-04	6 / 66	NA - NA	0.15	NA	1.83E+01 nc	NA	NA	NO	BSL
	56-38-2	Ethyl Parathion	ND	ND	mg/kg	NA	0 / 59	NA - NA	ND	NA	3.67E+02 nc	NA	NA	NO	ND
	100-41-4	Ethylbenzene	0.0032 J	0.0072 J	mg/kg	CA-24-6098-14	3 / 63	NA - NA	0.0072	NA	5.70E+00 ca	NA	NA	NO	IFD
	206-44-0	Fluoranthene	0.03 J	150	mg/kg	CA-14-3002-01	75 / 83	NA - NA	1.5E+02	NA	2.29E+03 nc	NA	NA	NO	BSL
	86-73-7	Fluorene	0.018 J	6.1 J	mg/kg	CA-14-3002-01	29 / 82	NA - NA	6.1	NA	2.30E+03 nc	NA	NA	NO	BSL
	58-89-9	Gamma-BHC (Lindane)	0.046 JN	0.046 JN	mg/kg	CA-24-6098-14	1 / 80	NA - NA	0.046	NA	5.20E-01 ca	NA	NA	NO	IFD
	5103-74-2	Gamma-Chlordane	0.0021	0.16	mg/kg	CA-2-EPA-1589-207	16 / 80	NA - NA	1.6E-01	NA	1.60E+00 ca	NA	NA	NO	BSL
	76-44-8	Heptachlor	0.0069	0.013	mg/kg	CA-2-EPA-1589-207	2 / 80	NA - NA	1.3E-02	NA	1.08E-01 ca	NA	NA	NO	IFD
	1024-57-3	Heptachlor Epoxide	0.0039 JN	0.052 JN	mg/kg	CA-05-1782-06	9 / 80	NA - NA	0.052	NA	5.34E-02 ca	NA	NA	NO	BSL
	118-74-1	Hexachlorobenzene	ND	ND	mg/kg	NA	0 / 82	NA - NA	ND	NA	3.04E-01 ca	NA	NA	NO	ND
	87-68-3	Hexachlorobutadiene	ND	ND	mg/kg	NA	0 / 82	NA - NA	ND	NA	6.24E+00 ca	NA	NA	NO	ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	mg/kg	NA	0 / 82	NA - NA	ND	NA	3.65E+02 nc	NA	NA	NO	ND
	67-72-1	Hexachloroethane	ND	ND	mg/kg	NA	0 / 82	NA - NA	ND	NA	3.47E+01 ca	NA	NA	NO	ND
	193-39-5	Indeno(1,2,3-cd)pyrene			mg/kg	CA-14-3002-01	66 / 83	NA - NA	0.0E+00	NA	1.50E-01 ca	NA	NA	NO	BSL

TABLE E-2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
Anniston PCB Site, Operable Units 1/2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface and Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Unit	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (5)	Screening Toxicity Value (nc/ca) (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (3)
	78-59-1	Isophorone	ND	ND	mg/kg	NA	0 / 82	NA - NA	ND	NA	5.12E+02 ca	NA	NA	NO	ND
	98-82-8	Isopropylbenzene	0.0012 J	0.004 J	mg/kg	CA-24-6098-14	3 / 62	NA - NA	0.004	NA	2.20E+03 sat	NA	NA	NO	IFD
	72-43-5	Methoxychlor	0.019 JN	0.091 JN	mg/kg	CA-23-5801-04	1 / 80	NA - NA	0.091	NA	3.06E+02 nc	NA	NA	NO	IFD
	79-20-9	Methyl Acetate	0.0051 J	0.95 J	mg/kg	CA-10-1807-02	36 / 62	NA - NA	0.95	NA	7.80E+04 sat	NA	NA	NO	BSL
	298-00-0	Methyl Parathion	ND	ND	mg/kg	NA	0 / 59	NA - NA	ND	NA	1.53E+01 nc	NA	NA	NO	ND
	1634-04-4	Methyl tert-butyl ether	ND	ND	mg/kg	NA	0 / 62	NA - NA	ND	NA	3.90E+01 ca	NA	NA	NO	ND
	108-87-2	Methylcyclohexane	0.001 J	0.0099	mg/kg	CA-09-1720-10	4 / 62	NA - NA	0.0099	NA	2.59E+03	NA	NA	NO	BSL
	75-09-2	Methylene Chloride	ND	ND	mg/kg	NA	0 / 63	NA - NA	ND	NA	1.10E+01 ca	NA	NA	NO	ND
	91-20-3	Naphthalene	0.017 J	2 J	mg/kg	CA-10-1807-02	35 / 82	NA - NA	2	NA	3.90E+00 ca	NA	NA	NO	BSL
	98-95-3	Nitrobenzene	ND	ND	mg/kg	NA	0 / 82	NA - NA	ND	NA	3.10E+01 nc	NA	NA	NO	ND
	621-64-7	N-Nitroso-di-n-propylamine	ND	ND	mg/kg	NA	0 / 82	NA - NA	ND	NA	6.95E-02 ca	NA	NA	NO	ND
	62-75-9	N-Nitrosodiphenylamine	ND	ND	mg/kg	NA	0 / 61	NA - NA	ND	NA	2.30E-03 ca	NA	NA	NO	ND
	126-68-1	o,o,o-Triethylphosphorothioate	ND	ND	mg/kg	NA	0 / 59	NA - NA	ND	NA	NA	NA	NA	NO	ND
	87-86-5	Pentachlorophenol	19 D	19 D	mg/kg	CA-25-6127-01	1 / 82	NA - NA	19	NA	2.98E+00 ca	NA	NA	NO	IFD
	85-01-8	Phenanthrene	0.022 J	93	mg/kg	CA-14-3002-01	68 / 83	NA - NA	93	NA	1.70E+03 nc	NA	NA	NO	BSL
	108-95-2	Phenol	0.024 J	0.23 J	mg/kg	CA-24-6098-14	5 / 82	NA - NA	0.23	NA	1.83E+04 nc	NA	NA	NO	BSL
	129-00-0	Pyrene	0.019 J	120	mg/kg	CA-14-3002-01	74 / 83	NA - NA	1.2E+02	NA	1.70E+03 nc	NA	NA	NO	BSL
	100-42-5	Styrene	0.0022 J	0.0034 J	mg/kg	CA-24-6098-14	3 / 63	NA - NA	0.0034	NA	6.50E+03 sat	NA	NA	NO	IFD
	3689-24-5	Sulfotep	ND	ND	mg/kg	NA	0 / 59	NA - NA	ND	NA	3.06E+01 nc	NA	NA	NO	ND
	57-74-9	Technical Chlordane	ND	ND	mg/kg	NA	0 / 16	NA - NA	ND	NA	1.60E+00 ca	NA	NA	NO	ND
	127-18-4	Tetrachloroethene	ND	ND	mg/kg	NA	0 / 63	NA - NA	ND	NA	5.70E-01 ca	NA	NA	NO	ND
	108-88-3	Toluene	0.0013 J	0.011 J	mg/kg	CA-24-6098-14	9 / 63	NA - NA	0.011	NA	5.00E+03 sat	NA	NA	NO	BSL
	8001-35-2	Toxaphene	ND	ND	mg/kg	NA	0 / 80	NA - NA	ND	NA	4.42E-01 ca	NA	NA	NO	ND
	156-60-5	trans-1,2-Dichloroethene	ND	ND	mg/kg	NA	0 / 63	NA - NA	ND	NA	1.10E+02 nc	NA	NA	NO	ND
	10061-02-6	trans-1,3-Dichloropropene	ND	ND	mg/kg	NA	0 / 63	NA - NA	ND	NA	1.70E+00 ca	NA	NA	NO	ND
	79-01-6	Trichloroethene	ND	ND	mg/kg	NA	0 / 63	NA - NA	ND	NA	2.80E+00 ca	NA	NA	NO	ND
	75-69-4	Trichlorofluoromethane	0.0013 J	0.0033 J	mg/kg	CA-24-6098-14	3 / 62	NA - NA	0.0033	NA	8.00E+02 nc	NA	NA	NO	IFD
	75-01-4	Vinyl Chloride	ND	ND	mg/kg	NA	0 / 63	NA - NA	ND	NA	6.00E-02 ca	NA	NA	NO	ND
	95-47-6	o-Xylene	0.0049 J	0.016 J	mg/kg	CA-24-6098-14	3 / 62	NA - NA	0.016	NA	5.30E+03 sat	NA	NA	NO	IFD
	106-42-2/108-38-3	m,p-Xylenes	0.0013 J	0.014 J	mg/kg	CA-24-6098-14	6 / 61	NA - NA	0.014	NA	4.50E+03 sat	NA	NA	NO	BSL
	1330-20-7	Xylenes (total)	0.011	0.03 J	mg/kg	CA-24-6098-14	3 / 13	NA - NA	0.03	NA	6.00E+02 sat	NA	NA	NO	BSL
		PCBs													
	1336-36-3	PCBs, Total (4)	0.012 J	765	mg/kg	CA-19-8560-15	502 / 656	0.019 J - 2.6 J	7.7E+02	NA	2.4E-01 ca	NA	NA	YES	ASL
		Dioxin													
	NA	Dioxin TEQ	3.5E-07	2.0E-03	mg/kg	CA-25-6127-01	55 / 55	NA - NA	2.0E-03	NA	3.90E-06 ca	NA	NA	YES	ASL
		Inorganics													
	7429-90-5	Aluminum	838	28,500 J	mg/kg	CA-10-1807-02	62 / 62	NA - NA	2.9E+04	NA	7.70E+04 nc	NA	NA	NO	BSL
	7440-36-0	Antimony	0.58 J	33.1	mg/kg	CA-24-6098-14	37 / 50	0.42 - 8.1	3.3E+01	7.1E+00	3.13E+01 nc	NA	NA	YES	ASL
	7440-38-2	Arsenic	2 J	120	mg/kg	CA-18-EPA-43163-1800	107 / 107	NA - NA	1.2E+02	3.2E+01	3.90E-01 ca	NA	NA	YES	ASL
	7440-39-3	Barium	11.3 J	495 J	mg/kg	CA-24-6098-14	107 / 107	NA - NA	5.0E+02	NA	1.50E+04 nc	NA	NA	NO	BSL
	7440-41-7	Beryllium	0.15 B	2.7 J	mg/kg	CA-02-1467-01	58 / 61	0.15 - 2.7	2.7E+00	NA	1.54E+02 nc	NA	NA	NO	BSL
	7440-43-9	Cadmium	0.096 B	72	mg/kg	CA-19-EPA-4011-1907	89 / 107	0.035 - 0.8	7.2E+01	7.0E-01	7.00E+01 nc	NA	NA	YES	ASL
	7440-70-2	Calcium	448 J	254,000 J	mg/kg	CA-09-1722-17	62 / 62	NA - NA	2.5E+05	NA	NA	NA	NA	NO	NUT
	18540-29-9	Chromium	3.2 J	14,000	mg/kg	CA-22-EPA-5887-2200	107 / 107	NA - NA	1.4E+04	4.1E+01	3.90E+01 ca	NA	NA	YES	ASL
	7440-48-4	Cobalt	1.1 B	153 J	mg/kg	CA-05-8583-15	60 / 62	0.011 - 0.071	1.5E+02	3.2E+01	2.30E+01 nc	NA	NA	YES	ASL
	7440-50-8	Copper	10	1,820	mg/kg	CA-24-6098-14	62 / 62	10 - NA	1.8E+03	NA	3.13E+03 nc	NA	NA	NO	BSL
	57-12-5	Cyanide	0.15 J	2.90	mg/kg	CA-02-1467-01	43 / 94	0.15 - 0.57	2.9E+00	NA	1.60E+03 nc	NA	NA	NO	BSL
	7439-89-6	Iron	2,550	575,000	mg/kg	CA-24-6098-14	68 / 68	NA - NA	5.8E+05	4.1E+04	5.50E+04 nc	NA	NA	YES	ASL
	7439-92-1	Lead	2.4 J	19,000	mg/kg	CA-24-6098-14	247 / 247	NA - NA	1.9E+04	3.0E+01	4.00E+02 nc	NA	NA	YES	ASL
	7439-95-4	Magnesium	304 B	105,000	mg/kg	CA-27-6730-09	62 / 62	NA - NA	1.1E+05	NA	NA	NA	NA	NO	NUT
	7439-96-5	Manganese	85.5	10,100	mg/kg	CA-05-8583-15	62 / 62	NA - NA	1.0E+04	2.1E+03	1.76E+03 nc	NA	NA	YES	ASL
	7439-97-6	Mercury	0.019 B	7.5	mg/kg	CA-24-EPA-6098-2401	91 / 93	0.017 - NA	7.5E+00	9.3E-02	6.70E+00 nc	NA	NA	YES	ASL
	7440-02-0	Nickel	2.1 B	409 J	mg/kg	CA-24-6098-14	61 / 98	NA - NA	4.1E+02	NA	1.56E+03 nc	NA	NA	NO	BSL
	7440-09-7	Potassium	133 B	2190 J	mg/kg	CA-10-1807-02	62 / 62	NA - NA	2.2E+03	NA	NA	NA	NA	NO	NUT
	7782-49-2	Selenium	0.56 B	26	mg/kg	CA-24-6098-14	26 / 107	0.25 - 1.2	2.6E+01	NA	3.91E+02 nc	NA	NA	NO	BSL
	7440-22-4	Silver	0.14 B	360.00	mg/kg	CA-19-EPA-4011-1904	40 / 105	0.012 - 1	3.6E+02	NA	3.91E+02 nc	NA	NA	NO	BSL
	7440-23-5	Sodium	110 B	838	mg/kg	CA-24-6098-14	19 / 75	NA - NA	8.4E+02	NA	NA	NA	NA	NO	NUT

TABLE E-2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
Anniston PCB Site, Operable Units 1/2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface and Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Unit	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (5)	Screening Toxicity Value (nc/ca) (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (3)
	7440-28-0	Thallium	0.47 B	50	mg/kg	CA-25-EPA-43146-2501	26 / 62	NA - NA	5.0E+01	NA	5.16E+00 nc	NA	NA	YES	ASL
	7440-62-2	Vanadium	3.9 B	71.9 J	mg/kg	CA-10-1807-02	66 / 66	NA - NA	7.2E+01	NA	5.50E+02 nc	NA	NA	NO	BSL
	7440-66-6	Zinc	35.3 J	5219.2	mg/kg	CA-24-6098-14	87 / 104	NA - NA	5.2E+03	NA	2.35E+04 nc	NA	NA	NO	BSL

(1) Maximum detected concentration used for screening, units adjusted to mg/kg (except Dioxin TEQ).

(2) Screened against EPA Region 9 Regional Screening Levels (RSLs) for residential soil adjusted to cancer benchmark = 1E-6 and HQ = 0.1. The more conservative value of the combined cancer and combined hazard values (after adjustment) was used. Units adjusted to mg/kg.

(3) Rationale Codes:

Selection Reason: ASL = Above Screening Level.
TOX = Group A Carcinogen.
Deletion Reason: BSL = Below Screening Level.
NUT = Essential Nutrient.
ND = Not Detected.
NTX = No Toxicity Value Available.

Toxicity value surrogates:

Screening toxicity value for acetophenone from EPA Region 3 Residential PRGs
Screening toxicity value for chlordane applied to alpha-, gamma-, and technical chlordane (from EPA Region 3 Residential PRGs)
Screening toxicity value for cis-1,2-Dichloroethene applied to 1,2-Dichloroethene (total)
Screening toxicity value for 1,3-Dichloropropene applied to cis- & trans-1,3-Dichloropropene
Screening toxicity value for Endrin applied to Endrin Aldehyde and Endrin Ketone
Screening toxicity value for Endosulfan applied to Endosulfan I, II, and Sulfate
Screening toxicity value for naphthalene applied to 2-methylnaphthalene.
Screening toxicity value for pyrene applied to benzo(g,h,i)perylene and phenanthrene.
Screening toxicity value for chromium VI applied to total chromium.

(4) Total PCBs will be calculated using sum of the detected Aroclors when at least one Aroclor is detected or the lowest detection limit when none of the Aroclors are detected.

(5) Ft. McClellan surface/subsurface background UPL, CDM 2008.

Definitions: NA = Not Available.
nc = Screening Toxcity Value is based on noncancer effects.
ca = Screening Toxicity Value is based on cancer effects.
sat = Screening Toxicity Value is based on soil saturation.
COPC = Chemical of Potential Concern.
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered.
TEQ = Toxic equivalents.
VOCs = Volatile organic compounds.
SVOCs = Semi-volatile organic compounds.
P/PCBs = Pesticides/polychlorinated biphenyls.
J = Estimated value.
JN - The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
EJ – Compound was identified the numeric result is the estimated maximum possible concentration.

TABLE E-2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Unit	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (nc/ca) (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (3)
Sitewide		**VOCs & SVOCs**													
(Non-Residential)	71-55-6	1,1,1-Trichloroethane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	9.00E+03 sat	NA	NA	NO	ND
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	5.90E-01 ca	NA	NA	NO	ND
	76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	4.30E+04 sat	NA	NA	NO	ND
	79-00-5	1,1,2-Trichloroethane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	1.10E+00 ca	NA	NA	NO	ND
	92-52-4	1,1'-Biphenyl	0.038 J	0.038 J	mg/kg	S-HIGH-1	1 / 3	NA - NA	0.038	NA	3.90E+03 sat	NA	NA	NO	BSL
	75-34-3	1,1-Dichloroethane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	3.40E+00 ca	NA	NA	NO	ND
	75-35-4	1,1-Dichloroethene	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	2.50E+02 nc	NA	NA	NO	ND
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	8.70E+01 nc	NA	NA	NO	ND
	96-12-8	1,2-Dibromo-3-chloropropane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	5.60E-03 ca	NA	NA	NO	ND
	106-93-4	1,2-Dibromoethane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	3.40E-02 ca	NA	NA	NO	ND
	95-50-1	1,2-Dichlorobenzene	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	2.00E+03 sat	NA	NA	NO	ND
	107-06-2	1,2-Dichloroethane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	4.50E-01 ca	NA	NA	NO	ND
	78-87-5	1,2-Dichloropropane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	9.30E-01 ca	NA	NA	NO	ND
	541-73-1	1,3-Dichlorobenzene	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	5.31E+02 nc	NA	NA	NO	ND
	106-46-7	1,4-Dichlorobenzene	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	2.60E+00 ca	NA	NA	NO	ND
	51-28-5	2,4-Dinitrophenol	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	1.22E+02 nc	NA	NA	NO	ND
	78-93-3	2-Butanone	0.001 J	0.007 J	mg/kg	S-HIGH-1	2 / 3	NA - NA	0.007	NA	2.80E+04 sat	NA	NA	NO	BSL
	591-78-6	2-Hexanone	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	NA	NA	NA	NO	ND
	91-57-6	2-Methylnaphthalene	0.014 J	0.014 J	mg/kg	S-LOW-1	1 / 3	NA - NA	1.4E-02	NA	3.10E+02 nc	NA	NA	NO	BSL
	72-54-8	4,4'-DDD	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	2.00E+00 ca	NA	NA	NO	ND
	50-29-3	4,4'-DDT	0.003 JN	0.11 JN	mg/kg	S-HIGH-1	3 / 3	NA - NA	0.11	NA	1.72E+00 ca	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-pentanone	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	5.28E+03 sat	NA	NA	NO	ND
	106-44-5	4-Methylphenol	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	3.06E+02 nc	NA	NA	NO	ND
	83-32-9	Acenaphthene	0.021 J	0.021 J	mg/kg	S-LOW-1	1 / 3	NA - NA	2.1E-02	NA	3.40E+03 nc	NA	NA	NO	BSL
	208-96-8	Acenaphthylene	0.02000 J	0.021 J	mg/kg	S-MED-1	1 / 3	NA - NA	2.1E-02	NA	NA	NA	NA	NO	NTX
	67-64-1	Acetone	0.014 J	0.057 J	mg/kg	S-HIGH-1	3 / 3	NA - NA	0.057	NA	6.10E+04 nc	NA	NA	NO	BSL
	309-00-2	Aldrin	0.004	0.389 J	mg/kg	S-MED-1	3 / 3	NA - NA	3.9E-01	NA	2.86E-02 ca	NA	NA	YES	ASL
	5103-71-9	Alpha-Chlordane	0.001	0.003 JN	mg/kg	S-HIGH-1	2 / 3	NA - NA	3.0E-03	NA	1.60E+00 ca	NA	NA	NO	BSL
	120-12-7	Anthracene	0.038 J	0.150 J	mg/kg	S-HIGH-2	3 / 3	NA - NA	1.5E-01	NA	1.70E+04 nc	NA	NA	NO	BSL
	100-52-7	Benzaldehyde	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	7.80E+03 sat	NA	NA	NO	ND
	71-43-2	Benzene	0.002 J	0.002 J	mg/kg	S-HIGH-1	1 / 3	NA - NA	2.0E-03	NA	1.10E+00 ca	NA	NA	NO	BSL
	56-55-3	Benzo(a)anthracene			mg/kg	S-LOW-1	3 / 3	NA - NA	0.0E+00	NA	1.50E-01 ca	NA	NA	NO	BSL
	50-32-8	Benzo(a)pyrene			mg/kg	S-LOW-1	3 / 3	NA - NA	0.0E+00	NA	1.50E-02 ca	NA	NA	NO	BSL
	NA	Benzo(a)pyrene Equivalent	0.27 J	0.39	mg/kg	S-HIGH-1	3 / 3	NA - NA	3.9E-01	NA	1.50E-02 ca	NA	NA	YES	ASL
	205-99-2	Benzo(b)fluoranthene			mg/kg	S-LOW-1	3 / 3	NA - NA	0.0E+00	NA	1.50E-01 ca	NA	NA	NO	BSL
	191-24-2	Benzo(g,h,i)perylene	0.113 J	0.120 J	mg/kg	S-LOW-1	3 / 3	NA - NA	1.2E-01	NA	1.70E+03 nc	NA	NA	NO	BSL
	207-08-9	Benzo(k)fluoranthene			mg/kg	S-LOW-1	3 / 3	NA - NA	0.0E+00	NA	1.50E+00 ca	NA	NA	NO	BSL
	319-85-7	Beta-BHC	0.004	0.004	mg/kg	S-LOW-1	1 / 3	NA - NA	4.0E-03	NA	2.70E-01 ca	NA	NA	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.04 J	0.16 J	mg/kg	S-HIGH-1	3 / 3	NA - NA	1.6E-01	NA	3.47E+01 ca	NA	NA	NO	BSL
	74-97-5	Bromochloromethane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	NA	NA	NA	NO	ND
	75-27-4	Bromodichloromethane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	1.00E+01 ca	NA	NA	NO	ND
	75-25-2	Bromoform	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	6.16E+01 ca	NA	NA	NO	ND
	74-83-9	Bromomethane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	7.90E+00 nc	NA	NA	NO	ND
	86-74-8	Carbazole	0.02 J	0.09 J	mg/kg	S-LOW-1	3 / 3	NA - NA	8.5E-02	NA	2.43E+01 ca	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	0.002 J	0.009 J	mg/kg	S-HIGH-1	3 / 3	NA - NA	9.0E-03	NA	6.70E+02 sat	NA	NA	NO	BSL
	56-23-5	Carbon Tetrachloride	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	2.51E-01 ca	NA	NA	NO	ND
	108-90-7	Chlorobenzene	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	3.10E+02 nc	NA	NA	NO	ND
	75-00-3	Chloroethane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	3.03E+00 nc	NA	NA	NO	ND
	67-66-3	Chloroform	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	3.00E-01 ca	NA	NA	NO	ND
	74-87-3	Chloromethane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	1.50E+01 ca	NA	NA	NO	ND
	218-01-9	Chrysene			mg/kg	S-LOW-1	3 / 3	NA - NA	0.0E+00	NA	1.50E+01 ca	NA	NA	NO	BSL

TABLE E-2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Unit	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (nc/ca) (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (3)
	156-59-2	cis-1,2-Dichloroethene	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	7.80E+02 nc	NA	NA	NO	ND
	10061-01-5	cis-1,3-Dichloropropene	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	1.70E+00 ca	NA	NA	NO	ND
	110-82-7	Cyclohexane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	7.20E+03 sat	NA	NA	NO	ND
	319-86-8	Delta-BHC	0.002 J	0.002 J	mg/kg	S-LOW-1	1 / 3	NA - NA	2.0E-03	NA	NA	NA	NA	NO	NTX
	53-70-3	Dibenzo(a,h)anthracene			mg/kg	S-LOW-1	3 / 3	NA - NA	0.0E+00	NA	1.50E-02 ca	NA	NA	NO	BSL
	132-64-9	Dibenzofuran	0.03 J	0.03 J	mg/kg	S-LOW-1	1 / 3	NA - NA	2.8E-02	NA	1.45E+02 nc	NA	NA	NO	BSL
	124-48-1	Dibromochloromethane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	5.80E+00 ca	NA	NA	NO	ND
	75-71-8	Dichlorodifluoromethane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	1.90E+02 nc	NA	NA	NO	ND
	60-57-1	Dieldrin	0.004 JN	0.068 JN	mg/kg	S-HIGH-1	2 / 3	NA - 0.021	6.8E-02	NA	3.04E-02 ca	NA	NA	YES	ASL
	33213-65-9	Endosulfan II	0.007 JN	0.007 JN	mg/kg	S-HIGH-1	1 / 3	NA - NA	7.0E-03	NA	3.70E+02 nc	NA	NA	NO	BSL
	7421-93-4	Endrin Aldehyde	0.008 JN	0.008 JN	mg/kg	S-HIGH-1	1 / 3	NA - NA	8.0E-03	NA	1.83E+01 nc	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	5.70E+00 ca	NA	NA	NO	ND
	206-44-0	Fluoranthene	0.387	0.81	mg/kg	S-HIGH-1	3 / 3	NA - NA	8.1E-01	NA	2.29E+03 nc	NA	NA	NO	BSL
	86-73-7	Fluorene	0.015 J	0.05 J	mg/kg	S-LOW-1	3 / 3	NA - NA	5.0E-02	NA	2.30E+03 nc	NA	NA	NO	BSL
	58-89-9	Gamma-BHC (Lindane)	0.001 JN	0.003 JN	mg/kg	S-HIGH-1	2 / 3	NA - NA	3.0E-03	NA	5.20E-01 ca	NA	NA	NO	BSL
	5103-74-2	Gamma-Chlordane	0.001 JN	0.001 JN	mg/kg	S-LOW-1	1 / 3	NA - NA	1.0E-03	NA	1.60E+00 ca	NA	NA	NO	BSL
	1024-57-3	Heptachlor Epoxide	0.001 JN	0.023 JN	mg/kg	S-MED-1	3 / 3	NA - NA	2.3E-02	NA	5.34E-02 ca	NA	NA	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene			mg/kg	S-LOW-1	3 / 3	NA - NA	0.0E+00	NA	1.50E-01 ca	NA	NA	NO	BSL
	98-82-8	Isopropylbenzene	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	2.20E+03 sat	NA	NA	NO	ND
	79-20-9	Methyl Acetate	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	7.80E+04 sat	NA	NA	NO	ND
	1634-04-4	Methyl tert-butyl ether	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	3.90E+01 ca	NA	NA	NO	ND
	108-87-2	Methylcyclohexane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	2.59E+03	NA	NA	NO	ND
	75-09-2	Methylene Chloride	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	1.10E+01 ca	NA	NA	NO	ND
	91-20-3	Naphthalene	0.019 J	0.019 J	mg/kg	S-LOW-1	1 / 3	NA - NA	1.9E-02	NA	3.90E+00 ca	NA	NA	NO	BSL
	85-01-8	Phenanthrene	0.19 J	0.50	mg/kg	S-LOW-1	3 / 3	NA - NA	5.0E-01	NA	1.70E+03 nc	NA	NA	NO	BSL
	129-00-0	Pyrene	0.41	0.76	mg/kg	S-HIGH-1	3 / 3	NA - NA	7.6E-01	NA	1.70E+03 nc	NA	NA	NO	BSL
	100-42-5	Styrene	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	6.50E+03 sat	NA	NA	NO	ND
	127-18-4	Tetrachloroethene	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	5.70E-01 ca	NA	NA	NO	ND
	108-88-3	Toluene	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	5.00E+03 sat	NA	NA	NO	ND
	156-60-5	trans-1,2-Dichloroethene	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	1.10E+02 nc	NA	NA	NO	ND
	10061-02-6	trans-1,3-Dichloropropene	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	1.70E+00 ca	NA	NA	NO	ND
	79-01-6	Trichloroethene	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	2.80E+00 ca	NA	NA	NO	ND
	75-69-4	Trichlorofluoromethane	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	8.00E+02 nc	NA	NA	NO	ND
	75-01-4	Vinyl Chloride	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	6.00E-02 ca	NA	NA	NO	ND
	95-47-6	o-Xylene	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	5.30E+03 sat	NA	NA	NO	ND
	106-42-2/108-38-3	m,p-Xylenes	ND	ND	mg/kg		0 / 3	NA - NA	ND	NA	4.50E+03 sat	NA	NA	NO	ND
		PCBs													
	1336-36-3	PCBs, Total (4)	0.007 J	40	mg/kg	S-MED-1	71 / 80	0.038 - 0.40	4.0E+01	NA	2.4E-01 ca	NA	NA	YES	ASL
		Dioxin													
	NA	Dioxin TEQ	9.3E-07	3.5E-05	mg/kg	S-MED-1	3 / 3	NA - NA	3.5E-05	NA	3.90E-06 ca	NA	NA	YES	ASL
		Inorganics													
	7429-90-5	Aluminum	1730 J	3570 J	mg/kg	S-HIGH-1	3 / 3	NA - NA	3570	NA	7.70E+04 nc	NA	NA	NO	BSL
	7440-36-0	Antimony	0.67 J	0.86 J	mg/kg	S-HIGH-2	2 / 3	NA - NA	8.6E-01	NA	3.13E+01 nc	NA	NA	NO	BSL
	7440-38-2	Arsenic	0.64	10	mg/kg	S-016-SED-2	25 / 25	NA - NA	1.0E+01	NA	3.90E-01 ca	NA	NA	YES	ASL
	7440-39-3	Barium	4.84 JN	385 J	mg/kg	S-MED-1	25 / 25	NA - NA	3.9E+02	NA	1.50E+04 nc	NA	NA	NO	BSL
	7440-41-7	Beryllium	0.19 JN	2.80 J	mg/kg	S-MED-1	12 / 25	NA - NA	2.8E+00	NA	1.54E+02 nc	NA	NA	NO	BSL
	7440-43-9	Cadmium	0.03 B	1.7	mg/kg	S-014-SED-2	16 / 25	NA - NA	1.7E+00	NA	7.00E+01 nc	NA	NA	NO	BSL
	7440-70-2	Calcium	3402 J	15600 J	mg/kg	S-LOW-1	3 / 3	NA - NA	1.6E+04	NA	NA	NA	NA	NO	NTX
	18540-29-9	Chromium	3.51 JN	325 JN	mg/kg	S-014-SED-4	25 / 25	NA - NA	3.3E+02	NA	3.90E+01 ca	NA	NA	YES	ASL
	7440-48-4	Cobalt	0.59	33 J	mg/kg	S-HIGH-1	25 / 25	NA - NA	3.3E+01	3.2E+01	2.30E+01 nc	NA	NA	YES	ASL
	7440-50-8	Copper	17.00 J	25.00 J	mg/kg	S-LOW-1	3 / 3	NA - NA	2.5E+01	NA	3.13E+03 nc	NA	NA	NO	BSL
	57-12-5	Cyanide	0.15 B	0.25 B	mg/kg	S-HIGH-1	2 / 3	NA - NA	2.5E-01	NA	1.60E+03 nc	NA	NA	NO	BSL
	7439-89-6	Iron	11,200	41,888	mg/kg	S-MED-1	3 / 3	NA - NA	4.2E+04	NA	5.50E+04 nc	NA	NA	NO	BSL
	7439-92-1	Lead	3.0	75 JN	mg/kg	S-1-01	25 / 25	NA - NA	7.5E+01	NA	4.00E+02 nc	NA	NA	NO	BSL
	7439-95-4	Magnesium	1,688 J	7,880 J	mg/kg	S-HIGH-1	3 / 3	NA - NA	7.9E+03	NA	NA	NA	NA	NO	NTX

TABLE E-2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Unit	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (nc/ca) (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (3)
	7439-96-5	Manganese	67	3,750	mg/kg	S-016-SED-2	25 / 25	NA - NA	3.8E+03	NA	1.76E+03 nc	NA	NA	YES	ASL
	7439-97-6	Mercury	0.0010 B	4.30 J	mg/kg	S-1-01	22 / 25	NA - NA	4.3E+00	1.3E-01	6.70E+00 nc	NA	NA	NO	BSL
	7440-02-0	Nickel	0.969 J	37 J	mg/kg	S-MED-1	25 / 25	NA - NA	3.7E+01	NA	1.56E+03 nc	NA	NA	NO	BSL
	7440-09-7	Potassium	185.00 B	410.00 B	mg/kg	S-HIGH-1	3 / 3	NA - NA	4.1E+02	NA	NA	NA	NA	NO	NTX
	7782-49-2	Selenium	0.44 J	1.40 J	mg/kg	S-MED-1	3 / 3	NA - NA	1.4E+00	NA	3.91E+02 nc	NA	NA	NO	BSL
	7440-28-0	Thallium	0.38 B	1.80 B	mg/kg	S-HIGH-1	3 / 3	NA - NA	1.8E+00	NA	5.16E+00 nc	NA	NA	NO	BSL
	7440-62-2	Vanadium	2.67 JN	25.70	mg/kg	S-014-SED-3	25 / 25	NA - NA	2.6E+01	NA	5.50E+02 nc	NA	NA	NO	BSL
	7440-66-6	Zinc	38.0	144	mg/kg	S-MED-1	3 / 3	NA - NA	1.4E+02	NA	2.35E+04 nc	NA	NA	NO	BSL

(1) Maximum detected concentration used for screening, units adjusted to mg/kg (except Dioxin TEQ).

(2) Screened against EPA Region 9 Regional Screening Levels (RSLs) for residential soil adjusted to cancer benchmark = 1E-6 and HQ = 0.1. The more conservative value of the combined cancer and combined hazard values (after adjustment) was used. Units adjusted to mg/kg.

(3) Rationale Codes:

Selection Reason: ASL = Above Screening Level.
TOX = Group A Carcinogen.
Deletion Reason: BSL = Below Screening Level.
NUT = Essential Nutrient.
ND = Not Detected.
NTX = No Toxicity Value Available.

Toxicity value surrogates:
Screening toxicity value for acetophenone from EPA Region 3 Residential PRGs
Screening toxicity value for chlordane applied to alpha-, gamma-, and technical chlordane (from EPA Region 3 Residential PRGs)
Screening toxicity value for cis-1,2-Dichloroethene applied to 1,2-Dichloroethene (total)
Screening toxicity value for 1,3-Dichloropropene applied to cis- & trans-1,3-Dichloropropene
Screening toxicity value for Endrin applied to Endrin Aldehyde and Endrin Ketone
Screening toxicity value for Endosulfan applied to Endosulfan I, II, and Sulfate
Screening toxicity value for naphthalene applied to 2-methylnaphthalene.
Screening toxicity value for pyrene applied to benzo(g,h,i)perylene and phenanthrene.
Screening toxicity value for chromium VI applied to total chromium.

(4) Total PCBs will be calculated using sum of the detected Aroclors when at least one Aroclor is detected or the lowest detection limit when none of the Aroclors are detected.

Definitions: NA = Not Available.

nc = Screening Toxcity Value is based on noncancer effects.

ca = Screening Toxicity Value is based on cancer effects.
sat = Screening Toxicity Value is based on soil saturation.
COPC = Chemical of Potential Concern.
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered.
TEQ = Toxic equivalents.
VOCs = Volatile organic compounds.
SVOCs = Semi-volatile organic compounds.
P/PCBs = Pesticides/polychlorinated biphenyls.
J = Estimated value.
JN - The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only. numerical value is an estimated concentration only.

TABLE E-2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	OU-2 Surface Water

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Unit	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (nc/ca) (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source (3)	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
Sitewide		**VOCs/SVOCs**													
(Non-Residential)	71-55-6	1,1,1-Trichloroethane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	9.10E+03 nc			NO	ND
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	6.70E-02 ca			NO	ND
	76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	5.92E+04 nc			NO	ND
	79-00-5	1,1,2-Trichloroethane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	2.40E-01 ca			NO	ND
	92-52-4	1,1'-Biphenyl	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.80E+03 nc			NO	ND
	75-34-3	1,1-Dichloroethane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	2.40E+00 ca			NO	ND
	75-35-4	1,1-Dichloroethene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.39E+02 nc	7.0E+00		NO	ND
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	8.20E+00 nc			NO	ND
	96-12-8	1,2-Dibromo-3-chloropropane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.20E-04 ca	2.0E-01		NO	ND
	106-93-4	1,2-Dibromoethane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	6.50E-03 ca			NO	ND
	95-50-1	1,2-Dichlorobenzene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.70E+02 nc	6.0E+02		NO	ND
	107-06-2	1,2-Dichloroethane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.50E-01 ca	5.0E+00		NO	ND
	540-59-0	1,2-Dichloroethene (total)	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.30E+02 nc			NO	ND
	78-87-5	1,2-Dichloropropane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.90E-01 ca	5.0E+00		NO	ND
	541-73-1	1,3-Dichlorobenzene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.83E+02			NO	ND
	106-46-7	1,4-Dichlorobenzene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	4.30E-01 ca	7.5E+01		NO	ND
	108-60-1	2,2'-oxybis(1-Chloropropane)	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.20E-01 ca			NO	ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.65E+03 nc			NO	ND
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	6.10E+00 ca			NO	ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.09E+02 nc			NO	ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	7.30E+02 nc			NO	ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	7.30E+01 nc			NO	ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	7.30E+01 nc			NO	ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.65E+01 nc			NO	ND
	78-93-3	2-Butanone	ND	1.3	ug/l		1 / 4	NA - NA	1.3E+00	NA	7.10E+03 nc			NO	BSL
	91-58-7	2-Chloronaphthalene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	2.90E+03 nc			NO	ND
	95-57-8	2-Chlorophenol	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.80E+02 nc			NO	ND
	591-78-6	2-Hexanone	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	NA			NO	ND
	91-57-6	2-Methylnaphthalene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.50E+02 nc			NO	ND
	95-48-7	2-Methylphenol	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.82E+03 nc			NO	ND
	88-74-4	2-Nitroaniline	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.09E+02			NO	ND
	88-75-5	2-Nitrophenol	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	NA			NO	ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.49E-01 ca			NO	ND
	99-09-2	3-Nitroaniline	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.20E+00 ca			NO	ND
	72-54-8	4,4'-DDD	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	2.80E-01 ca			NO	ND
	72-55-9	4,4'-DDE	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.98E-01 ca			NO	ND
	50-29-3	4,4'-DDT	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.98E-01 ca			NO	ND
	534-52-1	4,6-Dinitro-2-methylphenol	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.65E+00 nc			NO	ND
	101-55-3	4-Bromophenyl-phenylether	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	NA			NO	ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	NA			NO	ND
	106-47-8	4-Chloroaniline	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.20E+00 ca			NO	ND
	7005-72-3	4-Chlorophenyl-phenylether	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	NA			NO	ND
	108-10-1	4-Methyl-2-pentanone	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.99E+03 nc			NO	ND
	106-44-5	4-Methylphenol	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.82E+02 nc			NO	ND
	100-01-6	4-Nitroaniline	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.20E+00 ca			NO	ND
	100-02-7	4-Nitrophenol	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	NA			NO	ND
	83-32-9	Acenaphthene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	2.20E+03 nc			NO	ND
	208-96-8	Acenaphthylene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	NA			NO	ND
	67-64-1	Acetone	ND	5.6	ug/l		3 / 4	NA - NA	5.6E+00	NA	2.20E+04 nc			NO	BSL
	98-86-2	Acetophenone	ND	0.55	ug/l		2 / 4	NA - NA	5.5E-01	NA	3.70E+03 nc			NO	BSL
	309-00-2	Aldrin	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.95E-03 ca			NO	ND
	319-84-6	Alpha-BHC	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.07E-02 ca			NO	ND
	5103-71-9	Alpha-Chlordane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.91E-01			NO	ND
	120-12-7	Anthracene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.10E+04 nc			NO	ND
	1912-24-9	Atrazine	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	2.90E-01 ca	3.0E+00		NO	ND
	100-52-7	Benzaldehyde	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.65E+03 nc			NO	ND
	71-43-2	Benzene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	4.10E-01 ca	5.0E+00		NO	ND

TABLE E-2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	OU-2 Surface Water

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Unit	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (nc/ca) (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source (3)	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
	56-55-3	Benzo(a)anthracene		1.7	ug/l	SC_OxPk	3 / 4	0.67 - 11	1.7E+00	NA	2.90E-02 ca	NA	NA	YES	ASL
	50-32-8	Benzo(a)pyrene		2.5	ug/l	SC_OxPk	3 / 4	0.9 - 11	2.5E+00	NA	2.90E-03 ca	2.0E-01	MCL	YES	ASL
	NA	Benzo(a)pyrene Equivalent	0.0059	0.01271	mg/l	SC_OxPk	4 / 4	NA - NA	1.3E-02	NA	9.21E-06 ca	2.0E-04	MCL	YES	ASL
	205-99-2	Benzo(b)fluoranthene		3.6	ug/l	SC_OxPk	3 / 4	1.2 - 11	3.6E+00	NA	2.90E-02 ca	NA	NA	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	ND	1.9	ug/l		3 / 4	NA - NA	1.9E+00	NA	1.83E+02			NO	BSL
	207-08-9	Benzo(k)fluoranthene		2.5	ug/l	SC_OxPk	3 / 4	1.2 - 11	2.5E+00	NA	2.90E-01 ca	NA	NA	YES	ASL
	319-85-7	Beta-BHC	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.74E-02 ca			NO	ND
	111-91-1	bis(2-Chloroethoxy)methane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	NA			NO	ND
	111-44-4	bis(2-Chloroethyl)ether	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.02E-02 ca			NO	ND
	117-81-7	bis(2-Ethylhexyl)phthalate	0.0033 J	0.0083 J	mg/l	SC_OxPk	4 / 4	NA - NA	8.3E-03	NA	4.80E-03 ca	NA	NA	YES	ASL
	74-97-5	Bromochloromethane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	NA			NO	ND
	75-27-4	Bromodichloromethane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.10E+00 ca			NO	ND
	75-25-2	Bromoform	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	8.51E+00 ca			NO	ND
	74-83-9	Bromomethane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	8.66E+00 nc			NO	ND
	85-68-7	Butylbenzylphthalate	ND	0.5	ug/l		1 / 4	NA - NA	5.0E-01	NA	3.50E+01 ca			NO	BSL
	105-60-2	Caprolactam	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.82E+04 nc			NO	ND
	86-74-8	Carbazole	ND	0.61	ug/l		1 / 4	NA - NA	6.1E-01	NA	3.36E+00			NO	BSL
	75-15-0	Carbon Disulfide	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.04E+03 nc			NO	ND
	56-23-5	Carbon Tetrachloride	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	2.00E-01 ca	5.0E+00		NO	ND
	108-90-7	Chlorobenzene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	9.10E+01 nc	1.0E+02		NO	ND
	75-00-3	Chloroethane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	2.10E+04 nc			NO	ND
	67-66-3	Chloroform	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.90E-01 ca			NO	ND
	74-87-3	Chloromethane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.80E+00 ca			NO	ND
	218-01-9	Chrysene	0.0015 J	0.0047 J	mg/l	SC_OxPk	3 / 4	0.011 - NA	4.7E-03	NA	2.90E-03 ca	NA	NA	YES	ASL
	156-59-2	cis-1,2-Dichloroethene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.70E+02 nc	7.0E+01		NO	ND
	10061-01-5	cis-1,3-Dichloropropene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.95E-01			NO	ND
	110-82-7	Cyclohexane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.30E+04 nc			NO	ND
	319-86-8	Delta-BHC	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	NA			NO	ND
	53-70-3	Dibenzo(a,h)anthracene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	2.90E-03 ca			NO	ND
	132-64-9	Dibenzofuran	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.22E+01			NO	ND
	124-48-1	Dibromochloromethane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	8.00E-01 ca			NO	ND
	75-71-8	Dichlorodifluoromethane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.90E+02 nc			NO	ND
	60-57-1	Dieldrin	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	4.20E-03 ca			NO	ND
	84-66-2	Diethylphthalate	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	2.90E+04 nc			NO	ND
	131-11-3	Dimethylphthalate	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.65E+05			NO	ND
	84-74-2	Di-n-Butylphthalate	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.70E+03 nc			NO	ND
	117-84-0	Di-n-Octylphthalate	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.46E+03			NO	ND
	115-29-7	Endosulfan I	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	2.20E+02 nc			NO	ND
	33213-65-9	Endosulfan II	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	2.20E+02 nc			NO	ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	2.20E+02 nc			NO	ND
	72-20-8	Endrin	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.10E+01 nc			NO	ND
	7421-93-4	Endrin Aldehyde	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.10E+01 nc			NO	ND
	53494-70-5	Endrin Ketone	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.10E+01 nc			NO	ND
	56-38-2	Ethyl Parathion	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	2.20E+02 nc			NO	ND
	100-41-4	Ethylbenzene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.50E+00 ca			NO	ND
	206-44-0	Fluoranthene	ND	8.2	ug/l		3 / 4	NA - NA	8.2E+00	NA	1.50E+03 nc			NO	BSL
	86-73-7	Fluorene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.50E+03 nc			NO	ND
	58-89-9	Gamma-BHC (Lindane)	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	6.10E-02 ca			NO	ND
	5103-74-2	Gamma-Chlordane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.91E-01			NO	ND
	76-44-8	Heptachlor	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.50E-02 ca			NO	ND
	1024-57-3	Heptachlor Epoxide	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	7.40E-03 ca			NO	ND
	118-74-1	Hexachlorobenzene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	4.20E-02 ca			NO	ND
	87-68-3	Hexachlorobutadiene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	8.60E-01 ca			NO	ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	2.20E+02 nc			NO	ND
	67-72-1	Hexachloroethane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	4.80E+00 ca			NO	ND
	193-39-5	Indeno(1,2,3-cd)pyrene		1.7	ug/l	SC_OxPk	3 / 4	0.79 - 11	1.7E+00	NA	2.90E-02 ca	NA	NA	YES	ASL
	78-59-1	Isophorone	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	7.10E+01 ca			NO	ND
	98-82-8	Isopropylbenzene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	6.80E+02 nc			NO	ND

TABLE E-2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	OU-2 Surface Water

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Unit	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (nc/ca) (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source (3)	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
	72-43-5	Methoxychlor	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.80E+02 nc			NO	ND
	79-20-9	Methyl Acetate	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.70E+04 nc			NO	ND
	298-00-0	Methyl Parathion	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	9.10E+00 nc			NO	ND
	1634-04-4	Methyl tert-butyl ether	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.20E+01 ca			NO	ND
	108-87-2	Methylcyclohexane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	5.22E+03			NO	ND
	75-09-2	Methylene Chloride	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	4.28E+00 ca			NO	ND
	91-20-3	Naphthalene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.40E-01 ca			NO	ND
	98-95-3	Nitrobenzene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.40E+00 nc			NO	ND
	621-64-7	N-Nitroso-di-n-propylamine	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	9.60E-03 ca			NO	ND
	62-75-9	N-Nitrosodiphenylamine	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	4.20E-04 ca			NO	ND
	126-68-1	o,o,o-Triethylphosphorothioate	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	NA			NO	ND
	87-86-5	Pentachlorophenol	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	5.60E-01 ca			NO	ND
	85-01-8	Phenanthrene	ND	2	ug/l		3 / 4	NA - NA	2.0E+00	NA	1.83E+02			NO	BSL
	108-95-2	Phenol	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.09E+04 nc			NO	ND
	129-00-0	Pyrene	ND	6.1	ug/l		3 / 4	NA - NA	6.1E+00	NA	1.1E+03 nc			NO	BSL
	100-42-5	Styrene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.64E+03 nc			NO	ND
	3689-24-5	Sulfotep	ND	ND	ug/l		0 / 2	NA - NA	ND	NA	1.82E+01 nc			NO	ND
	57-74-9	Technical Chlordane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.91E-01			NO	ND
	127-18-4	Tetrachloroethene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.1E-01 ca			NO	ND
	108-88-3	Toluene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	2.3E+03 nc			NO	ND
	8001-35-2	Toxaphene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	6.11E-02 ca			NO	ND
	156-60-5	trans-1,2-Dichloroethene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.1E+02 nc	1.0E+02		NO	ND
	10061-02-6	trans-1,3-Dichloropropene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	3.95E-01			NO	ND
	79-01-6	Trichloroethene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.7E+00 ca			NO	ND
	75-69-4	Trichlorofluoromethane	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.29E+03 nc			NO	ND
	75-01-4	Vinyl Chloride	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.6E-02 ca			NO	ND
	95-47-6	o-Xylene	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.4E+03 nc			NO	ND
	38-3	m,p-Xylenes	ND	ND	ug/l		0 / 2	NA - NA	ND	NA	1.4E+03 nc			NO	ND
	1330-20-7	Xylenes (total)	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	2.0E+02 nc			NO	ND
		PCBs													
	1336-36-3	PCBs, Total (5)	5E-07	0.00465 DJ	mg/l	SC_OxPk	27 / 31	0.0005 - 0.0005	4.7E-03	NA	1.7E-04 ca	0.0005	MCL	YES	ASL
		Dioxin													
	NA	Dioxin TEQ	2.7E-09	2.2E-08	mg/l	SC_OxPk	4 / 4	NA - NA	2.2E-05	NA	4.50E-10 ca	NA	NA	YES	ASL
		Inorganics													
	7429-90-5	Aluminum	1,380	16,000	ug/l		4 / 4	NA - NA	1.6E+04	NA	3.65E+04 nc	NA		NO	BSL
	7440-36-0	Antimony	ND	8.3	ug/l		1 / 4	NA - NA	8.3E+00	NA	1.46E+01 nc	6.0E+00		NO	BSL
	7440-38-2	Arsenic	0.0054 BJ	0.0092 B	mg/l	SC_OxPk	3 / 4	0.0022 - NA	9.2E-03	NA	4.48E-05 ca	1.0E-02	MCL	YES	ASL
	7440-39-3	Barium	24.1	201	ug/l		4 / 4	NA - NA	2.0E+02	NA	7.3E+03 nc	2.0E+03		NO	BSL
	7440-41-7	Beryllium	ND	1.2	ug/l		2 / 4	NA - NA	1.2E+00	NA	7.30E+01 nc	4.0E+00		NO	BSL
	7440-43-9	Cadmium	ND	1.4	ug/l		1 / 4	NA - NA	1.4E+00	NA	1.82E+01 nc	5.0E+01		NO	BSL
	7440-70-2	Calcium	8,140	32,400	ug/l		4 / 4	NA - NA	3.2E+04	NA	NA	NA		NO	NUT
	18540-29-9	Chromium	2	32.9	ug/l		4 / 4	NA - NA	3.3E+01	NA	1.09E+02 nc	NA		NO	BSL
	7440-48-4	Cobalt	0.005	0.0122	mg/l	SC_OxPk	2 / 4	0.0019 - 0.0019	1.2E-02	NA	1.1E-02 nc	NA	NA	YES	ASL
	7440-50-8	Copper	8.4	101	ug/l		4 / 4	NA - NA	1.0E+02	NA	1.46E+03 nc	1.3E+03		NO	BSL
	57-12-5	Cyanide	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	7.30E+02 nc	2.0E+02		NO	ND
	7439-89-6	Iron	1.7 J	24	ug/l	SC_OxPk	4 / 4	NA - NA	2.4E+04	NA	2.6E+04 nc	NA	NA	NO	BSL
	7439-92-1	Lead	0.0042 B	0.0964	mg/l	SC_OxPk	4 / 4	NA - NA	9.6E-02	NA	NA	1.5E-02	MCL	YES	ASL2
	7439-95-4	Magnesium	3,670	13,800	ug/l		4 / 4	NA - NA	1.4E+04	NA	NA	NA		NO	NUT
	7439-96-5	Manganese	0.069	2.4	mg/l	SC_OxPk	4 / 4	NA - NA	2.4E+00	NA	8.76E-01 nc	NA	NA	YES	ASL
	7439-97-6	Mercury	ND	0.43	ug/l		2 / 4	NA - NA	4.3E-01	NA	6.3E-01 nc	2.0E+00		NO	BSL
	7440-02-0	Nickel	ND	23.2	ug/l		2 / 4	NA - NA	2.3E+01	NA	7.30E+02 nc	NA		NO	BSL
	7440-09-7	Potassium	2,970	5,150	ug/l		4 / 4	NA - NA	5.2E+03	NA	NA	NA		NO	NUT
	7782-49-2	Selenium	ND	4.5	ug/l		2 / 4	NA - NA	4.5E+00	NA	1.82E+02 nc	5.0E+01		NO	BSL
	7440-22-4	Silver	ND	ND	ug/l		0 / 4	NA - NA	ND	NA	1.82E+02 nc	NA		NO	ND
	7440-23-5	Sodium	1,400	3,920	ug/l		4 / 4	NA - NA	3.9E+03	NA	NA	NA		NO	NUT
	7440-28-0	Thallium	0.0055 B	0.0055 B	mg/l	SC_OxPk	1 / 4	0.005 - 0.005	5.5E-03	NA	2.41E-03 nc	2.0E-03	MCL	YES	ASL
	7440-62-2	Vanadium	4.10	33.90	ug/l		4.00 / 4.00	NA - NA	33.90	NA	260.00 nc	NA		NO	BSL
	7440-66-6	Zinc	ND	461.00	ug/l		2.00 / 4.00	NA - NA	461.00	NA	10,949.88 nc	NA		NO	BSL

TABLE E-2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	OU-2 Surface Water

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Unit	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (nc/ca) (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source (3)	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)

(1) Maximum detected concentration used for screening.

(2) Screened against EPA Region 9 Regional Screening Levels (RSLs) for residential tap water adjusted to cancer benchmark = 1E-6 and HQ = 0.1. The more conservative value of the combined cancer and combined hazard values (after adjustment) was used.Units adjusted to ug/l.

(3) MCL = Maximum contaminant level.

(4) Rationale Codes:
ASL = Above Screening Level.
TOX = Group A Carcinogen.
BSL = Below Screening Level.
BSL = Below ARAR/TBC Value.
NUT = Essential Nutrient.
NTX = Not Toxicity Value Available.

(5) Total PCBs will be calculated using sum of the detected Aroclors when at least one Aroclor is detected or the lowest detection limit when none of the Aroclors are detected.

Definitions: NA = Not Available.
nc = Screening Toxcity Value is based on noncancer effects.
ca = Screening Toxicity Value is based on cancer effects.
sat = Screening Toxicity Value is based on soil saturation.
COPC = Chemical of Potential Concern.
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered.
TEQ = Toxic equivalents.
VOCs = Volatile organic compounds.
SVOCs = Semi-volatile organic compounds.
P/PCBs = Pesticides/polychlorinated biphenyls.
J = Estimated value.
B = Indicates an estimated value between the instrument detection limit and the Reporting Limit (RL).
BJ = The compound was positively identified; however, the associated numerical value is an estimated concentration between the instrument detection limit and the RL.
DJ=The compound was positively identified; however, the associated numerical value is an estimated concentration based on a secondary dilution.

TABLE E-3.1A
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Surface Soil
Exposure Medium:	Non-residential Surface Soil - PCBs

Exposure Point	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Unit	Detection Frequency	Range of Detection Limit	Arithmetic Mean	95% UCL of Distribution	Exposure Point Concentration (1)			
									Value	Unit	Statistic	Rationale (2)
	PCBs											
EU 1	PCBs, Total	0.012 J	15	mg/kg	14 / 14	NA - NA	3.6	7.8	7.8	mg/kg	UCL-G	95% Approximate Gamma UCL
EU 2	PCBs, Total	0.30	160	mg/kg	19 / 22	0.035 - 0.21	8.8	54	54	mg/kg	UCL-NP	97.5% KM (Chebyshev) UCL
EU 3	PCBs, Total	0.045	30	mg/kg	19 / 20	NA - 0.036	1.9	11	11	mg/kg	UCL-NP	97.5% KM (Chebyshev) UCL
EU 4	PCBs, Total	0.084	1.9 J	mg/kg	20 / 22	0.037 - 0.039	0.57	0.74	0.74	mg/kg	UCL-NP	95% KM (BCA) UCL
EU 5	PCBs, Total	0.18	391	mg/kg	19 / 21	0.036 - 0.061	34	232	232	mg/kg	UCL-NP	99% KM (Chebyshev) UCL
EU 6	PCBs, Total	0.14	16	mg/kg	19 / 22	0.037 - 0.18	2.3	7.4	7.4	mg/kg	UCL-NP	97.5% KM (Chebyshev) UCL
EU 7	PCBs, Total	0.084 J	310	mg/kg	14 / 21	0.039 - 0.21	16	164	164	mg/kg	UCL-NP	99% KM (Chebyshev) UCL
EU 8	PCBs, Total	0.12	2.5	mg/kg	11 / 11	NA - NA	0.70	1.2	1.2	mg/kg	UCL-G	95% Approximate Gamma UCL
EU 9	PCBs, Total	0.039	4.9	mg/kg	12 / 19	0.035 - 0.048	0.43	0.95	0.95	mg/kg	UCL-NP	95% KM (BCA) UCL
EU 10	PCBs, Total	0.13 J	50	mg/kg	19 / 20	NA - 1.8	9.0	43	43	mg/kg	UCL-NP	99% KM (Chebyshev) UCL
EU 11	PCBs, Total	0.050	3.5	mg/kg	19 / 20	NA - 0.039	0.92	1.8	1.8	mg/kg	UCL-NP	95% KM (Chebyshev) UCL
EU 12	PCBs, Total	0.18	11	mg/kg	8 / 10	0.2 J - 2.3 J	3.7	10	10	mg/kg	UCL-NP	95% KM (Chebyshev) UCL
EU 13	PCBs, Total	0.17	17	mg/kg	10 / 11	NA - 0.04	3.2	11	11	mg/kg	UCL-NP	95% KM (Chebyshev) UCL
EU 14N	PCBs, Total	1.1	33	mg/kg	10 / 10	NA - NA	11	24	24	mg/kg	UCL-G	95% Approximate Gamma UCL
EU 14S	PCBs, Total	0.054	3.44	mg/kg	9 / 11	0.037 - 0.038	0.51	1.82	1.82	mg/kg	UCL-NP	95% KM (t) UCL
EU 15/16	PCBs, Total	0.037	4.7	mg/kg	30 / 41	0.036 - 0.041	0.67	1.5	1.5	mg/kg	UCL-NP	95% KM (Chebyshev) UCL
EU 17	PCBs, Total	0.047	12	mg/kg	22 / 25	0.036 - 2.6 J	2.2	4.7	4.7	mg/kg	UCL-NP	95% KM (Chebyshev) UCL
EU 18	PCBs, Total	0.072	1.1	mg/kg	13 / 20	0.036 - 1.9 J	0.31	0.34	0.34	mg/kg	UCL-NP	95% KM (Percentile Bootstrap) UCL
EU 19N	PCBs, Total	0.89	765	mg/kg	16 / 16	NA - NA	65	540	540	mg/kg	UCL-NP	99% Chebyshev (Mean, Sd) UCL
EU 19S	PCBs, Total	0.054	59	mg/kg	8 / 12	0.019 J - 0.038	9.4	73	59	mg/kg	Max	Max < 95% UCL
EU 20	PCBs, Total	0.051	5.0	mg/kg	8 / 14	0.036 - 0.044	0.47	2.7	2.7	mg/kg	UCL-NP	97.5% KM (Chebyshev) UCL
EU 21	PCBs, Total	0.042	2.7	mg/kg	8 / 20	0.036 - 0.044	0.21	0.50	0.50	mg/kg	UCL-NP	95% KM (BCA) UCL
EU 22	PCBs, Total	0.037	15	mg/kg	15 / 24	0.034 - 2.2 J	1.1	7.6	7.6	mg/kg	UCL-NP	99% KM (Chebyshev) UCL
EU 23	PCBs, Total	0.039	1.2	mg/kg	11 / 20	0.034 - 0.041	0.22	0.41	0.41	mg/kg	UCL-NP	95% KM (BCA) UCL
EU 24	PCBs, Total	0.13	38	mg/kg	29 / 37	0.036 - 0.042	5.7	12	12	mg/kg	UCL-NP	95% KM (Chebyshev) UCL
EU 25	PCBs, Total	0.043 J	11	mg/kg	16 / 21	0.028 - 0.22 J	0.80	3.1	3.1	mg/kg	UCL-NP	95% KM (Chebyshev) UCL
EU 26	PCBs, Total	0.13	150	mg/kg	23 / 24	NA - 0.038	18	103	103	mg/kg	UCL-T	95% Chebyshev (MVUE) UCL
EU 27	PCBs, Total	0.043	2.0 J	mg/kg	9 / 20	0.035 - 0.042	0.23	0.46	0.46	mg/kg	UCL-NP	95% KM (BCA) UCL
EU 29	PCBs, Total	0.044	0.83	mg/kg	10 / 21	0.036 - 0.04	0.12	0.19	0.19	mg/kg	UCL-NP	95% KM (t) UCL
EU 30	PCBs, Total	0.039	0.43	mg/kg	7 / 27	0.034 - 0.051	0.079	0.12	0.12	mg/kg	UCL-NP	95% KM (t) UCL

Statistics: Maximum Detected Value (Max); 95th Percentile (Perc); Normal Distribution (UCL-N); Lognormal Distribution (UCL-T); Gamma Distribution (UCL-G); Non-parametric UCL (UCL-NP)

(1) Exposure point concentration (EPCs) is the lower of the maximum concentration and the 95% Upper Confidence Limit (UCL) or 9th Percentile.

(2) The UCLs listed were calculated using ProUCL 4.0 program.

(3) Total PCBs calculated using sum of the detected Aroclors when at least one Aroclor was detected or maximum practical quantitation limit for non-detected Aroclors when none of the Aroclors were detected.

TABLE E-3.1B
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil - Non-PCBs

Exposure Point	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Unit	Detection Frequency	Range of Detection Limit	Arithmetic Mean	95% UCL of Distribution	Exposure Point Concentration (1)			
									Value	Unit	Statistic	Rationale (2)
Sitewide	**VOCs & SVOCs**											
	4,4'-DDT	0.0038	2.2 J	mg/kg	37 / 57	0.0035 - 0.018	0.13	0.37	0.37	mg/kg	UCL-NP	97.5% KM (Chebyshev) UCL
	Benzene	0.0011 J	39 JN	mg/kg	13 / 50	0.0041 - 0.010	0.97	6.0	6.0	mg/kg	UCL-NP	97.5% KM (Chebyshev) UCL
	Benzo(a)pyrene Equivalent	0.091	105	mg/kg	62 / 69	9.7E-06 - 4.5	3.0	9.5	9.5	mg/kg	UCL-NP	95% KM (Chebyshev) UCL
	bis(2-Ethylhexyl)phthalate	0.017 J	29	mg/kg	46 / 54	0.34 - 37	2.1	5.7	5.7	mg/kg	UCL-NP	97.5% KM (Chebyshev) UCL
	Dieldrin	0.0039	0.51	mg/kg	9 / 66	0.0034 - 0.16	0.022	0.030	0.030	mg/kg	UCL-NP	95% KM (t) UCL
	PCBs											
	PCBs, Total	See Table 3.1A										
	Dioxin											
	Dioxin TEQ	3.5E-07	2.0E-03	mg/kg	46 / 46	NA - NA	7.0E-05	1.1E-04	1.1E-04	mg/kg	UCL-T	95% Chebyshev (MVUE) UCL
	Inorganics											
	Antimony	0.58 J	24	mg/kg	35 / 48	0.42 - 8.1 J	2.4	3.0	3.0	mg/kg	UCL-NP	95% KM (BCA) UCL
	Arsenic	2.0	120	mg/kg	175 / 91	NA - NA	12	18	18.0	mg/kg	UCL-NP	95% Chebyshev (Mean, Sd) UCL
	Cadmium	0.096 B	72	mg/kg	73 / 91	0.035 - 0.80	3.0	7.0	7	mg/kg	UCL-NP	95% KM (Chebyshev) UCL
	Chromium	3.2 J	14000	mg/kg	91 / 91	NA - NA	204	1163	1163	mg/kg	UCL-NP	97.5% Chebyshev (Mean, Sd) UCL
	Cobalt	1.1 B	28 J	mg/kg	50 / 52	5.2 - 7.1	11	24	24	mg/kg	UCL-NP	95% KM (Chebyshev) UCL
	Iron	2550	416500	mg/kg	55 / 55	NA - NA	34548	67569	67569	mg/kg	UCL-NP	95% Chebyshev (Mean, Sd) UCL
	Lead	2.4 J	2600 J	mg/kg	218 / 218	NA - NA	168	295	168	mg/kg	Average	EPA 2007b
	Manganese	86	10100	mg/kg	52 / 52	NA - NA	1050	1354	1354	mg/kg	UCL-T	95% H-UCL
	Mercury	0.020 B	7.5	mg/kg	86 / 88	0.017 - 0.024	0.38	0.87	0.87	mg/kg	UCL-NP	95% KM (Chebyshev) UCL
	Thallium	0.47 B	50	mg/kg	18 / 52	0.29 - 0.58 J	2.1	4.4	4.4	mg/kg	UCL-NP	95% KM (BCA) UCL

Statistics: Maximum Detected Value (Max); 95th Percentile (Perc); Normal Distribution (UCL-N); Lognormal Distribution (UCL-T); Gamma Distribution (UCL-G); Non-parametric UCL (UCL-NP).

(1) Exposure point concentration (EPC) is the lower of the maximum concentration and the 95% Upper Confidence Limit (UCL) or 95 th Percentile.

(2) The UCLs listed were calculated using ProUCL 4.0 program, with the exception of lead, where the average concentration is employed.

(3) Total PCBs calculated using sum of the detected Aroclors when at least one Aroclor was detected or maximum practical quantitation limit for non-detected Aroclors when none of the Aroclors were detected. EPC was calculated using one-half the practical quantitation limit for non-detected Aroclors.

(4) Under Central Tendency Exposure (CTE) scenario, duplicate samples at SSRI-11 were averaged to calculate the EPC. The mean value was selected as the EPC.

EPA 2007b. Estimating the Soil Lead Concentration Term for the Integrated Exposure Uptake Biokinetic (IEUBK) Model [OSWER #9200.1-78]. September.

TABLE E-3.2
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Subsurface Soil

Exposure Point	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Unit	Detection Frequency	Range of Detection Limit	Arithmetic Mean	95% UCL of Distribution	Exposure Point Concentration (1)			
									Value	Unit	Statistic	Rationale (2)
Sitewide	**VOCs & SVOCs**											
	4,4'-DDT	0.15	0.48	mg/kg	3 / 3	NA - NA	0.29	NA	0.48	mg/kg	Max	< 10 samples
	Benzene	0.0024	0.12	mg/kg	3 / 3	NA - NA	0.042	NA	0.12	mg/kg	Max	< 10 samples
	Benzo(a)pyrene Equivalent	1.3	8.7	mg/kg	3 / 3	NA - NA	4.5	NA	8.7	mg/kg	Max	< 10 samples
	bis(2-Ethylhexyl)phthalate	0.17	21	mg/kg	3 / 3	NA - NA	12	NA	21	mg/kg	Max	< 10 samples
	Dieldrin	0.24	0.47	mg/kg	2 / 3	NA - 0.1212	0.28	NA	0.47	mg/kg	Max	< 10 samples
	PCBs											
	PCBs, Total	0.29	510	mg/kg	54 / 59	0.034 J - 1.9 J	37	100	100	mg/kg	UCL-NP	97.5% KM (Chebyshev) UCL
	Dioxin											
	Dioxin TEQ	6.8E-05	1.9E-04	mg/kg	3 / 3	NA - NA	110	NA	1.9E-04	mg/kg	Max	< 10 samples
	Inorganics											
	Antimony	NA	20	mg/kg	1 / 1	NA - NA	20	NA	20	mg/kg	Max	< 10 samples
	Arsenic	5.5	45	mg/kg	9 / 9	NA - NA	15	NA	45	mg/kg	Max	< 10 samples
	Cadmium	0.18	11	mg/kg	9 / 9	NA - NA	3.6	NA	11	mg/kg	Max	< 10 samples
	Chromium	18	343	mg/kg	9 / 9	NA - NA	75	NA	343	mg/kg	Max	< 10 samples
	Cobalt	6.7	16 J	mg/kg	3 / 3	NA - NA	13	NA	16	mg/kg	Max	< 10 samples
	Iron	27290	210260	mg/kg	6 / 6	NA - NA	70438	NA	210260	mg/kg	Max	< 10 samples
	Lead	16 J	19000	mg/kg	20 / 20	NA - NA	1082	10473	1082	mg/kg	Average	EPA 2007b
	Manganese	3196	2257	mg/kg	3 / 3	NA - NA	2185	NA	2257	mg/kg	Max	< 10 samples
	Mercury	0.10	1.6	mg/kg	4 / 4	NA - NA	0.90	NA	1.6	mg/kg	Max	< 10 samples
	Thallium	1.25	3	mg/kg	3 / 3	NA - NA	1.8	NA	2.9	mg/kg	Max	< 10 samples

Statistics: Maximum Detected Value (Max); 95th Percentile (Perc); Normal Distribution (UCL-N); Lognormal Distribution (UCL-T); Gamma Distribution (UCL-G); Non-parametric UCL (UCL-NP).

(1) Exposure point concentration (EPC) is the lower of the maximum concentration and the 95% Upper Confidence Limit (UCL) or 95 th Percentile.

(2) The UCLs listed were calculated using ProUCL 4.0 program, with the exception of lead, where the average concentration is employed.

(3) Total PCBs calculated using sum of the detected Aroclors when at least one Aroclor was detected or maximum practical quantitation limit for non-detected Aroclors when none of the Aroclors were detected. EPC was calculated using one-half the practical quantitation limit for non-detected Aroclors.

EPA 2007b. Estimating the Soil Lead Concentration Term for the Integrated Exposure Uptake Biokinetic (IEUBK) Model [OSWER #9200.1-78]. September.

TABLE E-3.3
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	OU-1/OU-2 Surface water

Exposure Point	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Detection Frequency	Range of Detection Limit	Arithmetic Mean	95% UCL of Distribution	Exposure Point Concentration (1)			
									Value	Unit	Statistic	Rationale (2)
OU-1 & 2	**VOCs/SVOCs**											
	Benzo(a)pyrene Equivalent	0.0059	0.013	mg/l	4 / 4	NA - NA	8.3E-03	NA	5.9E-03	mg/l	Max	< ten samples
	bis(2-Ethylhexyl)phthalate	0.0033 J	0.0083 J	mg/l	4 / 4	NA - NA	5.6E-03	NA	3.3E-03	mg/l	Max	< ten samples
	PCBs											
	PCBs, Total (4)	5E-07	0.0047 DJ	mg/l	27 / 31	0.0005 - 0.00054	7.0E-04	NA	5.0E-07	mg/l	Max	< ten samples
	Dioxin											
	Dioxin TEQ	2.7E-09	2.2E-08	mg/l	4 / 4	NA - NA	9.7E-09	NA	2.7E-09	mg/l	Max	< ten samples
	Inorganics											
	Arsenic	0.0054 BJ	0.0092 B	mg/l	3 / 4	0.0022 - NA	5.4E-03	NA	5.4E-03	mg/l	Max	< ten samples
	Cobalt	0.0050	0.012	mg/l	2 / 4	0.0019 - 0.0019	5.3E-03	NA	5.0E-03	mg/l	Max	< ten samples
	Lead	0.0042 B	0.096	mg/l	4 / 4	NA - NA	3.4E-02	NA	3.4E-02	mg/l	Max	< ten samples
	Manganese	0.069	2.4	mg/l	4 / 4	NA - NA	8.0E-01	NA	6.9E-02	mg/l	Max	< ten samples
	Thallium	0.0055 B	0.0055 B	mg/l	1 / 4	0.005 - 0.005	3.3E-03	NA	5.5E-03	mg/l	Max	< ten samples

Statistics: Maximum Detected Value (Max); 95th Percentile (Perc); Normal Distribution (UCL-N); Lognormal Distribution (UCL-T); Gamma Distribution (UCL-G); Non-parametric UCL (UCL-NP).

(1) Exposure point concentration (EPC) is the lower of the maximum concentration and the 95% Upper Confidence Limit (UCL) or 95 th Percentile.

(2) The UCLs listed are maximum detected concentraions because too few samples were available for statistical analysis. One exception to this is lead, where the average concentration is employed.

(3) Total PCBs calculated using sum of the detected Aroclors when at least one Aroclor was detected or maximum practical quantitation limit for non-detected Aroclors when none of the Aroclors were detected. EPC was calculated using one-half the practical quantitation limit for non-detected Aroclors.

(4) Under Central Tendency Exposure (CTE) scenario, duplicate samples at SSRI-11 were averaged to calculate the EPC. The mean value was selected as the EPC.

TABLE E-4.1
VALUES USED FOR DAILY INTAKE CALCULATIONS
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Unit	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Industrial Worker	Adult	Surface Soil	CS	Chemical Concentration in Soil	mg/kg	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x IR-S x EF x ED x
				IR-S	Ingestion Rate of Soil	mg/day	100	EPA 2002a	50	EPA 2002a	1/BW x 1/AT
				EF	Exposure Frequency	days/year	250	EPA 2002a	219	professional judgment	
				ED	Exposure Duration	years	25	EPA 2004a	9	EPA 2002a	
				BW	Body Weight	kg	70	EPA 2004a	70	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	9,125	EPA 1989	3,285	EPA 1989	
	Construction Worker	Adult	Surface/ Subsurface Soil	CS	Chemical Concentration in Soil	mg/kg	See Table B-3.2	See Table B-3.2	See Table B-3.2	See Table B-3.2	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x IR-S x EF x ED x
				IR-S	Ingestion Rate of Soil	mg/day	330	EPA 2002a	330	EPA 2002a	1/BW x 1/AT
				EF	Exposure Frequency	days/year	100	professional judgment	40	professional judgment	
				ED	Exposure Duration	years	1	professional judgment	1	professional judgment	
				BW	Body Weight	kg	70	EPA 2004a	70	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	365	EPA 1989	365	EPA 1989	
	Utility Worker	Adult	Surface/ Subsurface Soil	CS	Chemical Concentration in Soil	mg/kg	See Table B-3.2	See Table B-3.2	See Table B-3.2	See Table B-3.2	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x IR-S x EF x ED x
				IR-S	Ingestion Rate of Soil	mg/day	330	EPA 2002a	330	EPA 2002a	1/BW x 1/AT
				EF	Exposure Frequency	days/year	10	professional judgment	1	professional judgment	
				ED	Exposure Duration	years	1	professional judgment	1	professional judgment	
				BW	Body Weight	kg	70	EPA 2004a	70	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	365	EPA 1989	365	EPA 1989	
	Commercial Visitor	Adult	Surface Soil	CS	Chemical Concentration in Soil	mg/kg	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x IR-S x EF x ED x
				IR-S	Ingestion Rate of Soil	mg/day	50	EPA 2002a	50	EPA 2002a	1/BW x 1/AT
				EF	Exposure Frequency	days/year	113	professional judgment	56	professional judgment	
				ED	Exposure Duration	years	25	EPA 2004A	25	EPA 2004A	
				BW	Body Weight	kg	70	EPA 2004A	70	EPA 2004A	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	9,125	EPA 1989	9,125	EPA 1989	
	Commercial Visitor	Young Child (1-6 yrs)	Surface Soil	CS	Chemical Concentration in Soil	mg/kg	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x IR-S x EF x ED x
				IR-S	Ingestion Rate of Soil	mg/day	100	EPA 2008b	100	EPA 2008b	1/BW x 1/AT
				EF	Exposure Frequency	days/year	56	professional judgment	28	professional judgment	
				ED	Exposure Duration	years	6	EPA 2004A	6	EPA 2004A	
				BW	Body Weight	kg	15	EPA 2004A	15	EPA 2004A	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	2,190	EPA 1989	2,190	EPA 1989	
	School and Day Care	Adult	Surface Soil	CS	Chemical Concentration in Soil	mg/kg	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x IR-S x EF x ED x
				IR-S	Ingestion Rate of Soil	mg/day	100	EPA 2002a	50	EPA 2002a	1/BW x 1/AT
				EF	Exposure Frequency	days/year	250	professional judgment	219	professional judgment	
				ED	Exposure Duration	years	25	EPA 1997a	9	EPA 1997a	
				BW	Body Weight	kg	70	EPA 2004a	70	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	9,125	EPA 1989	3,285	EPA 1989	

TABLE E-4.1
VALUES USED FOR DAILY INTAKE CALCULATIONS
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Unit	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Ingestion (cont.)	School and Day Care	Young Child (1-6 yrs)	Surface Soil	CS	Chemical Concentration in Soil	mg/kg	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x IR-S x EF x ED x
				IR-S	Ingestion Rate of Soil	mg/day	200	EPA 2008b	100	EPA 2008b	1/BW x 1/AT
				EF	Exposure Frequency	days/year	250	professional judgment	219	professional judgment	
				ED	Exposure Duration	years	6	EPA 1997a	6	EPA 1997a	
				BW	Body Weight	kg	15	EPA 2004a	15	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	2,190	EPA 1989	2,190	EPA 1989	
	Recreational Users	Young Child (1-6 yrs)	Surface Soil	CS	Chemical Concentration in Soil	mg/kg	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x IR-S x EF x ED x
				IR-S	Ingestion Rate of Soil	mg/day	200	EPA 2008a	100	EPA 2008a	1/BW x 1/AT
				EF	Exposure Frequency	days/year	104	professional judgment	52	professional judgment	
				ED	Exposure Duration	years	6	EPA 2000	6	EPA 2000	
				BW	Body Weight	kg	15	EPA 2004a	15	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	2,190	EPA 1989	2,190	EPA 1989	
	Recreational Users	Adolescent (7-16 yrs)	Surface Soil	CS	Chemical Concentration in Soil	mg/kg	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x IR-S x EF x ED x
				IR-S	Ingestion Rate of Soil	mg/day	100	EPA 2002a	50	EPA 2002a	1/BW x 1/AT
				EF	Exposure Frequency	days/year	104	professional judgment	52	professional judgment	
				ED	Exposure Duration	years	10	EPA 2000	10	EPA 2000	
				BW	Body Weight	kg	45	EPA 2004a	45	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	3,650	EPA 1989	3,650	EPA 1989	
	Trespasser	Adolescent (7-16 yrs)	Surface Soil	CS	Chemical Concentration in Soil	mg/kg	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x IR-S x EF x ED x
				IR-S	Ingestion Rate of Soil	mg/day	50	EPA 2002a	50	EPA 2002a	1/BW x 1/AT
				EF	Exposure Frequency	days/year	50	professional judgment	10	professional judgment	
				ED	Exposure Duration	years	10	EPA 2000	10	EPA 2000	
				BW	Body Weight	kg	45	EOA 2004a	45	EOA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	3,650	EPA 1989	3,650	EPA 1989	
Dermal	Industrial Worker	Adult	Surface Soil	CS	Chemical Concentration in Soil	mg/kg	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x SA x AF x ABS x EF x ED x
				SA	Skin Surface Area Available for Contact	cm^2/day	3,300	EPA 2004a	3,300	EPA 2004a	1/BW x 1/AT
				AF	Adherence Factor	mg/cm^2	0.2	EPA 2002a	0.02	EPA 2004a	
				ABS	Absorption Factor	unitless	See Table 4-4	See Table 4-4	See Table 4-4	See Table 4-4	
				EF	Exposure Frequency	days/year	250	EPA 2002a	219	professional judgment	
				ED	Exposure Duration	years	25	EPA 2004a	9	EPA 2002a	
				BW	Body Weight	kg	70	EPA 2004a	70	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	9,125	EPA 1989	3,285	EPA 1989	

TABLE E-4.1
VALUES USED FOR DAILY INTAKE CALCULATIONS
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Unit	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Dermal (cont.)	Construction Worker	Adult	Surface/ Subsurface Soil	CS	Chemical Concentration in Soil	mg/kg	See Table B-3.2	See Table B-3.2	See Table B-3.2	See Table B-3.2	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x SA x AF x ABS x EF x ED x
				SA	Skin Surface Area Available for Contact	cm^2/day	3,300	EPA 2004a	3,300	EPA 2004a	1/BW x 1/AT
				AF	Adherence Factor	mg/cm^2	0.3	EPA 2004a	0.1	EPA 2004a	
				ABS	Absorption Factor	unitless	See Table 4-4	See Table 4-4	See Table 4-4	See Table 4-4	
				EF	Exposure Frequency	days/year	100	professional judgment	40	professional judgment	
				ED	Exposure Duration	years	1	professional judgment	1	professional judgment	
				BW	Body Weight	kg	70	EPA 2004a	70	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	365	EPA 1989	365	EPA 1989	
	Utility Worker	Adult	Surface/ Subsurface Soil	CS	Chemical Concentration in Soil	mg/kg	See Table B-3.2	See Table B-3.2	See Table B-3.2	See Table B-3.2	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x SA x AF x ABS x EF x ED x
				SA	Skin Surface Area Available for Contact	cm^2/day	3,300	EPA 2004a	3,300	EPA 2004a	1/BW x 1/AT
				AF	Adherence Factor	mg/cm^2	0.3	EPA 2004a	0.1	EPA 2004a	
				ABS	Absorption Factor	unitless	See Table 4-4	See Table 4-4	See Table 4-4	See Table 4-4	
				EF	Exposure Frequency	days/year	10	professional judgment	1	professional judgment	
				ED	Exposure Duration	years	1	professional judgment	1	professional judgment	
				BW	Body Weight	kg	70	EPA 2004a	70	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	365	EPA 1989	365	EPA 1989	
	Commercial Visitor	Adult	Surface Soil	CS	Chemical Concentration in Soil	mg/kg	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x SA x AF x ABS x EF x ED x
				SA	Skin Surface Area Available for Contact	cm^2/day	3,300	EPA 2004a	3,300	EPA 2004a	1/BW x 1/AT
				AF	Adherence Factor	mg/cm^2	0.1	EPA 2004a	0.02	EPA 2004a	
				ABS	Absorption Factor	unitless	See Table 4-4	See Table 4-4	See Table 4-4	See Table 4-4	
				EF	Exposure Frequency	days/year	113	professional judgment	56	professional judgment	
				ED	Exposure Duration	years	25	EPA 2004a	25	EPA 2004a	
				BW	Body Weight	kg	70	EPA 2004a	70	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	9,125	EPA 1989	9,125	EPA 1989	
	Commercial Visitor	Young Child (1-6 yrs)	Surface Soil	CS	Chemical Concentration in Soil	mg/kg	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x SA x AF x ABS x EF x ED x
				SA	Skin Surface Area Available for Contact	cm^2/day	2,800	EPA 2004a	2,800	EPA 2004a	1/BW x 1/AT
				AF	Adherence Factor	mg/cm^2	0.06	EPA 2004a	0.01	EPA 2004a	
				ABS	Absorption Factor	unitless	See Table 4-4	See Table 4-4	See Table 4-4	See Table 4-4	
				EF	Exposure Frequency	days/year	56	professional judgment	28	professional judgment	
				ED	Exposure Duration	years	6	EPA 2004a	6	EPA 2004a	
				BW	Body Weight	kg	15	EPA 2004a	15	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	2,190	EPA 1989	2,190	EPA 1989	
	School and Day Care	Adult	Surface Soil	CS	Chemical Concentration in Soil	mg/kg	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x SA x AF x ABS x EF x ED x
				SA	Skin Surface Area Available for Contact	cm^2/day	3,300	EPA 2004a	3,300	EPA 2004a	1/BW x 1/AT
				AF	Adherence Factor	mg/cm^2	0.06	EPA 2004a	0.01	EPA 2004a	
				ABS	Absorption Factor	unitless	See Table 4-4	See Table 4-4	See Table 4-4	See Table 4-4	
				EF	Exposure Frequency	days/year	250	professional judgment	219	professional judgment	
				ED	Exposure Duration	years	25	EPA 1997a	9	EPA 1997a	
				BW	Body Weight	kg	70	EPA 2004a	70	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	9,125	EPA 1989	3,285	EPA 1989	

TABLE E-4.1
VALUES USED FOR DAILY INTAKE CALCULATIONS
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Unit	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Dermal (cont.)	School and Day Care	Young Child (1-6 yrs)	Surface Soil	CS	Chemical Concentration in Soil	mg/kg	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x SA x AF x ABS x EF x ED x
				SA	Skin Surface Area Available for Contact	cm^2/day	2,800	EPA 2004a	2,800	EPA 2004a	1/BW x 1/AT
				AF	Adherence Factor	mg/cm^2	0.3	EPA 2004a	0.04	EPA 2004a	
				ABS	Absorption Factor	unitless	See Table 4-4	See Table 4-4	See Table 4-4	See Table 4-4	
				EF	Exposure Frequency	days/year	250	professional judgment	219	professional judgment	
				ED	Exposure Duration	years	6	EPA 1997a	6	EPA 1997a	
				BW	Body Weight	kg	15	EPA 2004a	15	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	2,190	EPA 1989	2,190	EPA 1989	
	Recreational Users	Young Child (1-6 yrs)	Surface Soil	CS	Chemical Concentration in Soil	mg/kg	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x SA x AF x ABS x EF x ED x
				SA	Skin Surface Area Available for Contact	cm^2/day	2,800	EPA 2004A	2,800	EPA 2004A	1/BW x 1/AT
				AF	Adherence Factor	mg/cm^2	0.3	EPA 2004A	0.04	EPA 2004A	
				ABS	Absorption Factor	unitless	See Table 4-4	See Table 4-4	See Table 4-4	See Table 4-4	
				EF	Exposure Frequency	days/year	104	professional judgment	52	professional judgment	
				ED	Exposure Duration	years	6	EPA 2000	6	EPA 2000	
				BW	Body Weight	kg	15	EPA 2004a	15	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	2,190	EPA 1989	2,190	EPA 1989	
	Recreational Users	Adolescent (7-16 yrs)	Surface Soil	CS	Chemical Concentration in Soil	mg/kg	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x SA x AF x ABS x EF x ED x
				SA	Skin Surface Area Available for Contact	cm^2/day	5,300	EPA 2004A	5,300	EPA 2004A	1/BW x 1/AT
				AF	Adherence Factor	mg/cm^2	0.4	EPA 2004A	0.04	EPA 2004A	
				ABS	Absorption Factor	unitless	See Table 4-4	See Table 4-4	See Table 4-4	See Table 4-4	
				EF	Exposure Frequency	days/year	104	professional judgment	52	professional judgment	
				ED	Exposure Duration	years	10	EPA 2000	10	EPA 2000	
				BW	Body Weight	kg	45	EPA 2004a	45	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	3,650	EPA 1989	3,650	EPA 1989	
	Trespasser	Adolescent (7-16 yrs)	Surface Soil	CS	Chemical Concentration in Soil	mg/kg	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	kg/mg	1E-06	--	1E-06	--	CS x CF x SA x AF x ABS x EF x ED x
				SA	Skin Surface Area Available for Contact	cm^2/day	5,300	EPA 2004a	5,300	EPA 2004a	1/BW x 1/AT
				AF	Adherence Factor	mg/cm^2	0.4	EPA 2004a	0.04	EPA 2004a	
				ABS	Absorption Factor	unitless	See Table 4-4	See Table 4-4	See Table 4-4	See Table 4-4	
				EF	Exposure Frequency	days/year	50	professional judgment	10	professional judgment	
				ED	Exposure Duration	years	10	EPA 2000	10	EPA 2000	
				BW	Body Weight	kg	45	EPA2004a	45	EPA2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	3,650	EPA 1989	3,650	EPA 1989	
Inhalation of Fugitive Dust	Industrial Worker	Adult	Air	CS	Chemical Concentration in Soil	mg/kg	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	See Tables B-3.1a, B-3.1b	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-A	Inhalation Rate of Air	m^3/hour	1.5	EPA 2002a	0.83	EPA 1997a, professional judgment	CS x IR-A x ET x EF x ED x 1/PEF x
				ET	Exposure Time	hour/day	8	EPA 2002a	8	EPA 2002a	1/BW x 1/AT
				EF	Exposure Frequency	days/year	250	EPA 2002a	219	professional judgment	
				ED	Exposure Duration	years	25	EPA 2004a	9	EPA 2004a	
				PEF	Particulate Emission Factor	m^3/kg	1.36E+09	EPA 2002a	1.36E+09	EPA 2002a	
				BW	Body Weight	kg	70	EPA 2004a	70	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	9,125	EPA 1989	3,285	EPA 1989	

TABLE E-4.1
VALUES USED FOR DAILY INTAKE CALCULATIONS
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Unit	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Inhalation of Fugitive Dust (cont.)	Construction Worker	Adult	Air	CS	Chemical Concentration in Soil	mg/kg	See Table B-3.2	See Table B-3.2	See Table B-3.2	See Table B-3.2	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-A	Inhalation Rate of Air	m^3/hour	2.5	EPA 1997a	1.5	EPA 1997a	CS x IR-A x ET x EF x ED x 1/PEF x
				ET	Exposure Time	hour/day	8	EPA 2002a	8	EPA 2002a	1/BW x 1/AT
				EF	Exposure Frequency	days/year	100	professional judgment	40	professional judgment	
				ED	Exposure Duration	years	1	professional judgment	1	professional judgment	
				PEF	Particulate Emission Factor	m^3/kg	1.36E+09	EPA 2002a	1.36E+09	EPA 2002a	
				BW	Body Weight	kg	70	EPA 2004a	70	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	365	EPA 1989	365	EPA 1989	
	Utility Worker	Adult	Air	CS	Chemical Concentration in Soil	mg/kg	See Table B-3.2	See Table B-3.2	See Table B-3.2	See Table B-3.2	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-A	Inhalation Rate of Air	m^3/hour	2.5	professional judgment	1.5	professional judgment	CS x IR-A x ET x EF x ED x 1/PEF x
				ET	Exposure Time	hour/day	8	EPA 2002a	8	EPA 2002a	1/BW x 1/AT
				EF	Exposure Frequency	days/year	10	professional judgment	1	professional judgment	
				ED	Exposure Duration	years	1	professional judgment	1	professional judgment	
				PEF	Particulate Emission Factor	m^3/kg	1.36E+09	EPA 2002a	1.36E+09	EPA 2002a	
				BW	Body Weight	kg	70	EPA 2004a	70	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	365	EPA 1989	365	EPA 1989	
	Commercial Visitor	Adult	Air	CS	Chemical Concentration in Soil	mg/kg	See Table B-3.2	See Table B-3.2	See Table B-3.2	See Table B-3.2	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-A	Inhalation Rate of Air	m^3/hour	0.83	EPA 1997a	0.83	EPA 1997a	CS x IR-A x ET x EF x ED x 1/PEF x
				ET	Exposure Time	hour/day	8	EPA 2002a	8	EPA 2002a	1/BW x 1/AT
				EF	Exposure Frequency	days/year	113	professional judgment	56	professional judgment	
				ED	Exposure Duration	years	25	EPA 2004a	25	EPA 2004a	
				PEF	Particulate Emission Factor	m^3/kg	1.36E+09	EPA 2002a	1.36E+09	EPA 2002a	
				BW	Body Weight	kg	70	EPA 2004a	70	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	9,125	EPA 1989	9,125	EPA 1989	
	Commercial Visitor	Young Child (1-6 yrs)	Air	CS	Chemical Concentration in Soil	mg/kg	See Table B-3.2	See Table B-3.2	See Table B-3.2	See Table B-3.2	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-A	Inhalation Rate of Air	m^3/hour	0.42	professional judgment	0.42	professional judgment	CS x IR-A x ET x EF x ED x 1/PEF x
				ET	Exposure Time	hour/day	8	EPA 2002a	8	EPA 2002a	1/BW x 1/AT
				EF	Exposure Frequency	days/year	56	professional judgment	28	professional judgment	
				ED	Exposure Duration	years	6	EPA 2004a	6	EPA 2004a	
				PEF	Particulate Emission Factor	m^3/kg	1.36E+09	EPA 2002a	1.36E+09	EPA 2002a	
				BW	Body Weight	kg	15	EPA 2004a	15	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	2,190	EPA 1989	2,190	EPA 1989	
	School and Day Care	Adult	Air	CS	Chemical Concentration in Soil	mg/kg	See Table B-3.2	See Table B-3.2	See Table B-3.2	See Table B-3.2	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-A	Inhalation Rate of Air	m^3/hour	0.83	EPA 1997a	0.83	EPA 1997a	CS x IR-A x ET x EF x ED x 1/PEF x
				ET	Exposure Time	hour/day	8	EPA 2002a	8	EPA 2002a	1/BW x 1/AT
				EF	Exposure Frequency	days/year	250	professional judgment	219	professional judgment	
				ED	Exposure Duration	years	25	EPA 1997a	9	EPA 1997a	
				PEF	Particulate Emission Factor	m^3/kg	1.36E+09	EPA 2002a	1.36E+09	EPA 2002a	
				BW	Body Weight	kg	70	EPA 2004a	70	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	9,125	EPA 1989	3,285	EPA 1989	

TABLE E-4.1
VALUES USED FOR DAILY INTAKE CALCULATIONS
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Unit	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Inhalation of Fugitive Dust (cont.)	School and Day Care	Young Child (1-6 yrs)	Air	CS	Chemical Concentration in Soil	mg/kg	See Table B-3.2	See Table B-3.2	See Table B-3.2	See Table B-3.2	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-A	Inhalation Rate of Air	m^3/hour	0.42	professional judgment	0.42	professional judgment	CS x IR-A x ET x EF x ED x 1/PEF x
				ET	Exposure Time	hour/day	8	EPA 2002a	8	EPA 2002a	1/BW x 1/AT
				EF	Exposure Frequency	days/year	250	professional judgment	219	professional judgment	
				ED	Exposure Duration	years	6	EPA 1997a	6	EPA 1997a	
				PEF	Particulate Emission Factor	m^3/kg	1.36E+09	EPA 2002a	1.36E+09	EPA 2002a	
				BW	Body Weight	kg	15	EPA 2004a	15	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	2,190	EPA 1989	2,190	EPA 1989	
	Recreational Users	Young Child (1-6 yrs)	Air	CS	Chemical Concentration in Soil	mg/kg	See Table B-3.2	See Table B-3.2	See Table B-3.2	See Table B-3.2	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-A	Inhalation Rate of Air	m^3/hour	0.42	EPA 1997a	0.42	EPA 1997a	CS x IR-A x ET x EF x ED x 1/PEF x
				ET	Exposure Time	hour/day	4	professional judgment	1	professional judgment	1/BW x 1/AT
				EF	Exposure Frequency	days/year	104	professional judgment	52	professional judgment	
				ED	Exposure Duration	years	6	EPA 2000	6	EPA 2000	
				PEF	Particulate Emission Factor	m^3/kg	1.36E+09	EPA 2002a	1.36E+09	EPA 2002a	
				BW	Body Weight	kg	15	EPA 2004a	15	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	2,190	EPA 1989	2,190	EPA 1989	
	Recreational Users	Adolescent (7-16 yrs)	Air	CS	Chemical Concentration in Soil	mg/kg	See Table B-3.2	See Table B-3.2	See Table B-3.2	See Table B-3.2	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-A	Inhalation Rate of Air	m^3/hour	0.5	EPA 1997a	0.5	EPA 1997a	CS x IR-A x ET x EF x ED x 1/PEF x
				ET	Exposure Time	hour/day	4	professional judgment	1	professional judgment	1/BW x 1/AT
				EF	Exposure Frequency	days/year	104	professional judgment	52	professional judgment	
				ED	Exposure Duration	years	10	EPA 2000	10	EPA 2000	
				PEF	Particulate Emission Factor	m^3/kg	1.36E+09	EPA 2002a	1.36E+09	EPA 2002a	
				BW	Body Weight	kg	45	EPA 2004a	45	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	3,650	EPA 1989	3,650	EPA 1989	
	Trespasser	Adolescent (7-16 yrs)	Air	CS	Chemical Concentration in Soil	mg/kg	See Table B-3.2	See Table B-3.2	See Table B-3.2	See Table B-3.2	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-A	Inhalation Rate of Air	m^3/hour	0.5	EPA 1997a	0.5	EPA 1997a	CS x IR-A x ET x EF x ED x 1/PEF x
				ET	Exposure Time	hour/day	4	professional judgment	1	professional judgment	1/BW x 1/AT
				EF	Exposure Frequency	days/year	50	professional judgment	10	professional judgment	
				ED	Exposure Duration	years	10	EPA 2000	10	EPA 2000	
				PEF	Particulate Emission Factor	m^3/kg	1.36E+09	EPA 2002a	1.36E+09	EPA 2002a	
				BW	Body Weight	kg	45	EPA 2004a	45	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	3,650	EPA 1989	3,650	EPA 1989	

RME = Reasonable Maximum Exposure.

CTE = Central Tendency Exposure.

Sources:

EPA 1989: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA 1997: Exposure Factors Handbook. Vol. 1: General Factors. ORD. EPA/600/P-95/002Fa.

EPA 2000."Supplemental Guidance to RAGS: Region 4 Bulletins. Human Health Risk Assessment." November.

EPA 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

EPA 2004: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, Part E, Supplemental Guidance for Dermal Risk Assessment Final. EPA/540/R/99/005.

TABLE E-4.2
VALUES USED FOR DAILY INTAKE CALCULATIONS
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Snow Creek
Exposure Medium:	Surface Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Unit	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational Users	Child (1-6 years)	Surface Water	CW	Chemical Concentration in Water	mg/L	See Table B-3.3	See Table B-3.3	See Table B-3.3	See Table B-3.3	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	hours/day	24	--	24	--	CW x IRw x EV x EF x ED x ET x 1/CF x
				IRw	Ingestion Rate of Water	L/day	1.2	EPA, 2000	1.2	EPA, 2000	1/BW x 1/AT
				EV	Event Frequency	events/day	1	EPA, 2002a	1	EPA, 2002a	
				EF	Exposure Frequency	days/year	104	professional judgment	52	professional judgment	
				ED	Exposure Duration	years	6	EPA 2000	6	EPA 2000	
				ET	Exposure Time	hours/event	4	professional judgment	1	professional judgment	
				BW	Body Weight	kg	15	EPA 2004a	15	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	2,190	EPA 1989	2,190	EPA 1989	
		Adolescent (7-16 yrs)	Surface Water	CW	Chemical Concentration in Water	mg/L	See Table B-3.3	See Table B-3.3	See Table B-3.3	See Table B-3.3	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	hours/day	24	--	24	--	CW x IRw x EV x EF x ED x ET x 1/CF x
				IRw	Ingestion Rate of Water	L/day	0.24	EPA, 2000	0.24	EPA, 2000	1/BW x 1/AT
				EV	Event Frequency	events/day	1	EPA, 2002a	1	EPA, 2002a	
				EF	Exposure Frequency	days/year	104	professional judgment	52	professional judgment	
				ED	Exposure Duration	years	10	EPA 2000	10	EPA 2000	
				ET	Exposure Time	hours/event	4	professional judgment	1	professional judgment	
				BW	Body Weight	kg	45	EPA 2004a	45	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	3,650	EPA 1989	3,650	EPA 1989	
	Trespasser	Adolescent (7-16 yrs)	Surface Water	CW	Chemical Concentration in Water	mg/L	See Table B-3.3	See Table B-3.3	See Table B-3.3	See Table B-3.3	Chronic Daily Intake (CDI) (mg/kg-day) =
				CF	Conversion Factor	hours/day	24	--	24	--	CW x IRw x EV x EF x ED x ET x 1/CF x
				IRw	Ingestion Rate of Water	L/day	0.24	EPA, 2000	0.24	EPA, 2000	1/BW x 1/AT
				EV	Event Frequency	events/day	1	EPA, 2002a	1	EPA, 2002a	
				EF	Exposure Frequency	days/year	50	professional judgment	10	professional judgment	
				ED	Exposure Duration	years	10	EPA 2000	10	EPA 2000	
				ET	Exposure Time	hours/event	4	professional judgment	1	professional judgment	
				BW	Body Weight	kg	45	EPA 2004a	45	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	3,650	EPA 1989	3,650	EPA 1989	

TABLE E-4.2
VALUES USED FOR DAILY INTAKE CALCULATIONS
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Snow Creek
Exposure Medium:	Surface Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Unit	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Dermal	Recreational Users	Child (1-6 years)	Surface Water	CW	Chemical Concentration in Water	mg/L	See Table B-3.3	See Table B-3.3	See Table B-3.3	See Table B-3.3	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Surface Area Available for Contact	cm^2	3,090	EPA 2004a	1,780	EPA 2004a	CW x SA x CF x EV x EF x ED x ET
				K_p	Permeability Coefficient	cm/hr	See Table 4-4	See Table 4-4	See Table 4-4	See Table 4-4	1/BW x 1/AT
				CF	Conversion Factor	L/cm^3	1E-03	--	1E-03	--	
				EV	Event Frequency	events/day	1	EPA, 2002a	1	EPA, 2002a	
				EF	Exposure Frequency	days/year	104	professional judgment	52	professional judgment	
				ED	Exposure Duration	years	6	EPA 2000	6	EPA 2000	
				ET	Exposure Time	hours/event	4	professional judgment	1	professional judgment	
				BW	Body Weight	kg	15	EPA 2004a	15	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	2,190	EPA 1989	2,190	EPA 1989	
		Adolescent (7-16 yrs)	Surface Water	CW	Chemical Concentration in Water	mg/L	See Table B-3.3	See Table B-3.3	See Table B-3.3	See Table B-3.3	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Skin Surface Area Available for Contac	cm^2	6,675	EPA 2004a	5,025	EPA 2004a	CW x SA x CF x EV x EF x ED x ET
				K_p	Permeability Coefficient	cm/hr	See Table 4-4	See Table 4-4	See Table 4-4	See Table 4-4	1/BW x 1/AT
				CF	Conversion Factor	L/cm^3	1E-03	--	1E-03	--	
				EV	Event Frequency	events/day	1	EPA, 2002a	1	EPA, 2002a	
				EF	Exposure Frequency	days/year	104	professional judgment	52	professional judgment	
				ED	Exposure Duration	years	10	EPA 2000	10	EPA 2000	
				ET	Exposure Time	hours/event	4	professional judgment	1	professional judgment	
				BW	Body Weight	kg	45	EPA 2004a	45	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	3,650	EPA 1989	3,650	EPA 1989	
	Trespasser	Adolescent (7-16 yrs)	Surface Water	CW	Chemical Concentration in Water	mg/L	See Table B-3.3	See Table B-3.3	See Table B-3.3	See Table B-3.3	Chronic Daily Intake (CDI) (mg/kg-day) =
				SA	Skin Surface Area Available for Contac	cm^2	6,675	EPA 2004a	5,025	EPA 2004a	CW x SA x CF x EV x EF x ED x ET
				K_p	Permeability Coefficient	cm/hr	See Table 4-4	See Table 4-4	See Table 4-4	See Table 4-4	1/BW x 1/AT
				CF	Conversion Factor	L/cm^3	1E-03	--	1E-03	--	
				EV	Event Frequency	events/day	1	EPA, 2002a	1	EPA, 2002a	
				EF	Exposure Frequency	days/year	50	professional judgment	10	professional judgment	
				ED	Exposure Duration	years	10	EPA 2000	10	EPA 2000	
				ET	Exposure Time	hours/event	4	professional judgment	1	professional judgment	
				BW	Body Weight	kg	45	EPA 2004a	45	EPA 2004a	
				AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
				AT-N	Averaging Time (Noncancer)	days	3,650	EPA 1989	3,650	EPA 1989	

RME = Reasonable Maximum Exposure.

CTE = Central Tendency Exposure.

Sources:

EPA 1989: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA 1997a: Exposure Factors Handbook. Vol. 1: General Factors. ORD. EPA/600/P-95/002Fa.

EPA 2000: Supplemental Guidance to RAGS: Region 4 Bulletins. Human Health Risk Assessment. November.

EPA 2002a: Child-Specific Exposure Factors Handbook. NCEA-W; EPA/600/P-00-002B.

EPA 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

EPA 2004a: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, Part E, Supplemental Guidance for Dermal Risk Assessment Final. EPA/540/R/99/005.

EPA 2008b: Child-Specific Exposure Factors Handbook. NCEA-W; EPA/600/P-00-002B.

TABLE E-5.1
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
Anniston PCB Site, Operable Units 1 & 2

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (1)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factor	RfD: Target Organ(s)	
		Value	Unit		Value	Unit			Source(s)	Date(s) (2) (MM/DD/YYYY)
VOCs, SVOCs & Pesticides										
4,4'-DDT	Chronic	5.0E-04	mg/kg-day	70 - 90%	5.0E-04	mg/kg-day	Liver	100	IRIS	10/2/2008
Benzene	Chronic	4.0E-03	mg/kg-day	-	4.0E-03	mg/kg-day	Blood	300	IRIS	10/2/2008
Benzo(a)pyrene Equivalent	NA	NA	mg/kg-day	58% - 89%	NA	mg/kg-day	NA	NA	IRIS	4/23/2008
bis(2-Ethylhexyl)phthalate	Chronic	2.0E-02	mg/kg-day	-	2.0E-02	mg/kg-day	Liver	1000	IRIS	4/23/2008
Dieldrin	Chronic	5.0E-05	mg/kg-day	-	5.0E-05	mg/kg-day	Liver	100	IRIS	4/23/2008
PCBs										
PCBs, Total	Chronic	2.0E-05	mg/kg-day	100%	2.0E-05	mg/kg-day	Eye/Skin/Nails/Immune System	300	IRIS (3)	4/23/2008
Dioxin										
Dioxin TEQ	NA	NA	mg/kg-day	-	NA	mg/kg-day	NA	NA	IRIS	4/23/2008
Inorganics										
Antimony	Chronic	4.0E-04	mg/kg-day	15%	6.0E-05	mg/kg-day	Whole Body/Blood	1000	IRIS	4/23/2008
Arsenic	Chronic	3.0E-04	mg/kg-day	100%	3.0E-04	mg/kg-day	Skin	3	IRIS	4/23/2008
Cadmium	Chronic	1.0E-03	mg/kg-day	2.5%	2.5E-05	mg/kg-day	Kidneys	10	IRIS	10/2/2008
Chromium	Chronic	3.0E-03	mg/kg-day	2.5%	7.5E-05	mg/kg-day	GI Tract	900	IRIS (4)	4/23/2008
Cobalt	Chronic	3.0E-04	mg/kg-day	-	3.0E-04	mg/kg-day	Thyroid	10	PPRTV	12/18/2008
Iron	Chronic	7.0E-01	mg/kg-day	-	7.0E-01	mg/kg-day	GI Tract/Liver	NA	PPRTV	1/17/2007
Lead	NA	NA	mg/kg-day	-	NA	mg/kg-day	NA	NA	IRIS	4/23/2008
Manganese	Chronic	1.4E-01	mg/kg-day	4%	5.6E-03	mg/kg-day	CNS	1	IRIS	4/23/2008
Mercury	NA	NA	mg/kg-day	-	NA	mg/kg-day	NA	NA	IRIS	12/18/2008
Thallium	NA	7.0E-05	mg/kg-day	100%	7.0E-05	mg/kg-day	NA	NA	NCEA	10/11/2007

NCEA = National Center for Environmental Assessment.
IRIS = Integrated Risk Information System.
PPRTV = Provisional Peer Reviewed Toxicity Values.
HEAST = Health Effects Assessment Summary Tables. July 1997.
RfD = Reference dose.
VOC = Volatile organic compound.
SVOC = Semi-volatile organic compound.
P/PCB = Pesticide/polychlorinated biphenyl.
CNS = Central Nervous System.

(1) The dermal RfD was assumed to equal the oral RfD, unless an adjustment factor was found in Exhibit 4.1 of RAGS E (EPA 2004a). PCB and arsenic absorption factors are consistent with the OU-3 HHRA (CDM 2008a).
(2) IRIS values were confirmed against the EPA's online database, April 2008. NCEA and PPRTV values were provided by EPA.
(3) The RfD for total PCBs based on Aroclor 1254.
(4) The RfD for hexavalent chromium has been applied to total chromium.

TABLE E-5.2
NON-CANCER TOXICITY DATA -- INHALATION
Anniston PCB Site, Operable Units 1 & 2

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD (1)		Primary Target Organ(s)	Combined Uncertainty/ Modifying Factors	RfC Target Organ(s)	
		Value	Unit	Value	Unit			Source(s)	Date(s) (2) (MM/DD/YYYY)
VOCs, SVOCs & Pesticides									
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	IRIS	10/2/2008
Benzene	Chronic	3.0E-02	mg/m^3	8.6E-03	mg/kg-day	Blood	300	IRIS	10/2/2008
Benzo(a)pyrene Equivalen	NA	NA	NA	NA	NA	NA	NA	IRIS	4/23/2008
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	IRIS	4/23/2008
Dieldrin	NA	NA	NA	NA	NA	NA	NA	IRIS	4/23/2008
PCBs									
PCBs, Total	NA	NA	NA	NA	NA	NA	NA	IRIS	4/23/2008
Dioxin									
Dioxin TEQ	NA	NA	NA	NA	NA	NA	NA	IRIS	4/23/2008
Inorganics									
Antimony	Chronic	4.0E-05	mg/m^3	1.1E-05	mg/kg-day	Lungs	1000	NCEA	1/22/2003
Arsenic	NA	NA	NA	NA	NA	NA	NA	IRIS	4/23/2008
Cadmium	NA	NA	NA	NA	NA	NA	NA	IRIS	10/2/2008
Chromium	Chronic	1.0E-04	mg/m^3	2.9E-05	mg/kg-day	Nasal Septum Atrophy	90	IRIS (3)	4/23/2008
Cobalt	Chronic	6.0E-06	mg/m3	1.7E-06	mg/kg-day	Lungs	100	PPRTV	12/18/2008
Iron	NA	NA	NA	NA	NA	NA	NA	IRIS	4/23/2008
Lead	NA	NA	NA	NA	NA	NA	NA	IRIS	4/23/2008
Manganese	Chronic	5.0E-05	mg/m^3	1.4E-05	mg/kg-day	CNS	1000	IRIS	4/23/2008
Mercury	Chronic	3.0E-04	mg/m^3	8.6E-05	mg/kg-day	CNS	30	IRIS	12/18/2008
Thallium	NA	NA	NA	NA	NA	NA	NA	IRIS	4/23/2008

NCEA = National Center for Environmental Assessment.
IRIS = Integrated Risk Information System.
HEAST = Health Effects Assessment Summary Tables. July 1997.
PPRTV = Provisional Peer Reviewed Toxicity Values.
RfC = Reference concentration.
RfD = Reference dose.
VOC = Volatile organic compound.
SVOC = Semi-volatile organic compound.
P/PCB = Pesticide/polychlorinated biphenyl.
(1) Inhalation RfDs were calculated from Inhalation RfCs assuming a 70 kg individual has an inhalation rate of 20 i^3/day.(USEPA Risk Assessment Guidance for Superfund, Part A; December 1989)
(2) IRIS values were confirmed against the EPA's online database, April 2008. NCEA values were provided by EPA.
(3) The RfC information for hexavalent chromium has been applied to total chromium.

TABLE E-6.1
CANCER TOXICITY DATA -- ORAL/DERMAL
Anniston PCB Site, Operable Units 1 & 2

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor for Dermal (1)		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Unit		Value	Unit		Source(s)	Date(s) (2) (MM/DD/YYYY)
VOCs, SVOCs & Pesticides								
4,4'-DDT	3.40E-01	$(mg/kg-day)^{-1}$	70 - 90%	3.40E-01	$(mg/kg-day)^{-1}$	B2	IRIS	10/2/2008
Benzene	1.5E-01	$(mg/kg-day)^{-1}$	-	1.5E-01	$(mg/kg-day)^{-1}$	A	IRIS	10/2/2008
Benzo(a)pyrene Equivalent	7.3E+00	$(mg/kg-day)^{-1}$	58% - 89%	7.3E+00	$(mg/kg-day)^{-1}$	B2	IRIS (3)	4/23/2008
bis(2-Ethylhexyl)phthalate	1.4E-02	$(mg/kg-day)^{-1}$	-	1.4E-02	$(mg/kg-day)^{-1}$	B2	IRIS	4/23/2008
Dieldrin	1.6E+01	$(mg/kg-day)^{-1}$	-	1.6E+01	$(mg/kg-day)^{-1}$	B2	IRIS	4/23/2008
PCBs								
PCBs, Total	2.0E+00	$(mg/kg-day)^{-1}$	30%	2.0E+00	$(mg/kg-day)^{-1}$	B2	IRIS (4)	4/23/2008
Dioxin								
Dioxin TEQ	1.5E+05	$(mg/kg-day)^{-1}$	-	1.5E+05	$(mg/kg-day)^{-1}$	NA	HEAST	7/1/1997
Inorganics								
Antimony	NA	NA	15%	NA	NA	D	NCEA	1/22/2003
Arsenic	1.5E+00	$(mg/kg-day)^{-1}$	30%	1.5E+00	$(mg/kg-day)^{-1}$	A	IRIS	4/23/2008
Cadmium	NA	NA	3%	NA	NA	B1	IRIS	10/2/2008
Chromium	0.5	$(mg/kg-day)^{-1}$	2.5%	20	$(mg/kg-day)^{-1}$	D	NJDEP	4/23/2008
Cobalt	NA	NA	-	NA	NA	B1	IRIS	12/18/2008
Iron	NA	NA	-	NA	NA	NA	IRIS	4/23/2008
Lead	NA	NA	-	NA	NA	B2	IRIS	4/23/2008
Manganese	NA	NA	4%	NA	NA	D	IRIS	4/23/2008
Mercury	NA	NA	-	NA	NA	D	IRIS	12/18/2008
Thallium	NA	NA	100%	NA	NA	NA	IRIS	4/23/2008

NCEA = National Center for Environmental Assessment.
HEAST = Health Effects Assessment Summary Tables. July 1997.
CSF = Cancer slope factor.
(1) The dermal CSF was assumed to equal the oral CSF, unless an adjustment factor was found in Exhibit 4.1 of RAGS E (EPA 2004a). PCB and arsenic absorption factors are consistent with the OU-3 HHRA (CDM 2008a).
(2) IRIS values were confirmed against the EPA's online database, April 2008. NCEA values were provided by EPA.
(3) The Oral Cancer Slope Factors for PAHs derived using the relative potency approach (EPA. 1993. Provisional Guidance for Quantitative Assessment of Polycyclic Aromatic Hydrocarbons; EPA/600/R-93/089).
(4) The upper bound CSF [2 $(mg/kg-day)^{-1}$] was used for Reasonable Maximum Exposure scenario and central estimate CSF [1 $(mg/kg-day)^{-1}$] was used for Central Tendency Exposure scenario.

EPA Weight of Evidence (EPA 1986, EPA 1996):
A - Human Carcinogen.
B1 - Probable human carcinogen - indicates that limited human data are available.
B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans.
C - Possible human carcinogen.
D - Not classifiable as human carcinogen.
E - Evidence of noncarcinogenicity.

VOC = Volatile organic compound.
SVOC = Semi-volatile organic compound.
P/PCB = Pesticide/polychlorinated biphenyl.

TABLE E-6.2
CANCER TOXICITY DATA -- INHALATION
Anniston PCB Site, Operable Units 1 & 2

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor (1)		Weight of Evidence/ Cancer Guideline Description	Unit Risk: Inhalation CSF	
	Value	Unit	Value	Unit		Source(s)	Date(s) (2) (MM/DD/YYYY)
VOCs, SVOCs & Pesticides							
4,4'-DDT	9.70E-06	$(\mu g/m^3)^{-1}$	3.40E-02	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	10/2/2008
Aldrin	4.9E-03	$(\mu g/m^3)^{-1}$	1.7E+01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	4/23/2008
Benzene	2.2E-06	$(\mu g/m^3)^{-1}$	7.7E-03	$(mg/kg\text{-}day)^{-1}$	A	IRIS	10/2/2008
Benzo(a)pyrene Equivalen	1.1E-03	$(\mu g/m^3)^{-1}$	3.1E+00	$(mg/kg\text{-}day)^{-1}$	B2	NJDEP	1/22/2003
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	B2	IRIS	4/23/2008
Dieldrin	4.6E-03	$(\mu g/m^3)^{-1}$	1.6E+01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	4/23/2008
PCBs							
PCBs, Total	1.0E-04	$(\mu g/m^3)^{-1}$	3.5E-01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	4/23/2008
Dioxin							
Dioxin TEQ	NA	NA	1.5E+05	$(mg/kg\text{-}day)^{-1}$	NA	HEAST	7/1/1997
Inorganics							
Antimony	NA	NA	NA	NA	B1	NCEA (3)	1/22/2003
Arsenic	4.3E-03	$(\mu g/m^3)^{-1}$	1.5E+01	$(mg/kg\text{-}day)^{-1}$	A	IRIS	4/23/2008
Cadmium	1.8E-03	$(\mu g/m^3)^{-1}$	6.3E+00	$(mg/kg\text{-}day)^{-1}$	B1	IRIS	10/2/2008
Chromium	1.2E-02	$(\mu g/m^3)^{-1}$	4.2E+01	$(mg/kg\text{-}day)^{-1}$	A	IRIS (4)	4/23/2008
Cobalt	NA	NA	NA	NA	NA	IRIS	12/18/2008
Iron	NA	NA	NA	NA	NA	IRIS	4/23/2008
Lead	NA	NA	NA	NA	B2	IRIS	4/23/2008
Manganese	NA	NA	NA	NA	D	IRIS	4/23/2008
Mercury	NA	NA	NA	NA	D	IRIS	12/18/2008
Thallium	NA	NA	NA	NA	NA	IRIS	4/23/2008

NCEA = National Center for Environmental Assessment.
IRIS = Integrated Risk Information System.
HEAST = Health Effects Assessment Summary Tables. July 1997.
PPRTV = Provisional Peer Reviewed Toxicity Values.
CSF = Cancer slope factor.
(1) Inhalation CSFs were calculated from unit risks assuming a 70 kg individual has an inhalation rate of 20 m^3/day.
(2) IRIS values were confirmed against the EPA's online database, April 2008.
NCEA values were provided by EPA.
(3) The Inhalation CSF for PAHs derived using the relative potency approach (EPA 1993).
Provisional Guidance for Quantitative Assessment of Polycyclic Aromatic Hydrocarbons; EPA/600/R-93/089).
(4) The unit risk for hexavalent chromium has been applied to total chromium.

EPA Weight of Evidence (EPA 1986, EPA 1996):
A - Human Carcinogen.
B1 - Probable human carcinogen - indicates that limited human data are available.
B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans.
C - Possible human carcinogen.
D - Not classifiable as human carcinogen.
E - Evidence of noncarcinogenicity.
VOC = Volatile organic compound.
SVOC = Semi-volatile organic compound.
P/PCB = Pesticide/polychlorinated biphenyl.

TABLE E-7.1

CANCER - RME EU 1

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 1	Ingestion	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	4.4E-08	1.0E-08	1.1E-08	2.8E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	3.1E-07	7.1E-08	7.8E-08	1.9E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.4E-05	5.5E-06	6.1E-06	1.5E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	2.8E-08	6.3E-09	7.0E-09	1.7E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.7E-07	3.8E-08	4.2E-08	1.0E-08
		PCBs								
		PCBs, Total	7.8	mg/kg	2.0E+00	(mg/kg-day)-1	1.6E-06	3.7E-07	4.1E-07	1.0E-07
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.7E-06	1.3E-06	1.4E-06	3.5E-07
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	2.9E-06	6.6E-07	7.3E-07	1.8E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	2.0E-04	4.6E-05	5.1E-05	1.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.4E-04	5.4E-05	6.0E-05	1.5E-05
EU 1	Dermal	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	8.8E-09	2.0E-09	5.6E-10	3.5E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.1E-05	4.7E-06	1.3E-06	8.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	1.8E-08	4.2E-09	1.2E-09	7.4E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.1E-07	2.5E-08	7.0E-09	4.4E-08
		PCBs								
		PCBs, Total	7.8	mg/kg	2.0E+00	(mg/kg-day)-1	2.2E-06	4.9E-07	1.4E-07	8.6E-07
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.1E-06	2.5E-07	7.2E-08	4.5E-07
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	1.9E-06	4.3E-07	1.2E-07	7.7E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.6E-05	5.9E-06	1.7E-06	1.0E-05
EU 1	Inhalation	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	3.9E-13	9.8E-14	2.8E-14	8.1E-15
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	1.4E-12	3.5E-13	9.9E-14	2.9E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	9.1E-10	2.3E-10	6.4E-11	1.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.5E-11	3.7E-12	1.0E-12	3.0E-13
		PCBs								
		PCBs, Total	7.8	mg/kg	3.5E-01	(mg/kg-day)-1	8.4E-11	2.1E-11	5.9E-12	1.7E-12
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.0E-10	1.3E-10	3.5E-11	1.0E-11
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA

TABLE E-7.1

CANCER - RME EU 1

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 1	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	8.5E-09	2.1E-09	6.0E-10	1.8E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	1.4E-09	3.4E-10	9.5E-11	2.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	1.5E-06	3.8E-07	1.1E-07	3.1E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.5E-06	3.8E-07	1.1E-07	3.1E-08
Exposure Point Total							3E-04	6E-05	6E-05	3E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.2

NONCANCER - RME EU 1

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 1	Ingestion	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	7.3E-04	1.7E-04	7.7E-04	1.1E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	1.5E-03	3.3E-04	1.5E-03	2.3E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	2.8E-04	6.3E-05	2.9E-04	4.3E-05
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	5.8E-04	1.3E-04	6.1E-04	9.1E-05
		PCBs								
		PCBs, Total	7.8	mg/kg	2.0E-05	(mg/kg-day)-1	1.1E-01	2.6E-02	4.0E-02	1.8E-02
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	7.4E-03	1.7E-03	7.8E-03	1.2E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	4.1E-03	1.9E-02	2.8E-03
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	6.8E-03	1.5E-03	7.1E-03	1.1E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	3.8E-01	8.6E-02	1.3E-01	5.9E-02
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	7.9E-02	1.8E-02	8.3E-02	1.2E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	9.4E-02	2.1E-02	9.9E-02	1.5E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	9.5E-03	2.1E-03	9.9E-03	1.5E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	6.2E-02	1.4E-02	6.4E-02	9.6E-03
	Exp. Route Total						7.7E-01	1.7E-01	4.6E-01	1.2E-01
EU 1	Dermal	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.4E-04	3.3E-05	3.9E-05	1.4E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	1.8E-04	4.2E-05	4.9E-05	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	3.8E-04	8.7E-05	1.0E-04	3.8E-04
		PCBs								
		PCBs, Total	7.8	mg/kg	2.0E-05	(mg/kg-day)-1	1.5E-01	3.4E-02	1.3E-02	1.5E-01
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.2E-02	2.7E-03	3.2E-03	1.2E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	1.8E-03	4.1E-04	4.8E-04	1.8E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA	NA
	Exp. Route Total						1.7E-01	3.7E-02	1.7E-02	1.7E-01
EU 1	Inhalation	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	6.0E-08	1.5E-08	1.8E-08	3.1E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA	NA
		PCBs								
		PCBs, Total	7.8	mg/kg	NA	NA	NA	NA	NA	NA
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	2.4E-05	5.9E-06	7.0E-06	1.2E-06

TABLE E-7.2

NONCANCER - RME EU 1

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 1	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	3.5E-03	8.7E-04	3.4E-04	1.8E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	1.2E-03	3.1E-04	3.6E-04	6.4E-05
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	8.3E-03	2.1E-03	2.4E-03	4.3E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	8.7E-07	2.2E-07	2.5E-07	4.5E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.3E-02	3.3E-03	3.2E-03	6.8E-04
Exposure Point Total							1	0.2	0.5	0.3

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child is also based on subchronic exposure.

Blood =	0.009	0.002	0.009	0.001
CNS =	0.02	0.004	0.01	0.002
Eye =	0.3	0.06	0.05	0.2
GI Tract =	0.5	0.1	0.2	0.07
Immune System =	0.3	0.06	0.05	0.2
Kidney =	0.009	0.002	0.008	0.003
Liver =	0.1	0.02	0.1	0.02
Lungs =	0.001	0.0003	0.0004	0.00007
Nails =	0.3	0.06	0.05	0.2
Nasal Septum =	0.003	0.0009	0.0003	0.0002
Skin =	0.3	0.07	0.08	0.2
Thyroid =	0.08	0.02	0.08	0.01
Whole Body =	0.007	0.002	0.008	0.001

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

TABLE E-7.3
CANCER - RME EU 2
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 2	Ingestion	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	4.4E-08	1.0E-08	1.1E-08	2.8E-09	4.1E-08	1.2E-08
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	3.1E-07	7.1E-08	7.8E-08	1.9E-08	2.9E-07	8.1E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.4E-05	5.5E-06	6.1E-06	1.5E-06	2.3E-05	6.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	2.8E-08	6.3E-09	7.0E-09	1.7E-09	2.6E-08	7.2E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.7E-07	3.8E-08	4.2E-08	1.0E-08	1.6E-07	4.3E-08
		PCBs										
		PCBs, Total	54	mg/kg	2.0E+00	(mg/kg-day)-1	1.1E-05	2.6E-06	2.8E-06	7.1E-07	1.1E-05	2.9E-06
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.7E-06	1.3E-06	1.4E-06	3.5E-07	5.3E-06	1.5E-06
		Inorganics										
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	2.9E-06	6.6E-07	7.3E-07	1.8E-07	2.7E-06	7.5E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	2.0E-04	4.6E-05	5.1E-05	1.3E-05	1.9E-04	5.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.5E-04	5.6E-05	6.2E-05	1.5E-05	2.3E-04	6.4E-05
EU 2	Dermal	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	8.8E-09	2.0E-09	5.6E-10	3.5E-09	5.2E-09	7.3E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.1E-05	4.7E-06	1.3E-06	8.3E-06	1.2E-05	1.7E-05
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	1.8E-08	4.2E-09	1.2E-09	7.4E-09	1.1E-08	1.5E-08
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.1E-07	2.5E-08	7.0E-09	4.4E-08	6.5E-08	9.1E-08
		PCBs										
		PCBs, Total	54	mg/kg	2.0E+00	(mg/kg-day)-1	1.5E-05	3.4E-06	9.6E-07	6.0E-06	8.9E-06	1.2E-05
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.1E-06	2.5E-07	7.2E-08	4.5E-07	6.7E-07	9.3E-07
		Inorganics										
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	1.9E-06	4.3E-07	1.2E-07	7.7E-07	1.1E-06	1.6E-06
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						3.9E-05	8.8E-06	2.5E-06	1.6E-05	2.3E-05	3.2E-05
EU 2	Inhalation	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	3.9E-13	9.8E-14	2.8E-14	8.1E-15	2.6E-14	1.7E-14
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	1.4E-12	3.5E-13	9.9E-14	2.9E-14	9.2E-14	6.1E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	9.1E-10	2.3E-10	6.4E-11	1.9E-11	5.9E-11	3.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.5E-11	3.7E-12	1.0E-12	3.0E-13	9.6E-13	6.3E-13
		PCBs										
		PCBs, Total	54	mg/kg	3.5E-01	(mg/kg-day)-1	5.8E-10	1.5E-10	4.1E-11	1.2E-11	3.8E-11	2.5E-11
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.0E-10	1.3E-10	3.5E-11	1.0E-11	3.3E-11	2.2E-11
		Inorganics										
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA

TABLE E-7.3

CANCER - RME EU 2

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 2	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	8.5E-09	2.1E-09	6.0E-10	1.8E-10	5.6E-10	3.7E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	1.4E-09	3.4E-10	9.5E-11	2.8E-11	8.8E-11	5.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	1.5E-06	3.8E-07	1.1E-07	3.1E-08	9.8E-08	6.5E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.5E-06	3.8E-07	1.1E-07	3.1E-08	9.9E-08	6.5E-08
Exposure Point Total							3E-04	7E-05	6E-05	3E-05	3E-04	1E-04

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.4
NONCANCER - RME EU 2
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 2	Ingestion	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	7.3E-04	1.7E-04	7.7E-04	1.1E-04	2.8E-03	4.7E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	1.5E-03	3.3E-04	1.5E-03	2.3E-04	5.7E-03	9.4E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	2.8E-04	6.3E-05	2.9E-04	4.3E-05	1.1E-03	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	5.8E-04	1.3E-04	6.1E-04	9.1E-05	2.3E-03	3.8E-04
		PCBs										
		PCBs, Total	54	mg/kg	2.0E-05	(mg/kg-day)-1	7.9E-01	1.8E-01	2.8E-01	1.2E-01	1.0E+00	5.1E-01
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Inorganics										
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	7.4E-03	1.7E-03	7.8E-03	1.2E-03	2.9E-02	4.8E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	4.1E-03	1.9E-02	2.8E-03	7.0E-02	1.2E-02
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	6.8E-03	1.5E-03	7.1E-03	1.1E-03	2.7E-02	4.4E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	3.8E-01	8.6E-02	1.3E-01	5.9E-02	4.9E-01	2.5E-01
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	7.9E-02	1.8E-02	8.3E-02	1.2E-02	3.1E-01	5.1E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	9.4E-02	2.1E-02	9.9E-02	1.5E-02	3.7E-01	6.1E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	9.5E-03	2.1E-03	9.9E-03	1.5E-03	3.7E-02	6.1E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	6.2E-02	1.4E-02	6.4E-02	9.6E-03	2.4E-01	4.0E-02
	Exp. Route Total						1.5E+00	3.3E-01	7.0E-01	2.3E-01	2.6E+00	9.4E-01
EU 2	Dermal	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.4E-04	3.3E-05	3.9E-05	1.4E-04	3.6E-04	3.0E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	1.8E-04	4.2E-05	4.9E-05	1.8E-04	4.6E-04	3.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	3.8E-04	8.7E-05	1.0E-04	3.8E-04	9.5E-04	8.0E-04
		PCBs										
		PCBs, Total	54	mg/kg	2.0E-05	(mg/kg-day)-1	1.0E+00	2.4E-01	9.3E-02	1.0E+00	8.6E-01	2.2E+00
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Inorganics										
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.2E-02	2.7E-03	3.2E-03	1.2E-02	2.9E-02	2.5E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	1.8E-03	4.1E-04	4.8E-04	1.8E-03	4.5E-03	3.7E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.1E+00	2.4E-01	9.7E-02	1.1E+00	9.0E-01	2.2E+00
EU 2	Inhalation	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	6.0E-08	1.5E-08	1.8E-08	3.1E-09	1.6E-08	6.5E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		PCBs										
		PCBs, Total	54	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Inorganics										
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	2.4E-05	5.9E-06	7.0E-06	1.2E-06	6.5E-06	2.6E-06

TABLE E-7.4

NONCANCER - RME EU 2

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 2	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	3.5E-03	8.7E-04	3.4E-04	1.8E-04	3.2E-04	3.7E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	1.2E-03	3.1E-04	3.6E-04	6.4E-05	3.4E-04	1.3E-04
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	8.3E-03	2.1E-03	2.4E-03	4.3E-04	2.3E-03	9.0E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	8.7E-07	2.2E-07	2.5E-07	4.5E-08	2.4E-07	9.4E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.3E-02	3.3E-03	3.2E-03	6.8E-04	2.9E-03	1.4E-03
Exposure Point Total							3	0.6	0.8	1.3	4	3

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child and recreational user - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child and recreational user - young child is also based on subchronic exposure.

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

Blood =	0.009	0.002	0.009	0.001	0.03	0.006
CNS =	0.02	0.004	0.01	0.002	0.04	0.007
Eye =	2	0.4	0.4	1	2	3
GI Tract =	0.5	0.1	0.2	0.07	0.9	0.3
Immune System =	2	0.4	0.4	1	2	3
Kidney =	0.009	0.002	0.008	0.003	0.03	0.008
Liver =	0.1	0.02	0.1	0.02	0.4	0.06
Lungs =	0.001	0.0003	0.0004	0.00007	0.0003	0.0001
Nails =	2	0.4	0.4	1	2	3
Nasal Septum =	0.003	0.0009	0.0003	0.0002	0.0003	0.0004
Skin =	2	0.4	0.4	1	2	3
Thyroid =	0.08	0.02	0.08	0.01	0.3	0.05
Whole Body =	0.007	0.002	0.008	0.001	0.03	0.005

TABLE E-7.5

CANCER - RME EU 3

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Comm. Visitor Value Adult	Comm. Visitor Value Young Child	Trespasser Value Adolescent	Recreational User Value Young Child	Recreational User Value Adolescent
EU 3	Ingestion	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	1.0E-08	1.1E-08	2.8E-09	4.1E-08	1.2E-08
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	7.1E-08	7.8E-08	1.9E-08	2.9E-07	8.1E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	5.5E-06	6.1E-06	1.5E-06	2.3E-05	6.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	6.3E-09	7.0E-09	1.7E-09	2.6E-08	7.2E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	3.8E-08	4.2E-08	1.0E-08	1.6E-07	4.3E-08
		PCBs									
		PCBs, Total	11	mg/kg	2.0E+00	(mg/kg-day)-1	5.2E-07	5.8E-07	1.4E-07	2.1E-06	6.0E-07
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.3E-06	1.4E-06	3.5E-07	5.3E-06	1.5E-06
		Inorganics									
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	6.6E-07	7.3E-07	1.8E-07	2.7E-06	7.5E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	4.6E-05	5.1E-05	1.3E-05	1.9E-04	5.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						5.4E-05	6.0E-05	1.5E-05	2.2E-04	6.2E-05
EU 3	Dermal	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	2.0E-09	5.6E-10	3.5E-09	5.2E-09	7.3E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	4.7E-06	1.3E-06	8.3E-06	1.2E-05	1.7E-05
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	4.2E-09	1.2E-09	7.4E-09	1.1E-08	1.5E-08
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	2.5E-08	7.0E-09	4.4E-08	6.5E-08	9.1E-08
		PCBs									
		PCBs, Total	11	mg/kg	2.0E+00	(mg/kg-day)-1	6.9E-07	1.9E-07	1.2E-06	1.8E-06	2.5E-06
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	2.5E-07	7.2E-08	4.5E-07	6.7E-07	9.3E-07
		Inorganics									
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	4.3E-07	1.2E-07	7.7E-07	1.1E-06	1.6E-06
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						6.1E-06	1.7E-06	1.1E-05	1.6E-05	2.3E-05
EU 3	Inhalation	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	9.8E-14	2.8E-14	8.1E-15	2.6E-14	1.7E-14
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	3.5E-13	9.9E-14	2.9E-14	9.2E-14	6.1E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	2.3E-10	6.4E-11	1.9E-11	5.9E-11	3.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	3.7E-12	1.0E-12	3.0E-13	9.6E-13	6.3E-13
		PCBs									
		PCBs, Total	11	mg/kg	3.5E-01	(mg/kg-day)-1	3.0E-11	8.3E-12	2.5E-12	7.7E-12	5.1E-12
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.3E-10	3.5E-11	1.0E-11	3.3E-11	2.2E-11
		Inorganics									
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA

TABLE E-7.5

CANCER - RME EU 3

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		CSF/Unit Risk		Cancer Risk per Receptor Population				
			Value	Unit	Value	Unit	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Young Child	Adolescent	Young Child	Adolescent
EU 3	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	2.1E-09	6.0E-10	1.8E-10	5.6E-10	3.7E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	3.4E-10	9.5E-11	2.8E-11	8.8E-11	5.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	3.8E-07	1.1E-07	3.1E-08	9.8E-08	6.5E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						3.8E-07	1.1E-07	3.1E-08	9.9E-08	6.5E-08
Exposure Point Total							6E-05	6E-05	3E-05	2E-04	8E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.6

NONCANCER - RME EU 3

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Comm. Visitor Value Adult	Comm. Visitor Value Young Child	Trespasser Value Adolescent	Recreational User Value Young Child	Recreational User Value Adolescent
EU 3	Ingestion	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.7E-04	7.7E-04	1.1E-04	2.8E-03	4.7E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	3.3E-04	1.5E-03	2.3E-04	5.7E-03	9.4E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	6.3E-05	2.9E-04	4.3E-05	1.1E-03	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	1.3E-04	6.1E-04	9.1E-05	2.3E-03	3.8E-04
		PCBs									
		PCBs, Total	11	mg/kg	2.0E-05	(mg/kg-day)-1	3.6E-02	5.6E-02	2.5E-02	2.1E-01	1.0E-01
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Inorganics									
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	1.7E-03	7.8E-03	1.2E-03	2.9E-02	4.8E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	4.1E-03	1.9E-02	2.8E-03	7.0E-02	1.2E-02
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	1.5E-03	7.1E-03	1.1E-03	2.7E-02	4.4E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	8.6E-02	1.3E-01	5.9E-02	4.9E-01	2.5E-01
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	8.3E-02	1.2E-02	3.1E-01	5.1E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	2.1E-02	9.9E-02	1.5E-02	3.7E-01	6.1E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	2.1E-03	9.9E-03	1.5E-03	3.7E-02	6.1E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	1.4E-02	6.4E-02	9.6E-03	2.4E-01	4.0E-02
	Exp. Route Total						1.9E-01	4.8E-01	1.3E-01	1.8E+00	5.3E-01
EU 3	Dermal	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	3.3E-05	3.9E-05	1.4E-04	3.6E-04	3.0E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	4.2E-05	4.9E-05	1.8E-04	4.6E-04	3.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	8.7E-05	1.0E-04	3.8E-04	9.5E-04	8.0E-04
		PCBs									
		PCBs, Total	11	mg/kg	2.0E-05	(mg/kg-day)-1	4.8E-02	1.9E-02	2.1E-01	1.8E-01	4.4E-01
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Inorganics									
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	2.7E-03	3.2E-03	1.2E-02	2.9E-02	2.5E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	4.1E-04	4.8E-04	1.8E-03	4.5E-03	3.7E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA
	Exp. Route Total						5.1E-02	2.3E-02	2.3E-01	2.1E-01	4.7E-01
EU 3	Inhalation	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	1.5E-08	1.8E-08	3.1E-09	1.6E-08	6.5E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA	NA	NA
		PCBs									
		PCBs, Total	11	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Inorganics									
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	5.9E-06	7.0E-06	1.2E-06	6.5E-06	2.6E-06

TABLE E-7.6

NONCANCER - RME EU 3

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Comm. Visitor Value Adult	Comm. Visitor Value Young Child	Trespasser Value Adolescent	Recreational User Value Young Child	Recreational User Value Adolescent
EU 3	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	8.7E-04	3.4E-04	1.8E-04	3.2E-04	3.7E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	3.1E-04	3.6E-04	6.4E-05	3.4E-04	1.3E-04
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	2.1E-03	2.4E-03	4.3E-04	2.3E-03	9.0E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	2.2E-07	2.5E-07	4.5E-08	2.4E-07	9.4E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						3.3E-03	3.2E-03	6.8E-04	2.9E-03	1.4E-03
Exposure Point Total							0.2	0.5	0.4	2	1

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child and recreational user - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child and recreational user - young child is also based on subchronic exposure.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

Blood =	0.002	0.009	0.001	0.034	0.006
CNS =	0.004	0.01	0.002	0.039	0.007
Eye =	0.08	0.08	0.2	0.4	0.5
GI Tract =	0.1	0.2	0.07	0.9	0.3
Immune System =	0.08	0.08	0.2	0.4	0.5
Kidney =	0.002	0.008	0.003	0.03	0.008
Liver =	0.02	0.1	0.02	0.4	0.06
Lungs =	0.0003	0.0004	0.00007	0.0003	0.0001
Nails =	0.08	0.08	0.2	0.4	0.5
Nasal Septum =	0.0009	0.0003	0.0002	0.0003	0.0004
Skin =	0.09	0.1	0.3	0.5	0.6
Thyroid =	0.02	0.08	0.01	0.3	0.05
Whole Body =	0.002	0.008	0.001	0.03	0.005

TABLE E-7.7

CANCER - RME EU 5

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 5	Ingestion	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	4.4E-08	1.0E-08	1.1E-08	2.8E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	3.1E-07	7.1E-08	7.8E-08	1.9E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.4E-05	5.5E-06	6.1E-06	1.5E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	2.8E-08	6.3E-09	7.0E-09	1.7E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.7E-07	3.8E-08	4.2E-08	1.0E-08
		PCBs								
		PCBs, Total	232	mg/kg	2.0E+00	(mg/kg-day)-1	4.9E-05	1.1E-05	1.2E-05	3.0E-06
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.7E-06	1.3E-06	1.4E-06	3.5E-07
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	2.9E-06	6.6E-07	7.3E-07	1.8E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	2.0E-04	4.6E-05	5.1E-05	1.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.9E-04	6.4E-05	7.2E-05	1.8E-05
EU 5	Dermal	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	8.8E-09	2.0E-09	5.6E-10	3.5E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.1E-05	4.7E-06	1.3E-06	8.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	1.8E-08	4.2E-09	1.2E-09	7.4E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.1E-07	2.5E-08	7.0E-09	4.4E-08
		PCBs								
		PCBs, Total	232	mg/kg	2.0E+00	(mg/kg-day)-1	6.4E-05	1.5E-05	4.1E-06	2.6E-05
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.1E-06	2.5E-07	7.2E-08	4.5E-07
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	1.9E-06	4.3E-07	1.2E-07	7.7E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						8.8E-05	2.0E-05	5.6E-06	3.5E-05
EU 5	Inhalation	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	3.9E-13	9.8E-14	2.8E-14	8.1E-15
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	1.4E-12	3.5E-13	9.9E-14	2.9E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	9.1E-10	2.3E-10	6.4E-11	1.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.5E-11	3.7E-12	1.0E-12	3.0E-13
		PCBs								
		PCBs, Total	232	mg/kg	3.5E-01	(mg/kg-day)-1	2.5E-09	6.3E-10	1.8E-10	5.2E-11
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.0E-10	1.3E-10	3.5E-11	1.0E-11
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA

TABLE E-7.7

CANCER - RME EU 5

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		CSF/Unit Risk		Cancer Risk per Receptor Population			
			Value	Unit	Value	Unit	Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 5	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	8.5E-09	2.1E-09	6.0E-10	1.8E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	1.4E-09	3.4E-10	9.5E-11	2.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	1.5E-06	3.8E-07	1.1E-07	3.1E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.5E-06	3.8E-07	1.1E-07	3.2E-08
Exposure Point Total							4E-04	8E-05	8E-05	5E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.8

NONCANCER - RME EU 5

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 5	Ingestion	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	7.3E-04	1.7E-04	7.7E-04	1.1E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	1.5E-03	3.3E-04	1.5E-03	2.3E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	2.8E-04	6.3E-05	2.9E-04	4.3E-05
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	5.8E-04	1.3E-04	6.1E-04	9.1E-05
		PCBs								
		PCBs, Total	232	mg/kg	2.0E-05	(mg/kg-day)-1	3.4E+00	7.7E-01	1.2E+00	5.3E-01
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	7.4E-03	1.7E-03	7.8E-03	1.2E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	4.1E-03	1.9E-02	2.8E-03
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	6.8E-03	1.5E-03	7.1E-03	1.1E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	3.8E-01	8.6E-02	1.3E-01	5.9E-02
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	7.9E-02	1.8E-02	8.3E-02	1.2E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	9.4E-02	2.1E-02	9.9E-02	1.5E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	9.5E-03	2.1E-03	9.9E-03	1.5E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	6.2E-02	1.4E-02	6.4E-02	9.6E-03
	Exp. Route Total						4.1E+00	9.2E-01	1.6E+00	6.3E-01
EU 5	Dermal	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.4E-04	3.3E-05	3.9E-05	1.4E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	1.8E-04	4.2E-05	4.9E-05	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	3.8E-04	8.7E-05	1.0E-04	3.8E-04
		PCBs								
		PCBs, Total	232	mg/kg	2.0E-05	(mg/kg-day)-1	4.5E+00	1.0E+00	4.0E-01	4.5E+00
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.2E-02	2.7E-03	3.2E-03	1.2E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	1.8E-03	4.1E-04	4.8E-04	1.8E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA	NA
	Exp. Route Total						4.5E+00	1.0E+00	4.0E-01	4.5E+00
EU 5	Inhalation	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	6.0E-08	1.5E-08	1.8E-08	3.1E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA	NA
		PCBs								
		PCBs, Total	232	mg/kg	NA	NA	NA	NA	NA	NA
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	2.4E-05	5.9E-06	7.0E-06	1.2E-06

TABLE E-7.8

NONCANCER - RME EU 5

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 5	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	3.5E-03	8.7E-04	3.4E-04	1.8E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	1.2E-03	3.1E-04	3.6E-04	6.4E-05
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	8.3E-03	2.1E-03	2.4E-03	4.3E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	8.7E-07	2.2E-07	2.5E-07	4.5E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.3E-02	3.3E-03	3.2E-03	6.8E-04
Exposure Point Total							9	2	2	5

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child is also based on subchronic exposure.

Blood =	0.009	0.002	0.009	0.001
CNS =	0.02	0.004	0.01	0.002
Eye =	8	2	2	5
GI Tract =	0.5	0.1	0.2	0.07
Immune System =	8	2	2	5
Kidney =	0.009	0.002	0.008	0.003
Liver =	0.1	0.02	0.1	0.02
Lungs =	0.001	0.0003	0.0004	0.00007
Nails =	8	2	2	5
Nasal Septum =	0.003	0.0009	0.0003	0.0002
Skin =	8	2	2	5
Thyroid =	0.08	0.02	0.08	0.01
Whole Body =	0.007	0.002	0.008	0.001

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

TABLE E-7.9

CANCER - RME EU 6

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Comm. Visitor Value Adult	Comm. Visitor Value Young Child	Trespasser Value Adolescent	Recreational User Value Young Child	Recreational User Value Adolescent
EU 6	Ingestion	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	1.0E-08	1.1E-08	2.8E-09	4.1E-08	1.2E-08
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	7.1E-08	7.8E-08	1.9E-08	2.9E-07	8.1E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	5.5E-06	6.1E-06	1.5E-06	2.3E-05	6.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	6.3E-09	7.0E-09	1.7E-09	2.6E-08	7.2E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	3.8E-08	4.2E-08	1.0E-08	1.6E-07	4.3E-08
		PCBs									
		PCBs, Total	7.4	mg/kg	2.0E+00	(mg/kg-day)-1	3.5E-07	3.9E-07	9.7E-08	1.5E-06	4.0E-07
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.3E-06	1.4E-06	3.5E-07	5.3E-06	1.5E-06
		Inorganics									
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	6.6E-07	7.3E-07	1.8E-07	2.7E-06	7.5E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	4.6E-05	5.1E-05	1.3E-05	1.9E-04	5.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						5.4E-05	6.0E-05	1.5E-05	2.2E-04	6.2E-05
EU 6	Dermal	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	2.0E-09	5.6E-10	3.5E-09	5.2E-09	7.3E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	4.7E-06	1.3E-06	8.3E-06	1.2E-05	1.7E-05
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	4.2E-09	1.2E-09	7.4E-09	1.1E-08	1.5E-08
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	2.5E-08	7.0E-09	4.4E-08	6.5E-08	9.1E-08
		PCBs									
		PCBs, Total	7.4	mg/kg	2.0E+00	(mg/kg-day)-1	4.6E-07	1.3E-07	8.2E-07	1.2E-06	1.7E-06
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	2.5E-07	7.2E-08	4.5E-07	6.7E-07	9.3E-07
		Inorganics									
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	4.3E-07	1.2E-07	7.7E-07	1.1E-06	1.6E-06
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						5.9E-06	1.7E-06	1.0E-05	1.5E-05	2.2E-05
EU 6	Inhalation	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	9.8E-14	2.8E-14	8.1E-15	2.6E-14	1.7E-14
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	3.5E-13	9.9E-14	2.9E-14	9.2E-14	6.1E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	2.3E-10	6.4E-11	1.9E-11	5.9E-11	3.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	3.7E-12	1.0E-12	3.0E-13	9.6E-13	6.3E-13
		PCBs									
		PCBs, Total	7.4	mg/kg	3.5E-01	(mg/kg-day)-1	2.0E-11	5.6E-12	1.7E-12	5.2E-12	3.5E-12
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.3E-10	3.5E-11	1.0E-11	3.3E-11	2.2E-11
		Inorganics									
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA

TABLE E-7.9

CANCER - RME EU 6

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		CSF/Unit Risk		Cancer Risk per Receptor Population				
			Value	Unit	Value	Unit	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Young Child	Adolescent	Young Child	Adolescent
EU 6	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	2.1E-09	6.0E-10	1.8E-10	5.6E-10	3.7E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	3.4E-10	9.5E-11	2.8E-11	8.8E-11	5.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	3.8E-07	1.1E-07	3.1E-08	9.8E-08	6.5E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						3.8E-07	1.1E-07	3.1E-08	9.9E-08	6.5E-08
Exposure Point Total							6E-05	6E-05	3E-05	2E-04	8E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.10

NONCANCER - RME EU 6

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Comm. Visitor Value Adult	Comm. Visitor Value Young Child	Trespasser Value Adolescent	Recreational User Value Young Child	Recreational User Value Adolescent
EU 6	Ingestion	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.7E-04	7.7E-04	1.1E-04	2.8E-03	4.7E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	3.3E-04	1.5E-03	2.3E-04	5.7E-03	9.4E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	6.3E-05	2.9E-04	4.3E-05	1.1E-03	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	1.3E-04	6.1E-04	9.1E-05	2.3E-03	3.8E-04
		PCBs									
		PCBs, Total	7.4	mg/kg	2.0E-05	(mg/kg-day)-1	2.5E-02	3.8E-02	1.7E-02	1.4E-01	7.1E-02
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Inorganics									
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	1.7E-03	7.8E-03	1.2E-03	2.9E-02	4.8E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	4.1E-03	1.9E-02	2.8E-03	7.0E-02	1.2E-02
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	1.5E-03	7.1E-03	1.1E-03	2.7E-02	4.4E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	8.6E-02	1.3E-01	5.9E-02	4.9E-01	2.5E-01
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	8.3E-02	1.2E-02	3.1E-01	5.1E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	2.1E-02	9.9E-02	1.5E-02	3.7E-01	6.1E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	2.1E-03	9.9E-03	1.5E-03	3.7E-02	6.1E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	1.4E-02	6.4E-02	9.6E-03	2.4E-01	4.0E-02
	Exp. Route Total						1.7E-01	4.6E-01	1.2E-01	1.7E+00	5.0E-01
EU 6	Dermal	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	3.3E-05	3.9E-05	1.4E-04	3.6E-04	3.0E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	4.2E-05	4.9E-05	1.8E-04	4.6E-04	3.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	8.7E-05	1.0E-04	3.8E-04	9.5E-04	8.0E-04
		PCBs									
		PCBs, Total	7.4	mg/kg	2.0E-05	(mg/kg-day)-1	3.3E-02	1.3E-02	1.4E-01	1.2E-01	3.0E-01
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Inorganics									
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	2.7E-03	3.2E-03	1.2E-02	2.9E-02	2.5E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	4.1E-04	4.8E-04	1.8E-03	4.5E-03	3.7E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA
	Exp. Route Total						3.6E-02	1.7E-02	1.6E-01	1.5E-01	3.3E-01
EU 6	Inhalation	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	1.5E-08	1.8E-08	3.1E-09	1.6E-08	6.5E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA	NA	NA
		PCBs									
		PCBs, Total	7.4	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Inorganics									
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	5.9E-06	7.0E-06	1.2E-06	6.5E-06	2.6E-06

TABLE E-7.10

NONCANCER - RME EU 6

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Comm. Visitor Value Adult	Comm. Visitor Value Young Child	Trespasser Value Adolescent	Recreational User Value Young Child	Recreational User Value Adolescent
EU 6	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	8.7E-04	3.4E-04	1.8E-04	3.2E-04	3.7E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	3.1E-04	3.6E-04	6.4E-05	3.4E-04	1.3E-04
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	2.1E-03	2.4E-03	4.3E-04	2.3E-03	9.0E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	2.2E-07	2.5E-07	4.5E-08	2.4E-07	9.4E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						3.3E-03	3.2E-03	6.8E-04	2.9E-03	1.4E-03
Exposure Point Total							0.2	0.5	0.3	2	0.8

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child and recreational user - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child and recreational user - young child is also based on subchronic exposure.

	Comm. Visitor Adult	Comm. Visitor Young Child	Trespasser Adolescent	Recreational User Young Child	Recreational User Adolescent
Blood =	0.002	0.009	0.001	0.034	0.006
CNS =	0.004	0.01	0.002	0.039	0.007
Eye =	0.06	0.05	0.2	0.3	0.4
GI Tract =	0.1	0.2	0.07	0.9	0.3
Immune System =	0.06	0.05	0.2	0.3	0.4
Kidney =	0.002	0.008	0.003	0.03	0.008
Liver =	0.02	0.1	0.02	0.4	0.06
Lungs =	0.0003	0.0004	0.00007	0.0003	0.0001
Nails =	0.06	0.05	0.2	0.3	0.4
Nasal Septum =	0.0009	0.0003	0.0002	0.0003	0.0004
Skin =	0.06	0.07	0.2	0.4	0.4
Thyroid =	0.02	0.08	0.01	0.3	0.05
Whole Body =	0.002	0.008	0.001	0.03	0.005

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

TABLE E-7.11

CANCER - RME EU 7

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Schools/Daycare Value Adult	Schools/Daycare Value Young Child	Trespasser Value Adolescent	Recreational User Value Young Child	Recreational User Value Adolescent
EU 7	Ingestion	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	4.4E-08	1.0E-07	2.8E-09	4.1E-08	1.2E-08
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	3.1E-07	7.0E-07	1.9E-08	2.9E-07	8.1E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.4E-05	5.4E-05	1.5E-06	2.3E-05	6.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	2.8E-08	6.3E-08	1.7E-09	2.6E-08	7.2E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.7E-07	3.7E-07	1.0E-08	1.6E-07	4.3E-08
		PCBs									
		PCBs, Total	164	mg/kg	2.0E+00	(mg/kg-day)-1	3.4E-05	7.7E-05	2.1E-06	3.2E-05	8.9E-06
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.7E-06	1.3E-05	3.5E-07	5.3E-06	1.5E-06
		Inorganics									
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	2.9E-06	6.5E-06	1.8E-07	2.7E-06	7.5E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	2.0E-04	4.6E-04	1.3E-05	1.9E-04	5.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.7E-04	6.1E-04	1.7E-05	2.5E-04	7.0E-05
EU 7	Dermal	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	2.6E-09	1.3E-08	3.5E-09	5.2E-09	7.3E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	6.3E-06	3.0E-05	8.3E-06	1.2E-05	1.7E-05
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	5.5E-09	2.6E-08	7.4E-09	1.1E-08	1.5E-08
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	3.3E-08	1.6E-07	4.4E-08	6.5E-08	9.1E-08
		PCBs									
		PCBs, Total	164	mg/kg	2.0E+00	(mg/kg-day)-1	1.4E-05	6.5E-05	1.8E-05	2.7E-05	3.8E-05
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	3.4E-07	1.6E-06	4.5E-07	6.7E-07	9.3E-07
		Inorganics									
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	5.7E-07	2.7E-06	7.7E-07	1.1E-06	1.6E-06
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.1E-05	9.9E-05	2.8E-05	4.1E-05	5.8E-05
EU 7	Inhalation	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	2.2E-13	1.2E-13	8.1E-15	2.6E-14	1.7E-14
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	7.8E-13	4.4E-13	2.9E-14	9.2E-14	6.1E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	5.0E-10	2.9E-10	1.9E-11	5.9E-11	3.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	8.1E-12	4.6E-12	3.0E-13	9.6E-13	6.3E-13
		PCBs									
		PCBs, Total	164	mg/kg	3.5E-01	(mg/kg-day)-1	9.8E-10	5.6E-10	3.7E-11	1.2E-10	7.6E-11
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	2.8E-10	1.6E-10	1.0E-11	3.3E-11	2.2E-11
		Inorganics									
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA

TABLE E-7.11

CANCER - RME EU 7

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		CSF/Unit Risk		Cancer Risk per Receptor Population				
			Value	Unit	Value	Unit	Schools/Daycare Value		Trespasser Value	Recreational User Value	
							Adult	Young Child	Adolescent	Young Child	Adolescent
EU 7	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	4.7E-09	2.7E-09	1.8E-10	5.6E-10	3.7E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	7.5E-10	4.3E-10	2.8E-11	8.8E-11	5.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	8.3E-07	4.7E-07	3.1E-08	9.8E-08	6.5E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						8.4E-07	4.8E-07	3.2E-08	9.9E-08	6.6E-08
Exposure Point Total							3E-04	7E-04	4E-05	3E-04	1E-04

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.12

NONCANCER - RME EU 7

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Schools/Daycare Value Adult	Schools/Daycare Value Young Child	Trespasser Value Adolescent	Recreational User Value Young Child	Recreational User Value Adolescent
EU 7	Ingestion	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	7.3E-04	6.8E-03	1.1E-04	2.8E-03	4.7E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	1.5E-03	1.4E-02	2.3E-04	5.7E-03	9.4E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	2.8E-04	2.6E-03	4.3E-05	1.1E-03	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	5.8E-04	5.4E-03	9.1E-05	2.3E-03	3.8E-04
		PCBs									
		PCBs, Total	164	mg/kg	2.0E-05	(mg/kg-day)-1	2.4E+00	7.5E+00	3.7E-01	3.1E+00	1.6E+00
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Inorganics									
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	7.4E-03	6.9E-02	1.2E-03	2.9E-02	4.8E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	1.7E-01	2.8E-03	7.0E-02	1.2E-02
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	6.8E-03	6.4E-02	1.1E-03	2.7E-02	4.4E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	3.8E-01	1.2E+00	5.9E-02	4.9E-01	2.5E-01
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	7.9E-02	7.4E-01	1.2E-02	3.1E-01	5.1E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	9.4E-02	8.8E-01	1.5E-02	3.7E-01	6.1E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	9.5E-03	8.8E-02	1.5E-03	3.7E-02	6.1E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	6.2E-02	5.7E-01	9.6E-03	2.4E-01	4.0E-02
	Exp. Route Total						3.1E+00	1.1E+01	4.8E-01	4.7E+00	2.0E+00
EU 7	Dermal	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	4.3E-05	8.6E-04	1.4E-04	3.6E-04	3.0E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	5.5E-05	1.1E-03	1.8E-04	4.6E-04	3.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	1.2E-04	2.3E-03	3.8E-04	9.5E-04	8.0E-04
		PCBs									
		PCBs, Total	164	mg/kg	2.0E-05	(mg/kg-day)-1	9.5E-01	6.3E+00	3.2E+00	2.6E+00	6.6E+00
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Inorganics									
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	3.6E-03	7.1E-02	1.2E-02	2.9E-02	2.5E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	5.4E-04	1.1E-02	1.8E-03	4.5E-03	3.7E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA
	Exp. Route Total						9.6E-01	6.4E+00	3.2E+00	2.7E+00	6.6E+00
EU 7	Inhalation	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	3.3E-08	7.8E-08	3.1E-09	1.6E-08	6.5E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA	NA	NA
		PCBs									
		PCBs, Total	164	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Inorganics									
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	1.3E-05	3.1E-05	1.2E-06	6.5E-06	2.6E-06

TABLE E-7.12

NONCANCER - RME EU 7

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Schools/Daycare Value Adult	Schools/Daycare Value Young Child	Trespasser Value Adolescent	Recreational User Value Young Child	Recreational User Value Adolescent
EU 7	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	1.9E-03	1.5E-03	1.8E-04	3.2E-04	3.7E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	6.8E-04	1.6E-03	6.4E-05	3.4E-04	1.3E-04
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	4.6E-03	1.1E-02	4.3E-04	2.3E-03	9.0E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	4.8E-07	1.1E-06	4.5E-08	2.4E-07	9.4E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						7.2E-03	1.4E-02	6.8E-04	2.9E-03	1.4E-03
Exposure Point Total							4	18	4	7	9

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the school and daycare - young child and recreational user - young child are based on subchronic exposure. The chromium RfC for the school and daycare - young child and recreational user - young child is also based on subchronic exposure.

Blood =	0.009	0.08	0.001	0.03	0.006
CNS =	0.01	0.1	0.002	0.04	0.007
Eye =	3	14	4	6	8
GI Tract =	0.5	2	0.07	0.9	0.3
Immune System =	3	14	4	6	8
Kidney =	0.007	0.07	0.003	0.03	0.008
Liver =	0.1	0.9	0.02	0.4	0.06
Lungs =	0.0007	0.002	0.00007	0.0003	0.0001
Nails =	3	14	4	6	8
Nasal Septum =	0.002	0.002	0.0002	0.0003	0.0004
Skin =	3	14	4	6	8
Thyroid =	0.08	0.7	0.01	0.3	0.05
Whole Body =	0.007	0.07	0.001	0.03	0.005

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

TABLE E-7.13

CANCER - RME EU 8

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Comm. Visitor Value Adult	Comm. Visitor Value Young Child	Trespasser Value Adolescent	Recreational User Value Young Child	Recreational User Value Adolescent
EU 8	Ingestion	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	1.0E-08	1.1E-08	2.8E-09	4.1E-08	1.2E-08
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	7.1E-08	7.8E-08	1.9E-08	2.9E-07	8.1E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	5.5E-06	6.1E-06	1.5E-06	2.3E-05	6.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	6.3E-09	7.0E-09	1.7E-09	2.6E-08	7.2E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	3.8E-08	4.2E-08	1.0E-08	1.6E-07	4.3E-08
		PCBs									
		PCBs, Total	1.2	mg/kg	2.0E+00	(mg/kg-day)-1	5.9E-08	6.5E-08	1.6E-08	2.4E-07	6.7E-08
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.3E-06	1.4E-06	3.5E-07	5.3E-06	1.5E-06
		Inorganics									
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	6.6E-07	7.3E-07	1.8E-07	2.7E-06	7.5E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	4.6E-05	5.1E-05	1.3E-05	1.9E-04	5.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						5.4E-05	5.9E-05	1.5E-05	2.2E-04	6.1E-05
EU 8	Dermal	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	2.0E-09	5.6E-10	3.5E-09	5.2E-09	7.3E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	4.7E-06	1.3E-06	8.3E-06	1.2E-05	1.7E-05
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	4.2E-09	1.2E-09	7.4E-09	1.1E-08	1.5E-08
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	2.5E-08	7.0E-09	4.4E-08	6.5E-08	9.1E-08
		PCBs									
		PCBs, Total	1.2	mg/kg	2.0E+00	(mg/kg-day)-1	7.7E-08	2.2E-08	1.4E-07	2.0E-07	2.8E-07
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	2.5E-07	7.2E-08	4.5E-07	6.7E-07	9.3E-07
		Inorganics									
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	4.3E-07	1.2E-07	7.7E-07	1.1E-06	1.6E-06
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						5.5E-06	1.6E-06	9.7E-06	1.4E-05	2.0E-05
EU 8	Inhalation	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	9.8E-14	2.8E-14	8.1E-15	2.6E-14	1.7E-14
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	3.5E-13	9.9E-14	2.9E-14	9.2E-14	6.1E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	2.3E-10	6.4E-11	1.9E-11	5.9E-11	3.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	3.7E-12	1.0E-12	3.0E-13	9.6E-13	6.3E-13
		PCBs									
		PCBs, Total	1.2	mg/kg	3.5E-01	(mg/kg-day)-1	3.3E-12	9.4E-13	2.8E-13	8.7E-13	5.8E-13
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.3E-10	3.5E-11	1.0E-11	3.3E-11	2.2E-11
		Inorganics									
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA

TABLE E-7.13

CANCER - RME EU 8

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		CSF/Unit Risk		Cancer Risk per Receptor Population				
			Value	Unit	Value	Unit	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Young Child	Adolescent	Young Child	Adolescent
EU 8	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	2.1E-09	6.0E-10	1.8E-10	5.6E-10	3.7E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	3.4E-10	9.5E-11	2.8E-11	8.8E-11	5.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	3.8E-07	1.1E-07	3.1E-08	9.8E-08	6.5E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						3.8E-07	1.1E-07	3.1E-08	9.9E-08	6.5E-08
Exposure Point Total							6E-05	6E-05	2E-05	2E-04	8E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.-14

NONCANCER - RME EU 8

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Comm. Visitor Value Adult	Comm. Visitor Value Young Child	Trespasser Value Adolescent	Recreational User Value Young Child	Recreational User Value Adolescent
EU 8	Ingestion	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.7E-04	7.7E-04	1.1E-04	2.8E-03	4.7E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	3.3E-04	1.5E-03	2.3E-04	5.7E-03	9.4E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	6.3E-05	2.9E-04	4.3E-05	1.1E-03	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	1.3E-04	6.1E-04	9.1E-05	2.3E-03	3.8E-04
		PCBs									
		PCBs, Total	1.2	mg/kg	2.0E-05	(mg/kg-day)-1	4.1E-03	6.3E-03	2.8E-03	2.3E-02	1.2E-02
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Inorganics									
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	1.7E-03	7.8E-03	1.2E-03	2.9E-02	4.8E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	4.1E-03	1.9E-02	2.8E-03	7.0E-02	1.2E-02
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	1.5E-03	7.1E-03	1.1E-03	2.7E-02	4.4E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	8.6E-02	1.3E-01	5.9E-02	4.9E-01	2.5E-01
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	8.3E-02	1.2E-02	3.1E-01	5.1E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	2.1E-02	9.9E-02	1.5E-02	3.7E-01	6.1E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	2.1E-03	9.9E-03	1.5E-03	3.7E-02	6.1E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	1.4E-02	6.4E-02	9.6E-03	2.4E-01	4.0E-02
	Exp. Route Total						1.5E-01	4.3E-01	1.1E-01	1.6E+00	4.4E-01
EU 8	Dermal	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	3.3E-05	3.9E-05	1.4E-04	3.6E-04	3.0E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	4.2E-05	4.9E-05	1.8E-04	4.6E-04	3.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	8.7E-05	1.0E-04	3.8E-04	9.5E-04	8.0E-04
		PCBs									
		PCBs, Total	1.2	mg/kg	2.0E-05	(mg/kg-day)-1	5.4E-03	2.1E-03	2.4E-02	2.0E-02	5.0E-02
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Inorganics									
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	2.7E-03	3.2E-03	1.2E-02	2.9E-02	2.5E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	4.1E-04	4.8E-04	1.8E-03	4.5E-03	3.7E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA
	Exp. Route Total						8.7E-03	6.0E-03	3.8E-02	5.5E-02	8.0E-02
EU 8	Inhalation	**VOCs & SVOCs**									
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	1.5E-08	1.8E-08	3.1E-09	1.6E-08	6.5E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA	NA	NA
		PCBs									
		PCBs, Total	1.2	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Dioxin									
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Inorganics									
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	5.9E-06	7.0E-06	1.2E-06	6.5E-06	2.6E-06

TABLE E-7.-14

NONCANCER - RME EU 8

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Comm. Visitor Value Adult	Comm. Visitor Value Young Child	Trespasser Value Adolescent	Recreational User Value Young Child	Recreational User Value Adolescent
EU 8	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	8.7E-04	3.4E-04	1.8E-04	3.2E-04	3.7E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	3.1E-04	3.6E-04	6.4E-05	3.4E-04	1.3E-04
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	2.1E-03	2.4E-03	4.3E-04	2.3E-03	9.0E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	2.2E-07	2.5E-07	4.5E-08	2.4E-07	9.4E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						3.3E-03	3.2E-03	6.8E-04	2.9E-03	1.4E-03
Exposure Point Total							0.2	0.4	0.1	2	0.5

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child and recreational user - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child and recreational user - young child is also based on subchronic exposure.

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

Blood =	0.002	0.009	0.001	0.03	0.006
CNS =	0.004	0.01	0.002	0.04	0.007
Eye =	0.01	0.008	0.03	0.04	0.06
GI Tract =	0.1	0.2	0.07	0.9	0.3
Immune System =	0.01	0.008	0.03	0.04	0.06
Kidney =	0.002	0.008	0.003	0.03	0.008
Liver =	0.02	0.1	0.02	0.4	0.06
Lungs =	0.0003	0.0004	0.00007	0.0003	0.0001
Nails =	0.01	0.008	0.03	0.04	0.06
Nasal Septum =	0.0009	0.0003	0.0002	0.0003	0.0004
Skin =	0.02	0.03	0.04	0.1	0.1
Thyroid =	0.02	0.08	0.01	0.3	0.05
Whole Body =	0.002	0.008	0.001	0.03	0.005

TABLE E-7.15

CANCER - RME EU 9

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 9	Ingestion	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	4.4E-08	1.0E-08	1.1E-08	2.8E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	3.1E-07	7.1E-08	7.8E-08	1.9E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.4E-05	5.5E-06	6.1E-06	1.5E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	2.8E-08	6.3E-09	7.0E-09	1.7E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.7E-07	3.8E-08	4.2E-08	1.0E-08
		PCBs								
		PCBs, Total	0.95	mg/kg	2.0E+00	(mg/kg-day)-1	2.0E-07	4.5E-08	5.0E-08	1.2E-08
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.7E-06	1.3E-06	1.4E-06	3.5E-07
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	2.9E-06	6.6E-07	7.3E-07	1.8E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	2.0E-04	4.6E-05	5.1E-05	1.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.4E-04	5.4E-05	5.9E-05	1.5E-05
EU 9	Dermal	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	8.8E-09	2.0E-09	5.6E-10	3.5E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.1E-05	4.7E-06	1.3E-06	8.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	1.8E-08	4.2E-09	1.2E-09	7.4E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.1E-07	2.5E-08	7.0E-09	4.4E-08
		PCBs								
		PCBs, Total	0.95	mg/kg	2.0E+00	(mg/kg-day)-1	2.6E-07	5.9E-08	1.7E-08	1.1E-07
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.1E-06	2.5E-07	7.2E-08	4.5E-07
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	1.9E-06	4.3E-07	1.2E-07	7.7E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.4E-05	5.5E-06	1.6E-06	9.7E-06
EU 9	Inhalation	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	3.9E-13	9.8E-14	2.8E-14	8.1E-15
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	1.4E-12	3.5E-13	9.9E-14	2.9E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	9.1E-10	2.3E-10	6.4E-11	1.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.5E-11	3.7E-12	1.0E-12	3.0E-13
		PCBs								
		PCBs, Total	0.95	mg/kg	3.5E-01	(mg/kg-day)-1	1.0E-11	2.6E-12	7.2E-13	2.1E-13
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.0E-10	1.3E-10	3.5E-11	1.0E-11
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA

TABLE E-7.15

CANCER - RME EU 9

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 9	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	8.5E-09	2.1E-09	6.0E-10	1.8E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	1.4E-09	3.4E-10	9.5E-11	2.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	1.5E-06	3.8E-07	1.1E-07	3.1E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.5E-06	3.8E-07	1.1E-07	3.1E-08
Exposure Point Total							3E-04	6E-05	6E-05	2E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.16

NONCANCER - RME EU 9

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 9	Ingestion	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	7.3E-04	1.7E-04	7.7E-04	1.1E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	1.5E-03	3.3E-04	1.5E-03	2.3E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	2.8E-04	6.3E-05	2.9E-04	4.3E-05
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	5.8E-04	1.3E-04	6.1E-04	9.1E-05
		PCBs								
		PCBs, Total	0.95	mg/kg	2.0E-05	(mg/kg-day)-1	1.4E-02	3.2E-03	4.9E-03	2.2E-03
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	7.4E-03	1.7E-03	7.8E-03	1.2E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	4.1E-03	1.9E-02	2.8E-03
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	6.8E-03	1.5E-03	7.1E-03	1.1E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	3.8E-01	8.6E-02	1.3E-01	5.9E-02
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	7.9E-02	1.8E-02	8.3E-02	1.2E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	9.4E-02	2.1E-02	9.9E-02	1.5E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	9.5E-03	2.1E-03	9.9E-03	1.5E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	6.2E-02	1.4E-02	6.4E-02	9.6E-03
	Exp. Route Total						6.7E-01	1.5E-01	4.3E-01	1.0E-01
EU 9	Dermal	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.4E-04	3.3E-05	3.9E-05	1.4E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	1.8E-04	4.2E-05	4.9E-05	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	3.8E-04	8.7E-05	1.0E-04	3.8E-04
		PCBs								
		PCBs, Total	0.95	mg/kg	2.0E-05	(mg/kg-day)-1	1.8E-02	4.2E-03	1.6E-03	1.8E-02
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.2E-02	2.7E-03	3.2E-03	1.2E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	1.8E-03	4.1E-04	4.8E-04	1.8E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA	NA
	Exp. Route Total						3.3E-02	7.4E-03	5.5E-03	3.3E-02
EU 9	Inhalation	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	6.0E-08	1.5E-08	1.8E-08	3.1E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA	NA
		PCBs								
		PCBs, Total	0.95	mg/kg	NA	NA	NA	NA	NA	NA
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	2.4E-05	5.9E-06	7.0E-06	1.2E-06

TABLE E-7.16

NONCANCER - RME EU 9

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 9	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	3.5E-03	8.7E-04	3.4E-04	1.8E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	1.2E-03	3.1E-04	3.6E-04	6.4E-05
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	8.3E-03	2.1E-03	2.4E-03	4.3E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	8.7E-07	2.2E-07	2.5E-07	4.5E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.3E-02	3.3E-03	3.2E-03	6.8E-04
Exposure Point Total							0.7	0.2	0.4	0.1

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child is also based on subchronic exposure.

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

Blood =	0.009	0.002	0.009	0.001
CNS =	0.02	0.004	0.01	0.002
Eye =	0.03	0.007	0.006	0.02
GI Tract =	0.5	0.1	0.2	0.07
Immune System =	0.03	0.007	0.006	0.02
Kidney =	0.009	0.002	0.008	0.003
Liver =	0.1	0.02	0.1	0.02
Lungs =	0.001	0.0003	0.0004	0.00007
Nails =	0.03	0.007	0.006	0.02
Nasal Septum =	0.003	0.0009	0.0003	0.0002
Skin =	0.06	0.01	0.03	0.04
Thyroid =	0.08	0.02	0.08	0.01
Whole Body =	0.007	0.002	0.008	0.001

TABLE E-7.17
CANCER - RME EU 10
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 10	Ingestion	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	4.4E-08	1.0E-08	1.1E-08	2.8E-09	4.1E-08	1.2E-08
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	3.1E-07	7.1E-08	7.8E-08	1.9E-08	2.9E-07	8.1E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.4E-05	5.5E-06	6.1E-06	1.5E-06	2.3E-05	6.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	2.8E-08	6.3E-09	7.0E-09	1.7E-09	2.6E-08	7.2E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.7E-07	3.8E-08	4.2E-08	1.0E-08	1.6E-07	4.3E-08
		PCBs										
		PCBs, Total	43	mg/kg	2.0E+00	(mg/kg-day)-1	9.1E-06	2.0E-06	2.3E-06	5.6E-07	8.4E-06	2.3E-06
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.7E-06	1.3E-06	1.4E-06	3.5E-07	5.3E-06	1.5E-06
		Inorganics										
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	2.9E-06	6.6E-07	7.3E-07	1.8E-07	2.7E-06	7.5E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	2.0E-04	4.6E-05	5.1E-05	1.3E-05	1.9E-04	5.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.5E-04	5.6E-05	6.2E-05	1.5E-05	2.3E-04	6.4E-05
EU 10	Dermal	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	8.8E-09	2.0E-09	5.6E-10	3.5E-09	5.2E-09	7.3E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.1E-05	4.7E-06	1.3E-06	8.3E-06	1.2E-05	1.7E-05
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	1.8E-08	4.2E-09	1.2E-09	7.4E-09	1.1E-08	1.5E-08
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.1E-07	2.5E-08	7.0E-09	4.4E-08	6.5E-08	9.1E-08
		PCBs										
		PCBs, Total	43	mg/kg	2.0E+00	(mg/kg-day)-1	1.2E-05	2.7E-06	7.6E-07	4.8E-06	7.1E-06	9.9E-06
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.1E-06	2.5E-07	7.2E-08	4.5E-07	6.7E-07	9.3E-07
		Inorganics										
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	1.9E-06	4.3E-07	1.2E-07	7.7E-07	1.1E-06	1.6E-06
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						3.6E-05	8.1E-06	2.3E-06	1.4E-05	2.1E-05	3.0E-05
EU 10	Inhalation	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	3.9E-13	9.8E-14	2.8E-14	8.1E-15	2.6E-14	1.7E-14
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	1.4E-12	3.5E-13	9.9E-14	2.9E-14	9.2E-14	6.1E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	9.1E-10	2.3E-10	6.4E-11	1.9E-11	5.9E-11	3.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.5E-11	3.7E-12	1.0E-12	3.0E-13	9.6E-13	6.3E-13
		PCBs										
		PCBs, Total	43	mg/kg	3.5E-01	(mg/kg-day)-1	4.7E-10	1.2E-10	3.3E-11	9.7E-12	3.0E-11	2.0E-11
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.0E-10	1.3E-10	3.5E-11	1.0E-11	3.3E-11	2.2E-11
		Inorganics										
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA

TABLE E-7.17

CANCER - RME EU 10

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 10	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	8.5E-09	2.1E-09	6.0E-10	1.8E-10	5.6E-10	3.7E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	1.4E-09	3.4E-10	9.5E-11	2.8E-11	8.8E-11	5.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	1.5E-06	3.8E-07	1.1E-07	3.1E-08	9.8E-08	6.5E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.5E-06	3.8E-07	1.1E-07	3.1E-08	9.9E-08	6.5E-08
Exposure Point Total							3E-04	6E-05	6E-05	3E-05	3E-04	9E-05

Notes:
EU: Exposure Unit.
NA: Not Applicable.

Intestinal absorption factor:
PCBs - 0.3
Arsenic - 0.3
Other COPCs - 1.0

Dermal absorption factor:
PCBs - 0.06
Other COPCs - obtained from RAGS Part E

TABLE E-7.18
NONCANCER - RME EU 10
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 10	Ingestion	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	7.3E-04	1.7E-04	7.7E-04	1.1E-04	2.8E-03	4.7E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	1.5E-03	3.3E-04	1.5E-03	2.3E-04	5.7E-03	9.4E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	2.8E-04	6.3E-05	2.9E-04	4.3E-05	1.1E-03	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	5.8E-04	1.3E-04	6.1E-04	9.1E-05	2.3E-03	3.8E-04
		PCBs										
		PCBs, Total	43	mg/kg	2.0E-05	(mg/kg-day)-1	6.3E-01	1.4E-01	2.2E-01	9.9E-02	8.2E-01	4.1E-01
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Inorganics										
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	7.4E-03	1.7E-03	7.8E-03	1.2E-03	2.9E-02	4.8E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	4.1E-03	1.9E-02	2.8E-03	7.0E-02	1.2E-02
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	6.8E-03	1.5E-03	7.1E-03	1.1E-03	2.7E-02	4.4E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	3.8E-01	8.6E-02	1.3E-01	5.9E-02	4.9E-01	2.5E-01
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	7.9E-02	1.8E-02	8.3E-02	1.2E-02	3.1E-01	5.1E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	9.4E-02	2.1E-02	9.9E-02	1.5E-02	3.7E-01	6.1E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	9.5E-03	2.1E-03	9.9E-03	1.5E-03	3.7E-02	6.1E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	6.2E-02	1.4E-02	6.4E-02	9.6E-03	2.4E-01	4.0E-02
	Exp. Route Total						1.3E+00	2.9E-01	6.5E-01	2.0E-01	2.4E+00	8.4E-01
EU 10	Dermal	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.4E-04	3.3E-05	3.9E-05	1.4E-04	3.6E-04	3.0E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	1.8E-04	4.2E-05	4.9E-05	1.8E-04	4.6E-04	3.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	3.8E-04	8.7E-05	1.0E-04	3.8E-04	9.5E-04	8.0E-04
		PCBs										
		PCBs, Total	43	mg/kg	2.0E-05	(mg/kg-day)-1	8.4E-01	1.9E-01	7.4E-02	8.4E-01	6.9E-01	1.7E+00
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Inorganics										
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.2E-02	2.7E-03	3.2E-03	1.2E-02	2.9E-02	2.5E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	1.8E-03	4.1E-04	4.8E-04	1.8E-03	4.5E-03	3.7E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
	Exp. Route Total						8.5E-01	1.9E-01	7.8E-02	8.5E-01	7.2E-01	1.8E+00
EU 10	Inhalation	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	6.0E-08	1.5E-08	1.8E-08	3.1E-09	1.6E-08	6.5E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		PCBs										
		PCBs, Total	43	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Inorganics										
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	2.4E-05	5.9E-06	7.0E-06	1.2E-06	6.5E-06	2.6E-06

TABLE E-7.18

NONCANCER - RME EU 10

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 10	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	3.5E-03	8.7E-04	3.4E-04	1.8E-04	3.2E-04	3.7E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	1.2E-03	3.1E-04	3.6E-04	6.4E-05	3.4E-04	1.3E-04
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	8.3E-03	2.1E-03	2.4E-03	4.3E-04	2.3E-03	9.0E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	8.7E-07	2.2E-07	2.5E-07	4.5E-08	2.4E-07	9.4E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.3E-02	3.3E-03	3.2E-03	6.8E-04	2.9E-03	1.4E-03
Exposure Point Total							2	0.5	0.7	1	3	3

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child and recreational user - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child and recreational user - young child is also based on subchronic exposure.

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

Blood =	0.009	0.002	0.009	0.001	0.03	0.006
CNS =	0.02	0.004	0.01	0.002	0.04	0.007
Eye =	1	0.3	0.3	0.9	2	2
GI Tract =	0.5	0.1	0.2	0.07	0.9	0.3
Immune System =	1	0.3	0.3	0.9	2	2
Kidney =	0.009	0.002	0.008	0.003	0.03	0.008
Liver =	0.1	0.02	0.1	0.02	0.4	0.06
Lungs =	0.001	0.0003	0.0004	0.00007	0.0003	0.0001
Nails =	1	0.3	0.3	0.9	2	2
Nasal Septum =	0.003	0.0009	0.0003	0.0002	0.0003	0.0004
Skin =	2	0.3	0.3	0.9	2	2
Thyroid =	0.08	0.02	0.08	0.01	0.3	0.05
Whole Body =	0.007	0.002	0.008	0.001	0.03	0.005

TABLE E-7.19

CANCER - RME EU 11

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 11	Ingestion	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	4.4E-08	1.0E-08	1.1E-08	2.8E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	3.1E-07	7.1E-08	7.8E-08	1.9E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.4E-05	5.5E-06	6.1E-06	1.5E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	2.8E-08	6.3E-09	7.0E-09	1.7E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.7E-07	3.8E-08	4.2E-08	1.0E-08
		PCBs								
		PCBs, Total	1.8	mg/kg	2.0E+00	(mg/kg-day)-1	3.8E-07	8.6E-08	9.5E-08	2.4E-08
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.7E-06	1.3E-06	1.4E-06	3.5E-07
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	2.9E-06	6.6E-07	7.3E-07	1.8E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	2.0E-04	4.6E-05	5.1E-05	1.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.4E-04	5.4E-05	5.9E-05	1.5E-05
EU 11	Dermal	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	8.8E-09	2.0E-09	5.6E-10	3.5E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.1E-05	4.7E-06	1.3E-06	8.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	1.8E-08	4.2E-09	1.2E-09	7.4E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.1E-07	2.5E-08	7.0E-09	4.4E-08
		PCBs								
		PCBs, Total	1.8	mg/kg	2.0E+00	(mg/kg-day)-1	5.0E-07	1.1E-07	3.2E-08	2.0E-07
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.1E-06	2.5E-07	7.2E-08	4.5E-07
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	1.9E-06	4.3E-07	1.2E-07	7.7E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.5E-05	5.5E-06	1.6E-06	9.8E-06
EU 11	Inhalation	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	3.9E-13	9.8E-14	2.8E-14	8.1E-15
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	1.4E-12	3.5E-13	9.9E-14	2.9E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	9.1E-10	2.3E-10	6.4E-11	1.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.5E-11	3.7E-12	1.0E-12	3.0E-13
		PCBs								
		PCBs, Total	1.8	mg/kg	3.5E-01	(mg/kg-day)-1	1.9E-11	4.9E-12	1.4E-12	4.0E-13
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.0E-10	1.3E-10	3.5E-11	1.0E-11
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA

TABLE E-7.19

CANCER - RME EU 11

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 11	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	8.5E-09	2.1E-09	6.0E-10	1.8E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	1.4E-09	3.4E-10	9.5E-11	2.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	1.5E-06	3.8E-07	1.1E-07	3.1E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.5E-06	3.8E-07	1.1E-07	3.1E-08
Exposure Point Total							3E-04	6E-05	6E-05	2E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.20

NONCANCER - RME EU 11

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 11	Ingestion	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	7.3E-04	1.7E-04	7.7E-04	1.1E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	1.5E-03	3.3E-04	1.5E-03	2.3E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	2.8E-04	6.3E-05	2.9E-04	4.3E-05
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	5.8E-04	1.3E-04	6.1E-04	9.1E-05
		PCBs								
		PCBs, Total	1.8	mg/kg	2.0E-05	(mg/kg-day)-1	2.6E-02	6.0E-03	9.2E-03	4.1E-03
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	7.4E-03	1.7E-03	7.8E-03	1.2E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	4.1E-03	1.9E-02	2.8E-03
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	6.8E-03	1.5E-03	7.1E-03	1.1E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	3.8E-01	8.6E-02	1.3E-01	5.9E-02
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	7.9E-02	1.8E-02	8.3E-02	1.2E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	9.4E-02	2.1E-02	9.9E-02	1.5E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	9.5E-03	2.1E-03	9.9E-03	1.5E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	6.2E-02	1.4E-02	6.4E-02	9.6E-03
	Exp. Route Total						6.9E-01	1.5E-01	4.3E-01	1.1E-01
EU 11	Dermal	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.4E-04	3.3E-05	3.9E-05	1.4E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	1.8E-04	4.2E-05	4.9E-05	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	3.8E-04	8.7E-05	1.0E-04	3.8E-04
		PCBs								
		PCBs, Total	1.8	mg/kg	2.0E-05	(mg/kg-day)-1	3.5E-02	7.9E-03	3.1E-03	3.5E-02
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.2E-02	2.7E-03	3.2E-03	1.2E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	1.8E-03	4.1E-04	4.8E-04	1.8E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA	NA
	Exp. Route Total						4.9E-02	1.1E-02	6.9E-03	4.9E-02
EU 11	Inhalation	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	6.0E-08	1.5E-08	1.8E-08	3.1E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA	NA
		PCBs								
		PCBs, Total	1.8	mg/kg	NA	NA	NA	NA	NA	NA
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	2.4E-05	5.9E-06	7.0E-06	1.2E-06

TABLE E-7.20

NONCANCER - RME EU 11

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 11	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	3.5E-03	8.7E-04	3.4E-04	1.8E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	1.2E-03	3.1E-04	3.6E-04	6.4E-05
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	8.3E-03	2.1E-03	2.4E-03	4.3E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	8.7E-07	2.2E-07	2.5E-07	4.5E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.3E-02	3.3E-03	3.2E-03	6.8E-04
Exposure Point Total							0.7	0.2	0.4	0.2

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child is also based on subchronic exposure.

Blood =	0.009	0.002	0.009	0.001
CNS =	0.02	0.004	0.01	0.002
Eye =	0.06	0.01	0.01	0.04
GI Tract =	0.5	0.1	0.2	0.07
Immune System =	0.06	0.01	0.01	0.04
Kidney =	0.009	0.002	0.008	0.003
Liver =	0.1	0.02	0.1	0.02
Lungs =	0.001	0.0003	0.0004	0.00007
Nails =	0.06	0.01	0.01	0.04
Nasal Septum =	0.003	0.0009	0.0003	0.0002
Skin =	0.09	0.02	0.03	0.05
Thyroid =	0.08	0.02	0.08	0.01
Whole Body =	0.007	0.002	0.008	0.001

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

TABLE E-7.21

CANCER - RME EU 12

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 12	Ingestion	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	4.4E-08	1.0E-08	1.1E-08	2.8E-09	4.1E-08	1.2E-08
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	3.1E-07	7.1E-08	7.8E-08	1.9E-08	2.9E-07	8.1E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.4E-05	5.5E-06	6.1E-06	1.5E-06	2.3E-05	6.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	2.8E-08	6.3E-09	7.0E-09	1.7E-09	2.6E-08	7.2E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.7E-07	3.8E-08	4.2E-08	1.0E-08	1.6E-07	4.3E-08
		PCBs										
		PCBs, Total	9.6	mg/kg	2.0E+00	(mg/kg-day)-1	2.0E-06	4.6E-07	5.1E-07	1.3E-07	1.9E-06	5.2E-07
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.7E-06	1.3E-06	1.4E-06	3.5E-07	5.3E-06	1.5E-06
		Inorganics										
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	2.9E-06	6.6E-07	7.3E-07	1.8E-07	2.7E-06	7.5E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	2.0E-04	4.6E-05	5.1E-05	1.3E-05	1.9E-04	5.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.4E-04	5.4E-05	6.0E-05	1.5E-05	2.2E-04	6.2E-05
EU 12	Dermal	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	8.8E-09	2.0E-09	5.6E-10	3.5E-09	5.2E-09	7.3E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.1E-05	4.7E-06	1.3E-06	8.3E-06	1.2E-05	1.7E-05
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	1.8E-08	4.2E-09	1.2E-09	7.4E-09	1.1E-08	1.5E-08
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.1E-07	2.5E-08	7.0E-09	4.4E-08	6.5E-08	9.1E-08
		PCBs										
		PCBs, Total	9.6	mg/kg	2.0E+00	(mg/kg-day)-1	2.7E-06	6.0E-07	1.7E-07	1.1E-06	1.6E-06	2.2E-06
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.1E-06	2.5E-07	7.2E-08	4.5E-07	6.7E-07	9.3E-07
		Inorganics										
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	1.9E-06	4.3E-07	1.2E-07	7.7E-07	1.1E-06	1.6E-06
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.7E-05	6.0E-06	1.7E-06	1.1E-05	1.6E-05	2.2E-05
EU 12	Inhalation	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	3.9E-13	9.8E-14	2.8E-14	8.1E-15	2.6E-14	1.7E-14
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	1.4E-12	3.5E-13	9.9E-14	2.9E-14	9.2E-14	6.1E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	9.1E-10	2.3E-10	6.4E-11	1.9E-11	5.9E-11	3.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.5E-11	3.7E-12	1.0E-12	3.0E-13	9.6E-13	6.3E-13
		PCBs										
		PCBs, Total	9.6	mg/kg	3.5E-01	(mg/kg-day)-1	1.0E-10	2.6E-11	7.3E-12	2.1E-12	6.8E-12	4.5E-12
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.0E-10	1.3E-10	3.5E-11	1.0E-11	3.3E-11	2.2E-11
		Inorganics										
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA

TABLE E-7.21

CANCER - RME EU 12

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 12	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	8.5E-09	2.1E-09	6.0E-10	1.8E-10	5.6E-10	3.7E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	1.4E-09	3.4E-10	9.5E-11	2.8E-11	8.8E-11	5.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	1.5E-06	3.8E-07	1.1E-07	3.1E-08	9.8E-08	6.5E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.5E-06	3.8E-07	1.1E-07	3.1E-08	9.9E-08	6.5E-08
Exposure Point Total							3E-04	6E-05	6E-05	3E-05	2E-04	8E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.22

NONCANCER - RME EU 12

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 12	Ingestion	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	7.3E-04	1.7E-04	7.7E-04	1.1E-04	2.8E-03	4.7E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	1.5E-03	3.3E-04	1.5E-03	2.3E-04	5.7E-03	9.4E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	2.8E-04	6.3E-05	2.9E-04	4.3E-05	1.1E-03	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	5.8E-04	1.3E-04	6.1E-04	9.1E-05	2.3E-03	3.8E-04
		PCBs										
		PCBs, Total	9.6	mg/kg	2.0E-05	(mg/kg-day)-1	1.4E-01	3.2E-02	4.9E-02	2.2E-02	1.8E-01	9.1E-02
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Inorganics										
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	7.4E-03	1.7E-03	7.8E-03	1.2E-03	2.9E-02	4.8E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	4.1E-03	1.9E-02	2.8E-03	7.0E-02	1.2E-02
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	6.8E-03	1.5E-03	7.1E-03	1.1E-03	2.7E-02	4.4E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	3.8E-01	8.6E-02	1.3E-01	5.9E-02	4.9E-01	2.5E-01
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	7.9E-02	1.8E-02	8.3E-02	1.2E-02	3.1E-01	5.1E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	9.4E-02	2.1E-02	9.9E-02	1.5E-02	3.7E-01	6.1E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	9.5E-03	2.1E-03	9.9E-03	1.5E-03	3.7E-02	6.1E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	6.2E-02	1.4E-02	6.4E-02	9.6E-03	2.4E-01	4.0E-02
	Exp. Route Total						8.0E-01	1.8E-01	4.7E-01	1.2E-01	1.8E+00	5.2E-01
EU 12	Dermal	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.4E-04	3.3E-05	3.9E-05	1.4E-04	3.6E-04	3.0E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	1.8E-04	4.2E-05	4.9E-05	1.8E-04	4.6E-04	3.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	3.8E-04	8.7E-05	1.0E-04	3.8E-04	9.5E-04	8.0E-04
		PCBs										
		PCBs, Total	9.6	mg/kg	2.0E-05	(mg/kg-day)-1	1.9E-01	4.2E-02	1.7E-02	1.9E-01	1.5E-02	3.9E-01
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Inorganics										
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.2E-02	2.7E-03	3.2E-03	1.2E-02	2.9E-02	2.5E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	1.8E-03	4.1E-04	4.8E-04	1.8E-03	4.5E-03	3.7E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.0E-01	4.5E-02	2.0E-02	2.0E-01	5.1E-02	4.2E-01
EU 12	Inhalation	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	6.0E-08	1.5E-08	1.8E-08	3.1E-09	1.6E-08	6.5E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		PCBs										
		PCBs, Total	9.6	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Inorganics										
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	2.4E-05	5.9E-06	7.0E-06	1.2E-06	6.5E-06	2.6E-06

TABLE E-7.22

NONCANCER - RME EU 12

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 12	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	3.5E-03	8.7E-04	3.4E-04	1.8E-04	3.2E-04	3.7E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	1.2E-03	3.1E-04	3.6E-04	6.4E-05	3.4E-04	1.3E-04
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	8.3E-03	2.1E-03	2.4E-03	4.3E-04	2.3E-03	9.0E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	8.7E-07	2.2E-07	2.5E-07	4.5E-08	2.4E-07	9.4E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.3E-02	3.3E-03	3.2E-03	6.8E-04	2.9E-03	1.4E-03
Exposure Point Total							1	0.2	0.5	0.3	2	0.9

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child and recreational user - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child and recreational user - young child is also based on subchronic exposure.

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

Blood =	0.009	0.002	0.009	0.001	0.03	0.006
CNS =	0.02	0.004	0.01	0.002	0.04	0.007
Eye =	0.3	0.07	0.07	0.2	0.2	0.5
GI Tract =	0.5	0.1	0.2	0.07	0.9	0.3
Immune System =	0.3	0.07	0.07	0.2	0.2	0.5
Kidney =	0.009	0.002	0.008	0.003	0.03	0.008
Liver =	0.1	0.02	0.1	0.02	0.4	0.06
Lungs =	0.001	0.0003	0.0004	0.00007	0.0003	0.0001
Nails =	0.3	0.07	0.07	0.2	0.2	0.5
Nasal Septum =	0.003	0.0009	0.0003	0.0002	0.0003	0.0004
Skin =	0.4	0.08	0.09	0.2	0.3	0.5
Thyroid =	0.08	0.02	0.08	0.01	0.3	0.05
Whole Body =	0.007	0.002	0.008	0.001	0.03	0.005

TABLE E-7.23

CANCER - RME EU 13

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Comm. Visitor Adult	Comm. Visitor Young Child	Trespasser Adolescent
EU 13	Ingestion	**VOCs & SVOCs**							
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	1.0E-08	1.1E-08	2.8E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	7.1E-08	7.8E-08	1.9E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	5.5E-06	6.1E-06	1.5E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	6.3E-09	7.0E-09	1.7E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	3.8E-08	4.2E-08	1.0E-08
		PCBs							
		PCBs, Total	11	mg/kg	2.0E+00	(mg/kg-day)-1	5.2E-07	5.8E-07	1.4E-07
		Dioxin							
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.3E-06	1.4E-06	3.5E-07
		Inorganics							
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	6.6E-07	7.3E-07	1.8E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	4.6E-05	5.1E-05	1.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA
	Exp. Route Total						5.4E-05	6.0E-05	1.5E-05
EU 13	Dermal	**VOCs & SVOCs**							
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	2.0E-09	5.6E-10	3.5E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	4.7E-06	1.3E-06	8.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	4.2E-09	1.2E-09	7.4E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	2.5E-08	7.0E-09	4.4E-08
		PCBs							
		PCBs, Total	11	mg/kg	2.0E+00	(mg/kg-day)-1	6.9E-07	1.9E-07	1.2E-06
		Dioxin							
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	2.5E-07	7.2E-08	4.5E-07
		Inorganics							
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	4.3E-07	1.2E-07	7.7E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA
	Exp. Route Total						6.1E-06	1.7E-06	1.1E-05
EU 13	Inhalation	**VOCs & SVOCs**							
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	9.8E-14	2.8E-14	8.1E-15
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	3.5E-13	9.9E-14	2.9E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	2.3E-10	6.4E-11	1.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	3.7E-12	1.0E-12	3.0E-13
		PCBs							
		PCBs, Total	11	mg/kg	3.5E-01	(mg/kg-day)-1	3.0E-11	8.3E-12	2.5E-12
		Dioxin							
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.3E-10	3.5E-11	1.0E-11
		Inorganics							
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA

TABLE E-7.23

CANCER - RME EU 13

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		CSF/Unit Risk		Cancer Risk per Receptor Population		
			Value	Unit	Value	Unit	Comm. Visitor Value		Trespasser Value
							Adult	Young Child	Adolescent
EU 13	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	2.1E-09	6.0E-10	1.8E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	3.4E-10	9.5E-11	2.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	3.8E-07	1.1E-07	3.1E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA
	Exp. Route Total						3.8E-07	1.1E-07	3.1E-08
Exposure Point Total							6E-05	6E-05	3E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.24

NONCANCER - RME EU 13

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC Value	RfD/RfC Unit	Noncancer Risk per Receptor Population: Comm. Visitor Value Adult	Comm. Visitor Value Young Child	Trespasser Value Adolescent
EU 13	Ingestion	**VOCs & SVOCs**							
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.7E-04	7.7E-04	1.1E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	3.3E-04	1.5E-03	2.3E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	6.3E-05	2.9E-04	4.3E-05
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	1.3E-04	6.1E-04	9.1E-05
		PCBs							
		PCBs, Total	11	mg/kg	2.0E-05	(mg/kg-day)-1	3.6E-02	5.6E-02	2.5E-02
		Dioxin							
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA
		Inorganics							
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	1.7E-03	7.8E-03	1.2E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	4.1E-03	1.9E-02	2.8E-03
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	1.5E-03	7.1E-03	1.1E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	8.6E-02	1.3E-01	5.9E-02
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	8.3E-02	1.2E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	2.1E-02	9.9E-02	1.5E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	2.1E-03	9.9E-03	1.5E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	1.4E-02	6.4E-02	9.6E-03
	Exp. Route Total						1.9E-01	4.8E-01	1.3E-01
EU 13	Dermal	**VOCs & SVOCs**							
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	3.3E-05	3.9E-05	1.4E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	4.2E-05	4.9E-05	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	8.7E-05	1.0E-04	3.8E-04
		PCBs							
		PCBs, Total	11	mg/kg	2.0E-05	(mg/kg-day)-1	4.8E-02	1.9E-02	2.1E-01
		Dioxin							
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA
		Inorganics							
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	2.7E-03	3.2E-03	1.2E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	4.1E-04	4.8E-04	1.8E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA
	Exp. Route Total						5.1E-02	2.3E-02	2.3E-01
EU 13	Inhalation	**VOCs & SVOCs**							
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	1.5E-08	1.8E-08	3.1E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA
		PCBs							
		PCBs, Total	11	mg/kg	NA	NA	NA	NA	NA
		Dioxin							
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA
		Inorganics							
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	5.9E-06	7.0E-06	1.2E-06

TABLE E-7.24

NONCANCER - RME EU 13

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC Value	RfD/RfC Unit	Noncancer Risk per Receptor Population: Comm. Visitor Value Adult	Comm. Visitor Value Young Child	Trespasser Value Adolescent
EU 13	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	8.7E-04	3.4E-04	1.8E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	3.1E-04	3.6E-04	6.4E-05
		Iron	67569	mg/kg	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	2.1E-03	2.4E-03	4.3E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	2.2E-07	2.5E-07	4.5E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA
	Exp. Route Total						3.3E-03	3.2E-03	6.8E-04
Exposure Point Total							0.2	0.5	0.4

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child is also based on subchronic exposure.

Blood =	0.002	0.009	0.001
CNS =	0.004	0.01	0.002
Eye =	0.08	0.08	0.2
GI Tract =	0.1	0.2	0.07
Immune System =	0.08	0.08	0.2
Kidney =	0.002	0.008	0.003
Liver =	0.02	0.1	0.02
Lungs =	0.0003	0.0004	0.00007
Nails =	0.08	0.08	0.2
Nasal Septum =	0.0009	0.0003	0.0002
Skin =	0.09	0.1	0.3
Thyroid =	0.02	0.08	0.01
Whole Body =	0.002	0.008	0.001

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

TABLE E-7.25

CANCER - RME EU 14N

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 14N	Ingestion	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	4.4E-08	1.0E-08	1.1E-08	2.8E-09	4.1E-08	1.2E-08
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	3.1E-07	7.1E-08	7.8E-08	1.9E-08	2.9E-07	8.1E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.4E-05	5.5E-06	6.1E-06	1.5E-06	2.3E-05	6.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	2.8E-08	6.3E-09	7.0E-09	1.7E-09	2.6E-08	7.2E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.7E-07	3.8E-08	4.2E-08	1.0E-08	1.6E-07	4.3E-08
		PCBs										
		PCBs, Total	24	mg/kg	2.0E+00	(mg/kg-day)-1	5.0E-06	1.1E-06	1.2E-06	3.1E-07	4.6E-06	1.3E-06
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.7E-06	1.3E-06	1.4E-06	3.5E-07	5.3E-06	1.5E-06
		Inorganics										
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	2.9E-06	6.6E-07	7.3E-07	1.8E-07	2.7E-06	7.5E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	2.0E-04	4.6E-05	5.1E-05	1.3E-05	1.9E-04	5.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.4E-04	5.5E-05	6.1E-05	1.5E-05	2.3E-04	6.3E-05
EU 14N	Dermal	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	8.8E-09	2.0E-09	5.6E-10	3.5E-09	5.2E-09	7.3E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.1E-05	4.7E-06	1.3E-06	8.3E-06	1.2E-05	1.7E-05
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	1.8E-08	4.2E-09	1.2E-09	7.4E-09	1.1E-08	1.5E-08
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.1E-07	2.5E-08	7.0E-09	4.4E-08	6.5E-08	9.1E-08
		PCBs										
		PCBs, Total	24	mg/kg	2.0E+00	(mg/kg-day)-1	6.6E-06	1.5E-06	4.2E-07	2.6E-06	3.9E-06	5.5E-06
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.1E-06	2.5E-07	7.2E-08	4.5E-07	6.7E-07	9.3E-07
		Inorganics										
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	1.9E-06	4.3E-07	1.2E-07	7.7E-07	1.1E-06	1.6E-06
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						3.1E-05	6.9E-06	2.0E-06	1.2E-05	1.8E-05	2.5E-05
EU 14N	Inhalation	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	3.9E-13	9.8E-14	2.8E-14	8.1E-15	2.6E-14	1.7E-14
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	1.4E-12	3.5E-13	9.9E-14	2.9E-14	9.2E-14	6.1E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	9.1E-10	2.3E-10	6.4E-11	1.9E-11	5.9E-11	3.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.5E-11	3.7E-12	1.0E-12	3.0E-13	9.6E-13	6.3E-13
		PCBs										
		PCBs, Total	24	mg/kg	3.5E-01	(mg/kg-day)-1	2.6E-10	6.4E-11	1.8E-11	5.3E-12	1.7E-11	1.1E-11
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.0E-10	1.3E-10	3.5E-11	1.0E-11	3.3E-11	2.2E-11
		Inorganics										
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA

TABLE E-7.25

CANCER - RME EU 14N

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 14N	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	8.5E-09	2.1E-09	6.0E-10	1.8E-10	5.6E-10	3.7E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	1.4E-09	3.4E-10	9.5E-11	2.8E-11	8.8E-11	5.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	1.5E-06	3.8E-07	1.1E-07	3.1E-08	9.8E-08	6.5E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.5E-06	3.8E-07	1.1E-07	3.1E-08	9.9E-08	6.5E-08
Exposure Point Total							3E-04	6E-05	6E-05	3E-05	2E-04	9E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.26

NONCANCER - RME EU 14N

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 14N	Ingestion	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	7.3E-04	1.7E-04	7.7E-04	1.1E-04	2.8E-03	4.7E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	1.5E-03	3.3E-04	1.5E-03	2.3E-04	5.7E-03	9.4E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	2.8E-04	6.3E-05	2.9E-04	4.3E-05	1.1E-03	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	5.8E-04	1.3E-04	6.1E-04	9.1E-05	2.3E-03	3.8E-04
		PCBs										
		PCBs, Total	24	mg/kg	2.0E-05	(mg/kg-day)-1	3.5E-01	7.9E-02	1.2E-01	5.4E-02	4.5E-01	2.3E-01
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Inorganics										
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	7.4E-03	1.7E-03	7.8E-03	1.2E-03	2.9E-02	4.8E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	4.1E-03	1.9E-02	2.8E-03	7.0E-02	1.2E-02
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	6.8E-03	1.5E-03	7.1E-03	1.1E-03	2.7E-02	4.4E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	3.8E-01	8.6E-02	1.3E-01	5.9E-02	4.9E-01	2.5E-01
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	7.9E-02	1.8E-02	8.3E-02	1.2E-02	3.1E-01	5.1E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	9.4E-02	2.1E-02	9.9E-02	1.5E-02	3.7E-01	6.1E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	9.5E-03	2.1E-03	9.9E-03	1.5E-03	3.7E-02	6.1E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	6.2E-02	1.4E-02	6.4E-02	9.6E-03	2.4E-01	4.0E-02
	Exp. Route Total						1.0E+00	2.3E-01	5.5E-01	1.6E-01	2.0E+00	6.5E-01
EU 14N	Dermal	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.4E-04	3.3E-05	3.9E-05	1.4E-04	3.6E-04	3.0E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	1.8E-04	4.2E-05	4.9E-05	1.8E-04	4.6E-04	3.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	3.8E-04	8.7E-05	1.0E-04	3.8E-04	9.5E-04	8.0E-04
		PCBs										
		PCBs, Total	24	mg/kg	2.0E-05	(mg/kg-day)-1	4.6E-01	1.0E-01	4.1E-02	4.6E-01	3.8E-01	9.6E-01
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Inorganics										
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.2E-02	2.7E-03	3.2E-03	1.2E-02	2.9E-02	2.5E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	1.8E-03	4.1E-04	4.8E-04	1.8E-03	4.5E-03	3.7E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
	Exp. Route Total						4.7E-01	1.1E-01	4.5E-02	4.7E-01	4.1E-01	9.9E-01
EU 14N	Inhalation	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	6.0E-08	1.5E-08	1.8E-08	3.1E-09	1.6E-08	6.5E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		PCBs										
		PCBs, Total	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Inorganics										
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	2.4E-05	5.9E-06	7.0E-06	1.2E-06	6.5E-06	2.6E-06

TABLE E-7.26

NONCANCER - RME EU 14N

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 14N	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	3.5E-03	8.7E-04	3.4E-04	1.8E-04	3.2E-04	3.7E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	1.2E-03	3.1E-04	3.6E-04	6.4E-05	3.4E-04	1.3E-04
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	8.3E-03	2.1E-03	2.4E-03	4.3E-04	2.3E-03	9.0E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	8.7E-07	2.2E-07	2.5E-07	4.5E-08	2.4E-07	9.4E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.3E-02	3.3E-03	3.2E-03	6.8E-04	2.9E-03	1.4E-03
Exposure Point Total							1	0.3	0.6	0.6	2	2

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child and recreational user - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child and recreational user - young child is also based on subchronic exposure.

Blood =	0.009	0.002	0.009	0.001	0.03	0.006
CNS =	0.02	0.004	0.01	0.002	0.04	0.007
Eye =	0.8	0.2	0.2	0.5	0.8	1
GI Tract =	0.5	0.1	0.2	0.07	0.9	0.3
Immune System =	0.8	0.2	0.2	0.5	0.8	1
Kidney =	0.009	0.002	0.008	0.003	0.03	0.008
Liver =	0.1	0.02	0.1	0.02	0.4	0.06
Lungs =	0.001	0.0003	0.0004	0.00007	0.0003	0.0001
Nails =	0.8	0.2	0.2	0.5	0.8	1
Nasal Septum =	0.003	0.0009	0.0003	0.0002	0.0003	0.0004
Skin =	0.8	0.2	0.2	0.5	0.9	1
Thyroid =	0.08	0.02	0.08	0.01	0.3	0.05
Whole Body =	0.007	0.002	0.008	0.001	0.03	0.005

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

TABLE E-7.27
CANCER - RME EU 14S
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 14S	Ingestion	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	4.4E-08	1.0E-08	1.1E-08	2.8E-09	4.1E-08	1.2E-08
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	3.1E-07	7.1E-08	7.8E-08	1.9E-08	2.9E-07	8.1E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.4E-05	5.5E-06	6.1E-06	1.5E-06	2.3E-05	6.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	2.8E-08	6.3E-09	7.0E-09	1.7E-09	2.6E-08	7.2E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.7E-07	3.8E-08	4.2E-08	1.0E-08	1.6E-07	4.3E-08
		PCBs										
		PCBs, Total	1.8	mg/kg	2.0E+00	(mg/kg-day)-1	3.8E-07	8.6E-08	9.6E-08	2.4E-08	3.6E-07	9.9E-08
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.7E-06	1.3E-06	1.4E-06	3.5E-07	5.3E-06	1.5E-06
		Inorganics										
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	2.9E-06	6.6E-07	7.3E-07	1.8E-07	2.7E-06	7.5E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	2.0E-04	4.6E-05	5.1E-05	1.3E-05	1.9E-04	5.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.4E-04	5.4E-05	5.9E-05	1.5E-05	2.2E-04	6.1E-05
EU 14S	Dermal	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	8.8E-09	2.0E-09	5.6E-10	3.5E-09	5.2E-09	7.3E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.1E-05	4.7E-06	1.3E-06	8.3E-06	1.2E-05	1.7E-05
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	1.8E-08	4.2E-09	1.2E-09	7.4E-09	1.1E-08	1.5E-08
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.1E-07	2.5E-08	7.0E-09	4.4E-08	6.5E-08	9.1E-08
		PCBs										
		PCBs, Total	1.8	mg/kg	2.0E+00	(mg/kg-day)-1	5.0E-07	1.1E-07	3.2E-08	2.0E-07	3.0E-07	4.2E-07
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.1E-06	2.5E-07	7.2E-08	4.5E-07	6.7E-07	9.3E-07
		Inorganics										
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	1.9E-06	4.3E-07	1.2E-07	7.7E-07	1.1E-06	1.6E-06
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.5E-05	5.5E-06	1.6E-06	9.8E-06	1.5E-05	2.0E-05
EU 14S	Inhalation	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	3.9E-13	9.8E-14	2.8E-14	8.1E-15	2.6E-14	1.7E-14
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	1.4E-12	3.5E-13	9.9E-14	2.9E-14	9.2E-14	6.1E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	9.1E-10	2.3E-10	6.4E-11	1.9E-11	5.9E-11	3.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.5E-11	3.7E-12	1.0E-12	3.0E-13	9.6E-13	6.3E-13
		PCBs										
		PCBs, Total	1.8	mg/kg	3.5E-01	(mg/kg-day)-1	2.0E-11	4.9E-12	1.4E-12	4.1E-13	1.3E-12	8.5E-13
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.0E-10	1.3E-10	3.5E-11	1.0E-11	3.3E-11	2.2E-11
		Inorganics										
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA

TABLE E-7.27

CANCER - RME EU 14S

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		CSF/Unit Risk		Cancer Risk per Receptor Population					
			Value	Unit	Value	Unit	Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 14S	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	8.5E-09	2.1E-09	6.0E-10	1.8E-10	5.6E-10	3.7E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	1.4E-09	3.4E-10	9.5E-11	2.8E-11	8.8E-11	5.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	1.5E-06	3.8E-07	1.1E-07	3.1E-08	9.8E-08	6.5E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.5E-06	3.8E-07	1.1E-07	3.1E-08	9.9E-08	6.5E-08
Exposure Point Total							3E-04	6E-05	6E-05	2E-05	2E-04	8E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.28
NONCANCER - RME EU 14S
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 14S	Ingestion	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	7.3E-04	1.7E-04	7.7E-04	1.1E-04	2.8E-03	4.7E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	1.5E-03	3.3E-04	1.5E-03	2.3E-04	5.7E-03	9.4E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	2.8E-04	6.3E-05	2.9E-04	4.3E-05	1.1E-03	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	5.8E-04	1.3E-04	6.1E-04	9.1E-05	2.3E-03	3.8E-04
		PCBs										
		PCBs, Total	1.8	mg/kg	2.0E-05	(mg/kg-day)-1	2.7E-02	6.0E-03	9.3E-03	4.2E-03	3.5E-02	1.7E-02
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Inorganics										
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	7.4E-03	1.7E-03	7.8E-03	1.2E-03	2.9E-02	4.8E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	4.1E-03	1.9E-02	2.8E-03	7.0E-02	1.2E-02
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	6.8E-03	1.5E-03	7.1E-03	1.1E-03	2.7E-02	4.4E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	3.8E-01	8.6E-02	1.3E-01	5.9E-02	4.9E-01	2.5E-01
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	7.9E-02	1.8E-02	8.3E-02	1.2E-02	3.1E-01	5.1E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	9.4E-02	2.1E-02	9.9E-02	1.5E-02	3.7E-01	6.1E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	9.5E-03	2.1E-03	9.9E-03	1.5E-03	3.7E-02	6.1E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	6.2E-02	1.4E-02	6.4E-02	9.6E-03	2.4E-01	4.0E-02
	Exp. Route Total						6.9E-01	1.6E-01	4.3E-01	1.1E-01	1.6E+00	4.4E-01
EU 14S	Dermal	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.4E-04	3.3E-05	3.9E-05	1.4E-04	3.6E-04	3.0E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	1.8E-04	4.2E-05	4.9E-05	1.8E-04	4.6E-04	3.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	3.8E-04	8.7E-05	1.0E-04	3.8E-04	9.5E-04	8.0E-04
		PCBs										
		PCBs, Total	1.8	mg/kg	2.0E-05	(mg/kg-day)-1	3.5E-02	8.0E-03	3.1E-03	3.5E-02	2.9E-02	7.3E-02
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Inorganics										
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.2E-02	2.7E-03	3.2E-03	1.2E-02	2.9E-02	2.5E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	1.8E-03	4.1E-04	4.8E-04	1.8E-03	4.5E-03	3.7E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
	Exp. Route Total						5.0E-02	1.1E-02	7.0E-03	5.0E-02	6.5E-02	1.0E-01
EU 14S	Inhalation	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	6.0E-08	1.5E-08	1.8E-08	3.1E-09	1.6E-08	6.5E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		PCBs										
		PCBs, Total	1.8	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Inorganics										
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	2.4E-05	5.9E-06	7.0E-06	1.2E-06	6.5E-06	2.6E-06

TABLE E-7.28

NONCANCER - RME EU 14S

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 14S	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	3.5E-03	8.7E-04	3.4E-04	1.8E-04	3.2E-04	3.7E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	1.2E-03	3.1E-04	3.6E-04	6.4E-05	3.4E-04	1.3E-04
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	8.3E-03	2.1E-03	2.4E-03	4.3E-04	2.3E-03	9.0E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	8.7E-07	2.2E-07	2.5E-07	4.5E-08	2.4E-07	9.4E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.3E-02	3.3E-03	3.2E-03	6.8E-04	2.9E-03	1.4E-03
Exposure Point Total							0.7	0.2	0.4	0.2	2	0.5

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child and recreational user - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child and recreational user - young child is also based on subchronic exposure.

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

Blood =	0.009	0.002	0.009	0.001	0.03	0.006
CNS =	0.02	0.004	0.01	0.002	0.04	0.007
Eye =	0.06	0.01	0.01	0.04	0.06	0.09
GI Tract =	0.5	0.1	0.2	0.07	0.9	0.3
Immune System =	0.06	0.01	0.01	0.04	0.06	0.09
Kidney =	0.009	0.002	0.008	0.003	0.03	0.008
Liver =	0.1	0.02	0.1	0.02	0.4	0.06
Lungs =	0.001	0.0003	0.0004	0.00007	0.0003	0.0001
Nails =	0.06	0.01	0.01	0.04	0.06	0.09
Nasal Septum =	0.003	0.0009	0.0003	0.0002	0.0003	0.0004
Skin =	0.09	0.02	0.03	0.05	0.2	0.1
Thyroid =	0.08	0.02	0.08	0.01	0.3	0.05
Whole Body =	0.007	0.002	0.008	0.001	0.03	0.005

TABLE E-7.29

CANCER - RME EU 15/16

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 15/16	Ingestion	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	4.4E-08	1.0E-08	1.1E-08	2.8E-09	4.1E-08	1.2E-08
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	3.1E-07	7.1E-08	7.8E-08	1.9E-08	2.9E-07	8.1E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.4E-05	5.5E-06	6.1E-06	1.5E-06	2.3E-05	6.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	2.8E-08	6.3E-09	7.0E-09	1.7E-09	2.6E-08	7.2E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.7E-07	3.8E-08	4.2E-08	1.0E-08	1.6E-07	4.3E-08
		PCBs										
		PCBs, Total	1.5	mg/kg	2.0E+00	(mg/kg-day)-1	3.2E-07	7.1E-08	7.9E-08	2.0E-08	2.9E-07	8.2E-08
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.7E-06	1.3E-06	1.4E-06	3.5E-07	5.3E-06	1.5E-06
		Inorganics										
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	2.9E-06	6.6E-07	7.3E-07	1.8E-07	2.7E-06	7.5E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	2.0E-04	4.6E-05	5.1E-05	1.3E-05	1.9E-04	5.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.4E-04	5.4E-05	5.9E-05	1.5E-05	2.2E-04	6.1E-05
EU 15/16	Dermal	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	8.8E-09	2.0E-09	5.6E-10	3.5E-09	5.2E-09	7.3E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.1E-05	4.7E-06	1.3E-06	8.3E-06	1.2E-05	1.7E-05
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	1.8E-08	4.2E-09	1.2E-09	7.4E-09	1.1E-08	1.5E-08
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.1E-07	2.5E-08	7.0E-09	4.4E-08	6.5E-08	9.1E-08
		PCBs										
		PCBs, Total	1.5	mg/kg	2.0E+00	(mg/kg-day)-1	4.2E-07	9.4E-08	2.7E-08	1.7E-07	2.5E-07	3.5E-07
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.1E-06	2.5E-07	7.2E-08	4.5E-07	6.7E-07	9.3E-07
		Inorganics										
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	1.9E-06	4.3E-07	1.2E-07	7.7E-07	1.1E-06	1.6E-06
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.4E-05	5.5E-06	1.6E-06	9.8E-06	1.4E-05	2.0E-05
EU 15/16	Inhalation	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	3.9E-13	9.8E-14	2.8E-14	8.1E-15	2.6E-14	1.7E-14
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	1.4E-12	3.5E-13	9.9E-14	2.9E-14	9.2E-14	6.1E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	9.1E-10	2.3E-10	6.4E-11	1.9E-11	5.9E-11	3.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.5E-11	3.7E-12	1.0E-12	3.0E-13	9.6E-13	6.3E-13
		PCBs										
		PCBs, Total	1.5	mg/kg	3.5E-01	(mg/kg-day)-1	1.6E-11	4.1E-12	1.1E-12	3.4E-13	1.1E-12	7.0E-13
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.0E-10	1.3E-10	3.5E-11	1.0E-11	3.3E-11	2.2E-11
		Inorganics										
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA

TABLE E-7.29

CANCER - RME EU 15/16

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 15/16	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	8.5E-09	2.1E-09	6.0E-10	1.8E-10	5.6E-10	3.7E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	1.4E-09	3.4E-10	9.5E-11	2.8E-11	8.8E-11	5.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	1.5E-06	3.8E-07	1.1E-07	3.1E-08	9.8E-08	6.5E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.5E-06	3.8E-07	1.1E-07	3.1E-08	9.9E-08	6.5E-08
Exposure Point Total							3E-04	6E-05	6E-05	2E-05	2E-04	8E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.30

NONCANCER - RME EU 15/16

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 15/16	Ingestion	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	7.3E-04	1.7E-04	7.7E-04	1.1E-04	2.8E-03	4.7E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	1.5E-03	3.3E-04	1.5E-03	2.3E-04	5.7E-03	9.4E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	2.8E-04	6.3E-05	2.9E-04	4.3E-05	1.1E-03	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	5.8E-04	1.3E-04	6.1E-04	9.1E-05	2.3E-03	3.8E-04
		PCBs										
		PCBs, Total	1.5	mg/kg	2.0E-05	(mg/kg-day)-1	2.2E-02	5.0E-03	7.7E-03	3.4E-03	2.9E-02	1.4E-02
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Inorganics										
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	7.4E-03	1.7E-03	7.8E-03	1.2E-03	2.9E-02	4.8E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	4.1E-03	1.9E-02	2.8E-03	7.0E-02	1.2E-02
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	6.8E-03	1.5E-03	7.1E-03	1.1E-03	2.7E-02	4.4E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	3.8E-01	8.6E-02	1.3E-01	5.9E-02	4.9E-01	2.5E-01
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	7.9E-02	1.8E-02	8.3E-02	1.2E-02	3.1E-01	5.1E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	9.4E-02	2.1E-02	9.9E-02	1.5E-02	3.7E-01	6.1E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	9.5E-03	2.1E-03	9.9E-03	1.5E-03	3.7E-02	6.1E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	6.2E-02	1.4E-02	6.4E-02	9.6E-03	2.4E-01	4.0E-02
	Exp. Route Total						6.8E-01	1.5E-01	4.3E-01	1.1E-01	1.6E+00	4.4E-01
EU 15/16	Dermal	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.4E-04	3.3E-05	3.9E-05	1.4E-04	3.6E-04	3.0E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	1.8E-04	4.2E-05	4.9E-05	1.8E-04	4.6E-04	3.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	3.8E-04	8.7E-05	1.0E-04	3.8E-04	9.5E-04	8.0E-04
		PCBs										
		PCBs, Total	1.5	mg/kg	2.0E-05	(mg/kg-day)-1	2.9E-02	6.6E-03	2.6E-03	2.9E-02	2.4E-02	6.1E-02
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Inorganics										
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.2E-02	2.7E-03	3.2E-03	1.2E-02	2.9E-02	2.5E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	1.8E-03	4.1E-04	4.8E-04	1.8E-03	4.5E-03	3.7E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA	NA	NA	NA
	Exp. Route Total						4.4E-02	9.8E-03	6.4E-03	4.4E-02	6.0E-02	9.1E-02
EU 15/16	Inhalation	**VOCs & SVOCs**										
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	6.0E-08	1.5E-08	1.8E-08	3.1E-09	1.6E-08	6.5E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		PCBs										
		PCBs, Total	1.5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Dioxin										
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Inorganics										
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	2.4E-05	5.9E-06	7.0E-06	1.2E-06	6.5E-06	2.6E-06

TABLE E-7.30

NONCANCER - RME EU 15/16

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value	Recreational User Value	
							Adult	Adult	Young Child	Adolescent	Young Child	Adolescent
EU 15/16	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	3.5E-03	8.7E-04	3.4E-04	1.8E-04	3.2E-04	3.7E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	1.2E-03	3.1E-04	3.6E-04	6.4E-05	3.4E-04	1.3E-04
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	8.3E-03	2.1E-03	2.4E-03	4.3E-04	2.3E-03	9.0E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	8.7E-07	2.2E-07	2.5E-07	4.5E-08	2.4E-07	9.4E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.3E-02	3.3E-03	3.2E-03	6.8E-04	2.9E-03	1.4E-03
Exposure Point Total							0.7	0.2	0.4	0.2	2	0.5

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child and recreational user - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child and recreational user - young child is also based on subchronic exposure.

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

Blood =	0.009	0.002	0.009	0.001	0.03	0.006
CNS =	0.02	0.004	0.01	0.002	0.04	0.007
Eye =	0.05	0.01	0.01	0.03	0.05	0.07
GI Tract =	0.5	0.1	0.2	0.07	0.9	0.3
Immune System =	0.05	0.01	0.01	0.03	0.05	0.07
Kidney =	0.009	0.002	0.008	0.003	0.03	0.008
Liver =	0.1	0.02	0.1	0.02	0.4	0.06
Lungs =	0.001	0.0003	0.0004	0.00007	0.0003	0.0001
Nails =	0.05	0.01	0.01	0.03	0.05	0.07
Nasal Septum =	0.003	0.0009	0.0003	0.0002	0.0003	0.0004
Skin =	0.08	0.02	0.03	0.05	0.2	0.1
Thyroid =	0.08	0.02	0.08	0.01	0.3	0.05
Whole Body =	0.007	0.002	0.008	0.001	0.03	0.005

TABLE E-7.31

CANCER - RME EU 17

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 17	Ingestion	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	4.4E-08	1.0E-08	1.1E-08	2.8E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	3.1E-07	7.1E-08	7.8E-08	1.9E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.4E-05	5.5E-06	6.1E-06	1.5E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	2.8E-08	6.3E-09	7.0E-09	1.7E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.7E-07	3.8E-08	4.2E-08	1.0E-08
		PCBs								
		PCBs, Total	4.7	mg/kg	2.0E+00	(mg/kg-day)-1	9.9E-07	2.2E-07	2.5E-07	6.2E-08
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.7E-06	1.3E-06	1.4E-06	3.5E-07
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	2.9E-06	6.6E-07	7.3E-07	1.8E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	2.0E-04	4.6E-05	5.1E-05	1.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.4E-04	5.4E-05	6.0E-05	1.5E-05
EU 17	Dermal	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	8.8E-09	2.0E-09	5.6E-10	3.5E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.1E-05	4.7E-06	1.3E-06	8.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	1.8E-08	4.2E-09	1.2E-09	7.4E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.1E-07	2.5E-08	7.0E-09	4.4E-08
		PCBs								
		PCBs, Total	4.7	mg/kg	2.0E+00	(mg/kg-day)-1	1.3E-06	3.0E-07	8.4E-08	5.2E-07
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.1E-06	2.5E-07	7.2E-08	4.5E-07
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	1.9E-06	4.3E-07	1.2E-07	7.7E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.5E-05	5.7E-06	1.6E-06	1.0E-05
EU 17	Inhalation	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	3.9E-13	9.8E-14	2.8E-14	8.1E-15
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	1.4E-12	3.5E-13	9.9E-14	2.9E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	9.1E-10	2.3E-10	6.4E-11	1.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.5E-11	3.7E-12	1.0E-12	3.0E-13
		PCBs								
		PCBs, Total	4.7	mg/kg	3.5E-01	(mg/kg-day)-1	5.1E-11	1.3E-11	3.6E-12	1.1E-12
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.0E-10	1.3E-10	3.5E-11	1.0E-11
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA

TABLE E-7.31

CANCER - RME EU 17

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 17	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	8.5E-09	2.1E-09	6.0E-10	1.8E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	1.4E-09	3.4E-10	9.5E-11	2.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	1.5E-06	3.8E-07	1.1E-07	3.1E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.5E-06	3.8E-07	1.1E-07	3.1E-08
Exposure Point Total							3E-04	6E-05	6E-05	2E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.32

NONCANCER - RME EU 17

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 17	Ingestion	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	7.3E-04	1.7E-04	7.7E-04	1.1E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	1.5E-03	3.3E-04	1.5E-03	2.3E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	2.8E-04	6.3E-05	2.9E-04	4.3E-05
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	5.8E-04	1.3E-04	6.1E-04	9.1E-05
		PCBs								
		PCBs, Total	4.7	mg/kg	2.0E-05	(mg/kg-day)-1	6.9E-02	1.6E-02	2.4E-02	1.1E-02
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	7.4E-03	1.7E-03	7.8E-03	1.2E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	4.1E-03	1.9E-02	2.8E-03
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	6.8E-03	1.5E-03	7.1E-03	1.1E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	3.8E-01	8.6E-02	1.3E-01	5.9E-02
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	7.9E-02	1.8E-02	8.3E-02	1.2E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	9.4E-02	2.1E-02	9.9E-02	1.5E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	9.5E-03	2.1E-03	9.9E-03	1.5E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	6.2E-02	1.4E-02	6.4E-02	9.6E-03
	Exp. Route Total						7.3E-01	1.6E-01	4.5E-01	1.1E-01
EU 17	Dermal	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.4E-04	3.3E-05	3.9E-05	1.4E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	1.8E-04	4.2E-05	4.9E-05	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	3.8E-04	8.7E-05	1.0E-04	3.8E-04
		PCBs								
		PCBs, Total	4.7	mg/kg	2.0E-05	(mg/kg-day)-1	9.2E-02	2.1E-02	8.1E-03	9.2E-02
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.2E-02	2.7E-03	3.2E-03	1.2E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	1.8E-03	4.1E-04	4.8E-04	1.8E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA	NA
	Exp. Route Total						1.1E-01	2.4E-02	1.2E-02	1.1E-01
EU 17	Inhalation	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	6.0E-08	1.5E-08	1.8E-08	3.1E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA	NA
		PCBs								
		PCBs, Total	4.7	mg/kg	NA	NA	NA	NA	NA	NA
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	2.4E-05	5.9E-06	7.0E-06	1.2E-06

TABLE E-7.32

NONCANCER - RME EU 17

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 17	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	3.5E-03	8.7E-04	3.4E-04	1.8E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	1.2E-03	3.1E-04	3.6E-04	6.4E-05
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	8.3E-03	2.1E-03	2.4E-03	4.3E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	8.7E-07	2.2E-07	2.5E-07	4.5E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.3E-02	3.3E-03	3.2E-03	6.8E-04
Exposure Point Total							0.8	0.2	0.5	0.2

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child is also based on subchronic exposure.

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

Blood =	0.009	0.002	0.009	0.001
CNS =	0.02	0.004	0.012	0.002
Eye =	0.2	0.04	0.03	0.1
GI Tract =	0.5	0.1	0.2	0.07
Immune System =	0.2	0.04	0.03	0.1
Kidney =	0.009	0.002	0.008	0.003
Liver =	0.1	0.02	0.1	0.02
Lungs =	0.001	0.0003	0.0004	0.00007
Nails =	0.2	0.04	0.03	0.1
Nasal Septum =	0.003	0.0009	0.0003	0.0002
Skin =	0.2	0.04	0.05	0.1
Thyroid =	0.08	0.02	0.08	0.01
Whole Body =	0.007	0.002	0.008	0.001

TABLE E-7.33

CANCER - RME EU 19N

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Cancer Risk per Receptor Population: Trespasser Value
							Adult	Adolescent
EU 17	Ingestion	**VOCs & SVOCs**						
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	4.4E-08	2.8E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	3.1E-07	1.9E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.4E-05	1.5E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	2.8E-08	1.7E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.7E-07	1.0E-08
		PCBs						
		PCBs, Total	540	mg/kg	2.0E+00	(mg/kg-day)-1	1.1E-04	7.0E-06
		Dioxin						
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.7E-06	3.5E-07
		Inorganics						
		Antimony	3.0	mg/kg	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	2.9E-06	1.8E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	2.0E-04	1.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA
	Exp. Route Total						3.5E-04	2.2E-05
EU 17	Dermal	**VOCs & SVOCs**						
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	8.8E-09	3.5E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.1E-05	8.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	1.8E-08	7.4E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.1E-07	4.4E-08
		PCBs						
		PCBs, Total	540	mg/kg	2.0E+00	(mg/kg-day)-1	1.5E-04	6.0E-05
		Dioxin						
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.1E-06	4.5E-07
		Inorganics						
		Antimony	3.0	mg/kg	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	1.9E-06	7.7E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA
	Exp. Route Total						1.7E-04	6.9E-05
EU 17	Inhalation	**VOCs & SVOCs**						
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	3.9E-13	8.1E-15
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	1.4E-12	2.9E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	9.1E-10	1.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.5E-11	3.0E-13
		PCBs						
		PCBs, Total	540	mg/kg	3.5E-01	(mg/kg-day)-1	5.8E-09	1.2E-10
		Dioxin						
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.0E-10	1.0E-11
		Inorganics						
		Antimony	3.0	mg/kg	NA	NA	NA	NA

TABLE E-7.33

CANCER - RME EU 19N

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Cancer Risk per Receptor Population: Trespasser Value
							Adult	Adolescent
EU 17	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	8.5E-09	1.8E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	1.4E-09	2.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	1.5E-06	3.1E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA
	Exp. Route Total						1.5E-06	3.2E-08
Exposure Point Total							5E-04	9E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.34

NONCANCER - RME EU 19N

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Noncancer Risk per Receptor Population: Trespasser Value
							Adult	Adolescent
EU 17	Ingestion	**VOCs & SVOCs**						
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	7.3E-04	1.1E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	1.5E-03	2.3E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	2.8E-04	4.3E-05
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	5.8E-04	9.1E-05
		PCBs						
		PCBs, Total	540	mg/kg	2.0E-05	(mg/kg-day)-1	7.9E+00	1.2E+00
		Dioxin						
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA
		Inorganics						
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	7.4E-03	1.2E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	2.8E-03
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	6.8E-03	1.1E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	3.8E-01	5.9E-02
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	7.9E-02	1.2E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	9.4E-02	1.5E-02
		Lead	168	mg/kg	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	9.5E-03	1.5E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	6.2E-02	9.6E-03
	Exp. Route Total						8.6E+00	1.3E+00
EU 17	Dermal	**VOCs & SVOCs**						
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.4E-04	1.4E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	1.8E-04	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	3.8E-04	3.8E-04
		PCBs						
		PCBs, Total	540	mg/kg	2.0E-05	(mg/kg-day)-1	1.0E+01	1.0E+01
		Dioxin						
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA
		Inorganics						
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.2E-02	1.2E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	1.8E-03	1.8E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA
	Exp. Route Total						1.0E+01	1.0E+01
EU 17	Inhalation	**VOCs & SVOCs**						
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	6.0E-08	3.1E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA
		PCBs						
		PCBs, Total	540	mg/kg	NA	NA	NA	NA
		Dioxin						
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA
		Inorganics						
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	2.4E-05	1.2E-06

TABLE E-7.34

NONCANCER - RME EU 19N

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Noncancer Risk per Receptor Population: Trespasser Value
							Adult	Adolescent
EU 17	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	3.5E-03	1.8E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	1.2E-03	6.4E-05
		Iron	67569	mg/kg	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	8.3E-03	4.3E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	8.7E-07	4.5E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA
	Exp. Route Total						1.3E-02	6.8E-04
Exposure Point Total							19	12

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

Blood =	0.009	0.001
CNS =	0.02	0.002
Eye =	18	12
GI Tract =	0.5	0.07
Immune System =	18	12
Kidney =	0.009	0.003
Liver =	0.1	0.02
Lungs =	0.001	0.00007
Nails =	18	12
Nasal Septum =	0.003	0.0002
Skin =	18	12
Thyroid =	0.08	0.01
Whole Body =	0.007	0.001

TABLE E-7.35

CANCER - RME EU 19S

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Cancer Risk per Receptor Population: Trespasser Value
							Adult	Adolescent
EU 19S	Ingestion	**VOCs & SVOCs**						
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	4.4E-08	2.8E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	3.1E-07	1.9E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.4E-05	1.5E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	2.8E-08	1.7E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.7E-07	1.0E-08
		PCBs						
		PCBs, Total	59	mg/kg	2.0E+00	(mg/kg-day)-1	1.2E-05	7.7E-07
		Dioxin						
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.7E-06	3.5E-07
		Inorganics						
		Antimony	3.0	mg/kg	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	2.9E-06	1.8E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	2.0E-04	1.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA
	Exp. Route Total						2.5E-04	1.5E-05
EU 19S	Dermal	**VOCs & SVOCs**						
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	8.8E-09	3.5E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.1E-05	8.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	1.8E-08	7.4E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.1E-07	4.4E-08
		PCBs						
		PCBs, Total	59	mg/kg	2.0E+00	(mg/kg-day)-1	1.6E-05	6.5E-06
		Dioxin						
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.1E-06	4.5E-07
		Inorganics						
		Antimony	3.0	mg/kg	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	1.9E-06	7.7E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA
	Exp. Route Total						4.0E-05	1.6E-05
EU 19S	Inhalation	**VOCs & SVOCs**						
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	3.9E-13	8.1E-15
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	1.4E-12	2.9E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	9.1E-10	1.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.5E-11	3.0E-13
		PCBs						
		PCBs, Total	59	mg/kg	3.5E-01	(mg/kg-day)-1	6.4E-10	1.3E-11
		Dioxin						
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.0E-10	1.0E-11
		Inorganics						
		Antimony	3.0	mg/kg	NA	NA	NA	NA

TABLE E-7.35

CANCER - RME EU 19S

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		CSF/Unit Risk		Cancer Risk per Receptor Population	
			Value	Unit	Value	Unit	Ind./Comm. Worker Value	Trespasser Value
							Adult	Adolescent
EU 19S	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	8.5E-09	1.8E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	1.4E-09	2.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	1.5E-06	3.1E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA
	Exp. Route Total						1.5E-06	3.1E-08
Exposure Point Total							3E-04	3E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.36

NONCANCER - RME EU 19S

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Noncancer Risk per Receptor Population: Trespasser Value
							Adult	Adolescent
EU 19S	Ingestion	**VOCs & SVOCs**						
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	7.3E-04	1.1E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	1.5E-03	2.3E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	2.8E-04	4.3E-05
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	5.8E-04	9.1E-05
		PCBs						
		PCBs, Total	59	mg/kg	2.0E-05	(mg/kg-day)-1	8.7E-01	1.3E-01
		Dioxin						
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA
		Inorganics						
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	7.4E-03	1.2E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	2.8E-03
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	6.8E-03	1.1E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	3.8E-01	5.9E-02
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	7.9E-02	1.2E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	9.4E-02	1.5E-02
		Lead	168	mg/kg	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	9.5E-03	1.5E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	6.2E-02	9.6E-03
	Exp. Route Total						1.5E+00	2.4E-01
EU 19S	Dermal	**VOCs & SVOCs**						
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.4E-04	1.4E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	1.8E-04	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	3.8E-04	3.8E-04
		PCBs						
		PCBs, Total	59	mg/kg	2.0E-05	(mg/kg-day)-1	1.1E+00	1.1E+00
		Dioxin						
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA
		Inorganics						
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.2E-02	1.2E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	1.8E-03	1.8E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA
	Exp. Route Total						1.2E+00	1.2E+00
EU 19S	Inhalation	**VOCs & SVOCs**						
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	6.0E-08	3.1E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA
		PCBs						
		PCBs, Total	59	mg/kg	NA	NA	NA	NA
		Dioxin						
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA
		Inorganics						
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	2.4E-05	1.2E-06

TABLE E-7.36

NONCANCER - RME EU 19S

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Noncancer Risk per Receptor Population: Trespasser Value
							Adult	Adolescent
EU 19S	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	3.5E-03	1.8E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	1.2E-03	6.4E-05
		Iron	67569	mg/kg	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	8.3E-03	4.3E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	8.7E-07	4.5E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA
	Exp. Route Total						1.3E-02	6.8E-04
Exposure Point Total							3	1

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

Blood =	0.009	0.001
CNS =	0.02	0.002
Eye =	2	1
GI Tract =	0.5	0.07
Immune System =	2	1
Kidney =	0.009	0.003
Liver =	0.1	0.02
Lungs =	0.001	0.00007
Nails =	2	1
Nasal Septum =	0.003	0.0002
Skin =	2	1
Thyroid =	0.08	0.01
Whole Body =	0.007	0.001

TABLE E-7.37

CANCER - RME EU 20

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Comm. Visitor Value Adult	Comm. Visitor Value Young Child	Trespasser Value Adolescent
EU 20	Ingestion	**VOCs & SVOCs**							
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	1.0E-08	1.1E-08	2.8E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	7.1E-08	7.8E-08	1.9E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	5.5E-06	6.1E-06	1.5E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	6.3E-09	7.0E-09	1.7E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	3.8E-08	4.2E-08	1.0E-08
		PCBs							
		PCBs, Total	2.7	mg/kg	2.0E+00	(mg/kg-day)-1	1.3E-07	1.4E-07	3.5E-08
		Dioxin							
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.3E-06	1.4E-06	3.5E-07
		Inorganics							
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	6.6E-07	7.3E-07	1.8E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	4.6E-05	5.1E-05	1.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA
	Exp. Route Total						5.4E-05	6.0E-05	1.5E-05
EU 20	Dermal	**VOCs & SVOCs**							
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	2.0E-09	5.6E-10	3.5E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	4.7E-06	1.3E-06	8.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	4.2E-09	1.2E-09	7.4E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	2.5E-08	7.0E-09	4.4E-08
		PCBs							
		PCBs, Total	2.7	mg/kg	2.0E+00	(mg/kg-day)-1	1.7E-07	4.8E-08	3.0E-07
		Dioxin							
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	2.5E-07	7.2E-08	4.5E-07
		Inorganics							
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	4.3E-07	1.2E-07	7.7E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA
	Exp. Route Total						5.6E-06	1.6E-06	9.9E-06
EU 20	Inhalation	**VOCs & SVOCs**							
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	9.8E-14	2.8E-14	8.1E-15
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	3.5E-13	9.9E-14	2.9E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	2.3E-10	6.4E-11	1.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	3.7E-12	1.0E-12	3.0E-13
		PCBs							
		PCBs, Total	2.7	mg/kg	3.5E-01	(mg/kg-day)-1	7.3E-12	2.1E-12	6.1E-13
		Dioxin							
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.3E-10	3.5E-11	1.0E-11
		Inorganics							
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA

TABLE E-7.37

CANCER - RME EU 20

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		CSF/Unit Risk		Cancer Risk per Receptor Population		
			Value	Unit	Value	Unit	Comm. Visitor Value		Trespasser Value
							Adult	Young Child	Adolescent
EU 20	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	2.1E-09	6.0E-10	1.8E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	3.4E-10	9.5E-11	2.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	3.8E-07	1.1E-07	3.1E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA
	Exp. Route Total						3.8E-07	1.1E-07	3.1E-08
Exposure Point Total							6E-05	6E-05	2E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.38

NONCANCER - RME EU 20

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		RfD/RfC*		Noncancer Risk per Receptor Population		
			Value	Unit	Value	Unit	Comm. Visitor Value		Trespasser Value
							Adult	Young Child	Adolescent
EU 20	Ingestion	**VOCs & SVOCs**							
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.7E-04	7.7E-04	1.1E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	3.3E-04	1.5E-03	2.3E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	6.3E-05	2.9E-04	4.3E-05
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	1.3E-04	6.1E-04	9.1E-05
		PCBs							
		PCBs, Total	2.7	mg/kg	2.0E-05	(mg/kg-day)-1	9.0E-03	1.4E-02	6.2E-03
		Dioxin							
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA
		Inorganics							
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	1.7E-03	7.8E-03	1.2E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	4.1E-03	1.9E-02	2.8E-03
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	1.5E-03	7.1E-03	1.1E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	8.6E-02	1.3E-01	5.9E-02
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	8.3E-02	1.2E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	2.1E-02	9.9E-02	1.5E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	2.1E-03	9.9E-03	1.5E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	1.4E-02	6.4E-02	9.6E-03
	Exp. Route Total						1.6E-01	4.4E-01	1.1E-01
EU 20	Dermal	**VOCs & SVOCs**							
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	3.3E-05	3.9E-05	1.4E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	4.2E-05	4.9E-05	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	8.7E-05	1.0E-04	3.8E-04
		PCBs							
		PCBs, Total	2.7	mg/kg	2.0E-05	(mg/kg-day)-1	1.2E-02	4.7E-03	5.2E-02
		Dioxin							
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA
		Inorganics							
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	2.7E-03	3.2E-03	1.2E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	4.1E-04	4.8E-04	1.8E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA
	Exp. Route Total						1.5E-02	8.5E-03	6.7E-02
EU 20	Inhalation	**VOCs & SVOCs**							
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	1.5E-08	1.8E-08	3.1E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA
		PCBs							
		PCBs, Total	2.7	mg/kg	NA	NA	NA	NA	NA
		Dioxin							
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA
		Inorganics							
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	5.9E-06	7.0E-06	1.2E-06

TABLE E-7.38

NONCANCER - RME EU 20

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Comm. Visitor Value Adult	Comm. Visitor Value Young Child	Trespasser Value Adolescent
EU 20	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	8.7E-04	3.4E-04	1.8E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	3.1E-04	3.6E-04	6.4E-05
		Iron	67569	mg/kg	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	2.1E-03	2.4E-03	4.3E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	2.2E-07	2.5E-07	4.5E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA
	Exp. Route Total						3.3E-03	3.2E-03	6.8E-04
Exposure Point Total							0.2	0.5	0.2

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child is also based on subchronic exposure.

Blood =	0.002	0.009	0.001
CNS =	0.004	0.01	0.002
Eye =	0.02	0.02	0.06
GI Tract =	0.1	0.2	0.07
Immune System =	0.02	0.02	0.06
Kidney =	0.002	0.008	0.003
Liver =	0.02	0.1	0.02
Lungs =	0.0003	0.0004	0.00007
Nails =	0.02	0.02	0.06
Nasal Septum =	0.0009	0.0003	0.0002
Skin =	0.03	0.04	0.07
Thyroid =	0.02	0.08	0.01
Whole Body =	0.002	0.008	0.001

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

TABLE E-7.39

CANCER - RME EU 22

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 22	Ingestion	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	4.4E-08	1.0E-08	1.1E-08	2.8E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	3.1E-07	7.1E-08	7.8E-08	1.9E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.4E-05	5.5E-06	6.1E-06	1.5E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	2.8E-08	6.3E-09	7.0E-09	1.7E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.7E-07	3.8E-08	4.2E-08	1.0E-08
		PCBs								
		PCBs, Total	7.6	mg/kg	2.0E+00	(mg/kg-day)-1	1.6E-06	3.6E-07	4.0E-07	9.9E-08
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.7E-06	1.3E-06	1.4E-06	3.5E-07
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	2.9E-06	6.6E-07	7.3E-07	1.8E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	2.0E-04	4.6E-05	5.1E-05	1.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.4E-04	5.4E-05	6.0E-05	1.5E-05
EU 22	Dermal	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	8.8E-09	2.0E-09	5.6E-10	3.5E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.1E-05	4.7E-06	1.3E-06	8.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	1.8E-08	4.2E-09	1.2E-09	7.4E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.1E-07	2.5E-08	7.0E-09	4.4E-08
		PCBs								
		PCBs, Total	7.6	mg/kg	2.0E+00	(mg/kg-day)-1	2.1E-06	4.7E-07	1.3E-07	8.4E-07
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.1E-06	2.5E-07	7.2E-08	4.5E-07
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	1.9E-06	4.3E-07	1.2E-07	7.7E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.6E-05	5.9E-06	1.7E-06	1.0E-05
EU 22	Inhalation	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	3.9E-13	9.8E-14	2.8E-14	8.1E-15
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	1.4E-12	3.5E-13	9.9E-14	2.9E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	9.1E-10	2.3E-10	6.4E-11	1.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.5E-11	3.7E-12	1.0E-12	3.0E-13
		PCBs								
		PCBs, Total	7.6	mg/kg	3.5E-01	(mg/kg-day)-1	8.2E-11	2.0E-11	5.7E-12	1.7E-12
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.0E-10	1.3E-10	3.5E-11	1.0E-11
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA

TABLE E-7.39

CANCER - RME EU 22

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 22	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	8.5E-09	2.1E-09	6.0E-10	1.8E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	1.4E-09	3.4E-10	9.5E-11	2.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	1.5E-06	3.8E-07	1.1E-07	3.1E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.5E-06	3.8E-07	1.1E-07	3.1E-08
Exposure Point Total							3E-04	6E-05	6E-05	3E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.40

NONCANCER - RME EU 22

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 22	Ingestion	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	7.3E-04	1.7E-04	7.7E-04	1.1E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	1.5E-03	3.3E-04	1.5E-03	2.3E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	2.8E-04	6.3E-05	2.9E-04	4.3E-05
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	5.8E-04	1.3E-04	6.1E-04	9.1E-05
		PCBs								
		PCBs, Total	7.6	mg/kg	2.0E-05	(mg/kg-day)-1	1.1E-01	2.5E-02	3.9E-02	1.7E-02
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	7.4E-03	1.7E-03	7.8E-03	1.2E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	4.1E-03	1.9E-02	2.8E-03
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	6.8E-03	1.5E-03	7.1E-03	1.1E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	3.8E-01	8.6E-02	1.3E-01	5.9E-02
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	7.9E-02	1.8E-02	8.3E-02	1.2E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	9.4E-02	2.1E-02	9.9E-02	1.5E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	9.5E-03	2.1E-03	9.9E-03	1.5E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	6.2E-02	1.4E-02	6.4E-02	9.6E-03
	Exp. Route Total						7.7E-01	1.7E-01	4.6E-01	1.2E-01
EU 22	Dermal	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.4E-04	3.3E-05	3.9E-05	1.4E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	1.8E-04	4.2E-05	4.9E-05	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	3.8E-04	8.7E-05	1.0E-04	3.8E-04
		PCBs								
		PCBs, Total	7.6	mg/kg	2.0E-05	(mg/kg-day)-1	1.5E-01	3.3E-02	1.3E-02	1.5E-01
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.2E-02	2.7E-03	3.2E-03	1.2E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	1.8E-03	4.1E-04	4.8E-04	1.8E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA	NA
	Exp. Route Total						1.6E-01	3.6E-02	1.7E-02	1.6E-01
EU 22	Inhalation	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	6.0E-08	1.5E-08	1.8E-08	3.1E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA	NA
		PCBs								
		PCBs, Total	7.6	mg/kg	NA	NA	NA	NA	NA	NA
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	2.4E-05	5.9E-06	7.0E-06	1.2E-06

TABLE E-7.40

NONCANCER - RME EU 22

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 22	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	3.5E-03	8.7E-04	3.4E-04	1.8E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	1.2E-03	3.1E-04	3.6E-04	6.4E-05
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	8.3E-03	2.1E-03	2.4E-03	4.3E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	8.7E-07	2.2E-07	2.5E-07	4.5E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.3E-02	3.3E-03	3.2E-03	6.8E-04
Exposure Point Total							0.9	0.2	0.5	0.3

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child is also based on subchronic exposure.

Blood =	0.009	0.002	0.009	0.001
CNS =	0.02	0.004	0.01	0.002
Eye =	0.3	0.06	0.05	0.2
GI Tract =	0.5	0.1	0.2	0.07
Immune System =	0.3	0.06	0.05	0.2
Kidney =	0.009	0.002	0.008	0.003
Liver =	0.1	0.02	0.1	0.02
Lungs =	0.001	0.0003	0.0004	0.00007
Nails =	0.3	0.06	0.05	0.2
Nasal Septum =	0.003	0.0009	0.0003	0.0002
Skin =	0.3	0.06	0.07	0.2
Thyroid =	0.08	0.02	0.08	0.01
Whole Body =	0.007	0.002	0.008	0.001

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

TABLE E-7.41

CANCER - RME EU 24

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value: Adult	Comm. Visitor Value: Young Child	Trespasser Value: Adolescent
							Adult	Adult	Young Child	Adolescent
EU 24	Ingestion	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	4.4E-08	1.0E-08	1.1E-08	2.8E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	3.1E-07	7.1E-08	7.8E-08	1.9E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.4E-05	5.5E-06	6.1E-06	1.5E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	2.8E-08	6.3E-09	7.0E-09	1.7E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.7E-07	3.8E-08	4.2E-08	1.0E-08
		PCBs								
		PCBs, Total	12	mg/kg	2.0E+00	(mg/kg-day)-1	2.6E-06	5.8E-07	6.4E-07	1.6E-07
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.7E-06	1.3E-06	1.4E-06	3.5E-07
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	2.9E-06	6.6E-07	7.3E-07	1.8E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	2.0E-04	4.6E-05	5.1E-05	1.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.4E-04	5.4E-05	6.0E-05	1.5E-05
EU 24	Dermal	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	8.8E-09	2.0E-09	5.6E-10	3.5E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.1E-05	4.7E-06	1.3E-06	8.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	1.8E-08	4.2E-09	1.2E-09	7.4E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.1E-07	2.5E-08	7.0E-09	4.4E-08
		PCBs								
		PCBs, Total	12	mg/kg	2.0E+00	(mg/kg-day)-1	3.4E-06	7.6E-07	2.2E-07	1.4E-06
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.1E-06	2.5E-07	7.2E-08	4.5E-07
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	1.9E-06	4.3E-07	1.2E-07	7.7E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.7E-05	6.2E-06	1.8E-06	1.1E-05
EU 24	Inhalation	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	3.9E-13	9.8E-14	2.8E-14	8.1E-15
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	1.4E-12	3.5E-13	9.9E-14	2.9E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	9.1E-10	2.3E-10	6.4E-11	1.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.5E-11	3.7E-12	1.0E-12	3.0E-13
		PCBs								
		PCBs, Total	12	mg/kg	3.5E-01	(mg/kg-day)-1	1.3E-10	3.3E-11	9.3E-12	2.7E-12
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.0E-10	1.3E-10	3.5E-11	1.0E-11
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA

TABLE E-7.41

CANCER - RME EU 24

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		CSF/Unit Risk		Cancer Risk per Receptor Population			
			Value	Unit	Value	Unit	Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 24	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	8.5E-09	2.1E-09	6.0E-10	1.8E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	1.4E-09	3.4E-10	9.5E-11	2.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	1.5E-06	3.8E-07	1.1E-07	3.1E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.5E-06	3.8E-07	1.1E-07	3.1E-08
Exposure Point Total							3E-04	6E-05	6E-05	3E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.42

NONCANCER - RME EU 24

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 24	Ingestion	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	7.3E-04	1.7E-04	7.7E-04	1.1E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	1.5E-03	3.3E-04	1.5E-03	2.3E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	2.8E-04	6.3E-05	2.9E-04	4.3E-05
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	5.8E-04	1.3E-04	6.1E-04	9.1E-05
		PCBs								
		PCBs, Total	12	mg/kg	2.0E-05	(mg/kg-day)-1	1.8E-01	4.1E-02	6.2E-02	2.8E-02
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	7.4E-03	1.7E-03	7.8E-03	1.2E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	4.1E-03	1.9E-02	2.8E-03
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	6.8E-03	1.5E-03	7.1E-03	1.1E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	3.8E-01	8.6E-02	1.3E-01	5.9E-02
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	7.9E-02	1.8E-02	8.3E-02	1.2E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	9.4E-02	2.1E-02	9.9E-02	1.5E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	9.5E-03	2.1E-03	9.9E-03	1.5E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	6.2E-02	1.4E-02	6.4E-02	9.6E-03
	Exp. Route Total						8.4E-01	1.9E-01	4.9E-01	1.3E-01
EU 24	Dermal	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.4E-04	3.3E-05	3.9E-05	1.4E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	1.8E-04	4.2E-05	4.9E-05	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	3.8E-04	8.7E-05	1.0E-04	3.8E-04
		PCBs								
		PCBs, Total	12	mg/kg	2.0E-05	(mg/kg-day)-1	2.4E-01	5.4E-02	2.1E-02	2.4E-01
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.2E-02	2.7E-03	3.2E-03	1.2E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	1.8E-03	4.1E-04	4.8E-04	1.8E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA	NA
	Exp. Route Total						2.5E-01	5.7E-02	2.5E-02	2.5E-01
EU 24	Inhalation	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	6.0E-08	1.5E-08	1.8E-08	3.1E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA	NA
		PCBs								
		PCBs, Total	12	mg/kg	NA	NA	NA	NA	NA	NA
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	2.4E-05	5.9E-06	7.0E-06	1.2E-06

TABLE E-7.42

NONCANCER - RME EU 24

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Comm. Visitor Value		Trespasser Value
							Adult	Adult	Young Child	Adolescent
EU 24	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	3.5E-03	8.7E-04	3.4E-04	1.8E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	1.2E-03	3.1E-04	3.6E-04	6.4E-05
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	8.3E-03	2.1E-03	2.4E-03	4.3E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	8.7E-07	2.2E-07	2.5E-07	4.5E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.3E-02	3.3E-03	3.2E-03	6.8E-04
Exposure Point Total							1	0.2	0.5	0.4

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child is also based on subchronic exposure.

Blood =	0.009	0.002	0.009	0.001
CNS =	0.02	0.004	0.01	0.002
Eye =	0.4	0.09	0.08	0.3
GI Tract =	0.5	0.1	0.2	0.07
Immune System =	0.4	0.09	0.08	0.3
Kidney =	0.009	0.002	0.008	0.003
Liver =	0.1	0.02	0.1	0.02
Lungs =	0.001	0.0003	0.0004	0.00007
Nails =	0.4	0.09	0.08	0.3
Nasal Septum =	0.003	0.0009	0.0003	0.0002
Skin =	0.4	0.1	0.1	0.3
Thyroid =	0.08	0.02	0.08	0.01
Whole Body =	0.007	0.002	0.008	0.001

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

TABLE E-7.43

CANCER - RME EU 25

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Comm. Visitor Value Adult	Comm. Visitor Value Young Child	Trespasser Value Adolescent
EU 25	Ingestion	**VOCs & SVOCs**							
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	1.0E-08	1.1E-08	2.8E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	7.1E-08	7.8E-08	1.9E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	5.5E-06	6.1E-06	1.5E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	6.3E-09	7.0E-09	1.7E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	3.8E-08	4.2E-08	1.0E-08
		PCBs							
		PCBs, Total	3.1	mg/kg	2.0E+00	(mg/kg-day)-1	1.4E-07	1.6E-07	4.0E-08
		Dioxin							
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.3E-06	1.4E-06	3.5E-07
		Inorganics							
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	6.6E-07	7.3E-07	1.8E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	4.6E-05	5.1E-05	1.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA
	Exp. Route Total						5.4E-05	6.0E-05	1.5E-05
EU 25	Dermal	**VOCs & SVOCs**							
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	2.0E-09	5.6E-10	3.5E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	4.7E-06	1.3E-06	8.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	4.2E-09	1.2E-09	7.4E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	2.5E-08	7.0E-09	4.4E-08
		PCBs							
		PCBs, Total	3.1	mg/kg	2.0E+00	(mg/kg-day)-1	1.9E-07	5.4E-08	3.4E-07
		Dioxin							
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	2.5E-07	7.2E-08	4.5E-07
		Inorganics							
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	4.3E-07	1.2E-07	7.7E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA
	Exp. Route Total						5.6E-06	1.6E-06	9.9E-06
EU 25	Inhalation	**VOCs & SVOCs**							
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	9.8E-14	2.8E-14	8.1E-15
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	3.5E-13	9.9E-14	2.9E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	2.3E-10	6.4E-11	1.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	3.7E-12	1.0E-12	3.0E-13
		PCBs							
		PCBs, Total	3.1	mg/kg	3.5E-01	(mg/kg-day)-1	8.3E-12	2.3E-12	6.8E-13
		Dioxin							
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.3E-10	3.5E-11	1.0E-11
		Inorganics							
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA

TABLE E-7.43

CANCER - RME EU 25

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		CSF/Unit Risk		Cancer Risk per Receptor Population		
			Value	Unit	Value	Unit	Comm. Visitor Value		Trespasser Value
							Adult	Young Child	Adolescent
EU 25	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	2.1E-09	6.0E-10	1.8E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	3.4E-10	9.5E-11	2.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	3.8E-07	1.1E-07	3.1E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA
	Exp. Route Total						3.8E-07	1.1E-07	3.1E-08
Exposure Point Total							6E-05	6E-05	2E-05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.44

NONCANCER - RME EU 25

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Comm. Visitor Value Adult	Comm. Visitor Value Young Child	Trespasser Value Adolescent
EU 25	Ingestion	**VOCs & SVOCs**							
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.7E-04	7.7E-04	1.1E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	3.3E-04	1.5E-03	2.3E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	6.3E-05	2.9E-04	4.3E-05
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	1.3E-04	6.1E-04	9.1E-05
		PCBs							
		PCBs, Total	3.1	mg/kg	2.0E-05	(mg/kg-day)-1	1.0E-02	1.6E-02	7.0E-03
		Dioxin							
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA
		Inorganics							
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	1.7E-03	7.8E-03	1.2E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	4.1E-03	1.9E-02	2.8E-03
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	1.5E-03	7.1E-03	1.1E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	8.6E-02	1.3E-01	5.9E-02
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	8.3E-02	1.2E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	2.1E-02	9.9E-02	1.5E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	2.1E-03	9.9E-03	1.5E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	1.4E-02	6.4E-02	9.6E-03
	Exp. Route Total						1.6E-01	4.4E-01	1.1E-01
EU 25	Dermal	**VOCs & SVOCs**							
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	3.3E-05	3.9E-05	1.4E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	4.2E-05	4.9E-05	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	8.7E-05	1.0E-04	3.8E-04
		PCBs							
		PCBs, Total	3.1	mg/kg	2.0E-05	(mg/kg-day)-1	1.3E-02	5.3E-03	5.9E-02
		Dioxin							
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA
		Inorganics							
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	2.7E-03	3.2E-03	1.2E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	4.1E-04	4.8E-04	1.8E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA
	Exp. Route Total						1.7E-02	9.1E-03	7.4E-02
EU 25	Inhalation	**VOCs & SVOCs**							
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	1.5E-08	1.8E-08	3.1E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA
		PCBs							
		PCBs, Total	3.1	mg/kg	NA	NA	NA	NA	NA
		Dioxin							
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA
		Inorganics							
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	5.9E-06	7.0E-06	1.2E-06

TABLE E-7.44

NONCANCER - RME EU 25

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Comm. Visitor Value Adult	Comm. Visitor Value Young Child	Trespasser Value Adolescent
EU 25	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	8.7E-04	3.4E-04	1.8E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	3.1E-04	3.6E-04	6.4E-05
		Iron	67569	mg/kg	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	2.1E-03	2.4E-03	4.3E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	2.2E-07	2.5E-07	4.5E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA
	Exp. Route Total						3.3E-03	3.2E-03	6.8E-04
Exposure Point Total							0.2	0.5	0.2

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the commercial visitor - young child are based on subchronic exposure. The chromium RfC for the commercial visitor - young child is also based on subchronic exposure.

Blood =	0.002	0.009	0.001
CNS =	0.004	0.01	0.002
Eye =	0.02	0.02	0.07
GI Tract =	0.1	0.2	0.07
Immune System =	0.02	0.02	0.07
Kidney =	0.002	0.008	0.003
Liver =	0.02	0.1	0.02
Lungs =	0.0003	0.0004	0.00007
Nails =	0.02	0.02	0.07
Nasal Septum =	0.0009	0.0003	0.0002
Skin =	0.03	0.04	0.08
Thyroid =	0.02	0.08	0.01
Whole Body =	0.002	0.008	0.001

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

TABLE E-7.45

CANCER - RME EU 26

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Trespasser Value	Recreational User Value	
							Adult	Adolescent	Young Child	Adolescent
EU 26	Ingestion	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	4.4E-08	2.8E-09	4.1E-08	1.2E-08
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	3.1E-07	1.9E-08	2.9E-07	8.1E-08
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.4E-05	1.5E-06	2.3E-05	6.3E-06
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	2.8E-08	1.7E-09	2.6E-08	7.2E-09
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.7E-07	1.0E-08	1.6E-07	4.3E-08
		PCBs								
		PCBs, Total	103	mg/kg	2.0E+00	(mg/kg-day)-1	2.2E-05	1.3E-06	2.0E-05	5.6E-06
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.7E-06	3.5E-07	5.3E-06	1.5E-06
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	2.9E-06	1.8E-07	2.7E-06	7.5E-07
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	5.0E-01	(mg/kg-day)-1	2.0E-04	1.3E-05	1.9E-04	5.3E-05
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						2.6E-04	1.6E-05	2.4E-04	6.7E-05
EU 26	Dermal	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-01	(mg/kg-day)-1	8.8E-09	3.5E-09	5.2E-09	7.3E-09
		Benzene	6.0	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	7.3E+00	(mg/kg-day)-1	2.1E-05	8.3E-06	1.2E-05	1.7E-05
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	1.4E-02	(mg/kg-day)-1	1.8E-08	7.4E-09	1.1E-08	1.5E-08
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.1E-07	4.4E-08	6.5E-08	9.1E-08
		PCBs								
		PCBs, Total	103	mg/kg	2.0E+00	(mg/kg-day)-1	2.9E-05	1.1E-05	1.7E-05	2.4E-05
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	1.1E-06	4.5E-07	6.7E-07	9.3E-07
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA
		Arsenic	18	mg/kg	1.5E+00	(mg/kg-day)-1	1.9E-06	7.7E-07	1.1E-06	1.6E-06
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA	NA	NA
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						5.3E-05	2.1E-05	3.1E-05	4.4E-05
EU 26	Inhalation	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	3.4E-02	(mg/kg-day)-1	3.9E-13	8.1E-15	2.6E-14	1.7E-14
		Benzene	6.0	mg/kg	7.7E-03	(mg/kg-day)-1	1.4E-12	2.9E-14	9.2E-14	6.1E-14
		Benzo(a)pyrene Equivalent	9.5	mg/kg	3.1E+00	(mg/kg-day)-1	9.1E-10	1.9E-11	5.9E-11	3.9E-11
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	1.6E+01	(mg/kg-day)-1	1.5E-11	3.0E-13	9.6E-13	6.3E-13
		PCBs								
		PCBs, Total	103	mg/kg	3.5E-01	(mg/kg-day)-1	1.1E-09	2.3E-11	7.3E-11	4.8E-11
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.0E-10	1.0E-11	3.3E-11	2.2E-11
		Inorganics								
		Antimony	3.0	mg/kg	NA	NA	NA	NA	NA	NA

TABLE E-7.45

CANCER - RME EU 26

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Ind./Comm. Worker Value	Trespasser Value	Recreational User Value	
							Adult	Adolescent	Young Child	Adolescent
EU 26	Inhalation (cont.)	Arsenic	18	mg/kg	1.5E+01	(mg/kg-day)-1	8.5E-09	1.8E-10	5.6E-10	3.7E-10
		Cadmium	7.0	mg/kg	6.3E+00	(mg/kg-day)-1	1.4E-09	2.8E-11	8.8E-11	5.8E-11
		Chromium	1163	mg/kg	4.2E+01	(mg/kg-day)-1	1.5E-06	3.1E-08	9.8E-08	6.5E-08
		Cobalt	24	mg/kg	NA	NA	NA	NA	NA	NA
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	NA	NA	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.5E-06	3.1E-08	9.9E-08	6.6E-08
Exposure Point Total							3E-04	4E-05	3E-04	1E-04

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.46

NONCANCER - RME EU 26

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Trespasser Value	Recreational User Value	
							Adult	Adolescent	Young Child	Adolescent
EU 26	Ingestion	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	7.3E-04	1.1E-04	2.8E-03	4.7E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	1.5E-03	2.3E-04	5.7E-03	9.4E-04
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	2.8E-04	4.3E-05	1.1E-03	1.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	5.8E-04	9.1E-05	2.3E-03	3.8E-04
		PCBs								
		PCBs, Total	103	mg/kg	2.0E-05	(mg/kg-day)-1	1.5E+00	2.4E-01	2.0E+00	9.8E-01
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	4.0E-04	(mg/kg-day)-1	7.4E-03	1.2E-03	2.9E-02	4.8E-03
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.8E-02	2.8E-03	7.0E-02	1.2E-02
		Cadmium	7.0	mg/kg	1.0E-03	(mg/kg-day)-1	6.8E-03	1.1E-03	2.7E-02	4.4E-03
		Chromium	1163	mg/kg	3.0E-03	(mg/kg-day)-1	3.8E-01	5.9E-02	4.9E-01	2.5E-01
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	7.9E-02	1.2E-02	3.1E-01	5.1E-02
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	9.4E-02	1.5E-02	3.7E-01	6.1E-02
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-01	(mg/kg-day)-1	9.5E-03	1.5E-03	3.7E-02	6.1E-03
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	6.2E-02	9.6E-03	2.4E-01	4.0E-02
	Exp. Route Total						2.2E+00	3.4E-01	3.5E+00	1.4E+00
EU 26	Dermal	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	5.0E-04	(mg/kg-day)-1	1.4E-04	1.4E-04	3.6E-04	3.0E-04
		Benzene	6.0	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA	NA	NA
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	2.0E-02	(mg/kg-day)-1	1.8E-04	1.8E-04	4.6E-04	3.8E-04
		Dieldrin	0.030	mg/kg	5.0E-05	(mg/kg-day)-1	3.8E-04	3.8E-04	9.5E-04	8.0E-04
		PCBs								
		PCBs, Total	103	mg/kg	2.0E-05	(mg/kg-day)-1	2.0E+00	2.0E+00	1.6E+00	4.1E+00
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA	NA	NA
		Arsenic	18	mg/kg	3.0E-04	(mg/kg-day)-1	1.2E-02	1.2E-02	2.9E-02	2.5E-02
		Cadmium	7.0	mg/kg	2.5E-05	(mg/kg-day)-1	1.8E-03	1.8E-03	4.5E-03	3.7E-03
		Chromium	1163	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA	NA	NA
		Cobalt	24	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA	NA	NA
		Iron	67569	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA	NA	NA
		Mercury	0.87	mg/kg	NA	NA	NA	NA	NA	NA
		Thallium	4.4	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA	NA	NA
	Exp. Route Total						2.0E+00	2.0E+00	1.7E+00	4.2E+00
EU 26	Inhalation	**VOCs & SVOCs**								
		4,4'-DDT	0.37	mg/kg	NA	NA	NA	NA	NA	NA
		Benzene	6.0	mg/kg	8.6E-03	(mg/kg-day)-1	6.0E-08	3.1E-09	1.6E-08	6.5E-09
		Benzo(a)pyrene Equivalent	9.5	mg/kg	NA	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	5.7	mg/kg	NA	NA	NA	NA	NA	NA
		Dieldrin	0.030	mg/kg	NA	NA	NA	NA	NA	NA
		PCBs								
		PCBs, Total	103	mg/kg	NA	NA	NA	NA	NA	NA
		Dioxin								
		Dioxin TEQ	1.1E-04	mg/kg	NA	NA	NA	NA	NA	NA
		Inorganics								
		Antimony	3.0	mg/kg	1.1E-05	(mg/kg-day)-1	2.4E-05	1.2E-06	6.5E-06	2.6E-06

TABLE E-7.46

NONCANCER - RME EU 26

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Surface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Ind./Comm. Worker Value	Trespasser Value	Recreational User Value	
							Adult	Adolescent	Young Child	Adolescent
EU 26	Inhalation (cont.)	Arsenic	18	mg/kg	NA	NA	NA	NA	NA	NA
		Cadmium	7.0	mg/kg	NA	NA	NA	NA	NA	NA
		Chromium	1163	mg/kg	2.9E-05	(mg/kg-day)-1	3.5E-03	1.8E-04	3.2E-04	3.7E-04
		Cobalt	24	mg/kg	1.7E-06	(mg/kg-day)-1	1.2E-03	6.4E-05	3.4E-04	1.3E-04
		Iron	67569	mg/kg	NA	NA	NA	NA	NA	NA
		Lead	168	mg/kg	NA	NA	NA	NA	NA	NA
		Manganese	1354	mg/kg	1.4E-05	(mg/kg-day)-1	8.3E-03	4.3E-04	2.3E-03	9.0E-04
		Mercury	0.87	mg/kg	8.6E-05	(mg/kg-day)-1	8.7E-07	4.5E-08	2.4E-07	9.4E-08
		Thallium	4.4	mg/kg	NA	NA	NA	NA	NA	NA
	Exp. Route Total						1.3E-02	6.8E-04	2.9E-03	1.4E-03
Exposure Point Total							4	2	5	6

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the recreational user - young child are based on subchronic exposure. The chromium RfC for the recreational user - young child is also based on subchronic exposure.

Blood =	0.009	0.001	0.03	0.006
CNS =	0.02	0.002	0.04	0.007
Eye =	4	2	4	5
GI Tract =	0.5	0.07	0.9	0.3
Immune System =	4	2	4	5
Kidney =	0.009	0.003	0.03	0.008
Liver =	0.1	0.02	0.4	0.06
Lungs =	0.001	0.00007	0.0003	0.0001
Nails =	4	2	4	5
Nasal Septum =	0.003	0.0002	0.0003	0.0004
Skin =	4	2	4	5
Thyroid =	0.08	0.01	0.3	0.05
Whole Body =	0.007	0.001	0.03	0.005

Intestinal absorption factor:	Dermal absorption factor:
PCBs - 0.3	PCBs - 0.06
Arsenic - 0.3	Other COPCs - obtained from RAGS Part E
Other COPCs - 1.0	

TABLE E-7.47

CANCER - RME SUBSURFACE SOIL SITEWIDE

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Subsurface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Construction Worker Value	Cancer Risk per Receptor Population: Utility Worker Value
							Adult	Adult
Sitewide	Ingestion	**VOCs & SVOCs**						
		4,4'-DDT	0.48	mg/kg	3.4E-01	(mg/kg-day)-1	3.0E-09	3.0E-10
		Benzene	0.12	mg/kg	1.5E-01	(mg/kg-day)-1	3.3E-10	3.3E-11
		Benzo(a)pyrene Equivalent	8.7	mg/kg	7.3E+00	(mg/kg-day)-1	1.2E-06	1.2E-07
		bis(2-Ethylhexyl)phthalate	21	mg/kg	1.4E-02	(mg/kg-day)-1	5.4E-09	5.4E-10
		Dieldrin	0.47	mg/kg	1.6E+01	(mg/kg-day)-1	1.4E-07	1.4E-08
		PCBs						
		PCBs, Total	100	mg/kg	2.0E+00	(mg/kg-day)-1	1.1E-06	1.1E-07
		Dioxin						
		Dioxin TEQ	1.9E-04	mg/kg	1.5E+05	(mg/kg-day)-1	5.3E-07	5.3E-08
		Inorganics						
		Antimony	20	mg/kg	NA	NA	NA	NA
		Arsenic	45	mg/kg	1.5E+00	(mg/kg-day)-1	3.7E-07	3.7E-08
		Cadmium	11	mg/kg	NA	NA	NA	NA
		Chromium	343	mg/kg	5.0E-01	(mg/kg-day)-1	3.2E-06	3.2E-07
		Cobalt	16	mg/kg	NA	NA	NA	NA
		Iron	210260	mg/kg	NA	NA	NA	NA
		Lead	1082	mg/kg	NA	NA	NA	NA
		Manganese	2257	mg/kg	NA	NA	NA	NA
		Mercury	1.6	mg/kg	NA	NA	NA	NA
		Thallium	2.9	mg/kg	NA	NA	NA	NA
	Exp. Route Total						6.5E-06	6.5E-07
Sitewide	Dermal	**VOCs & SVOCs**						
		4,4'-DDT	0.48	mg/kg	3.4E-01	(mg/kg-day)-1	2.7E-10	2.7E-11
		Benzene	0.12	mg/kg	1.5E-01	(mg/kg-day)-1	NA	NA
		Benzo(a)pyrene Equivalent	8.7	mg/kg	7.3E+00	(mg/kg-day)-1	4.6E-07	4.6E-08
		bis(2-Ethylhexyl)phthalate	21	mg/kg	1.4E-02	(mg/kg-day)-1	1.6E-09	1.6E-10
		Dieldrin	0.47	mg/kg	1.6E+01	(mg/kg-day)-1	4.2E-08	4.2E-09
		PCBs						
		PCBs, Total	100	mg/kg	2.0E+00	(mg/kg-day)-1	6.7E-07	6.7E-08
		Dioxin						
		Dioxin TEQ	1.9E-04	mg/kg	1.5E+05	(mg/kg-day)-1	4.7E-08	4.7E-09
		Inorganics						
		Antimony	20	mg/kg	NA	NA	NA	NA
		Arsenic	45	mg/kg	1.5E+00	(mg/kg-day)-1	1.1E-07	1.1E-08
		Cadmium	11	mg/kg	NA	NA	NA	NA
		Chromium	343	mg/kg	2.0E+01	(mg/kg-day)-1	NA	NA
		Cobalt	16	mg/kg	NA	NA	NA	NA
		Iron	210260	mg/kg	NA	NA	NA	NA
		Lead	1082	mg/kg	NA	NA	NA	NA
		Manganese	2257	mg/kg	NA	NA	NA	NA
		Mercury	1.6	mg/kg	NA	NA	NA	NA
		Thallium	2.9	mg/kg	NA	NA	NA	NA
	Exp. Route Total						1.3E-06	1.3E-07
Sitewide	Inhalation	**VOCs & SVOCs**						
		4,4'-DDT	0.48	mg/kg	3.4E-02	(mg/kg-day)-1	1.3E-14	1.3E-15
		Benzene	0.12	mg/kg	7.7E-03	(mg/kg-day)-1	7.6E-16	7.6E-17
		Benzo(a)pyrene Equivalent	8.7	mg/kg	3.1E+00	(mg/kg-day)-1	2.2E-11	2.2E-12
		bis(2-Ethylhexyl)phthalate	21	mg/kg	NA	NA	NA	NA
		Dieldrin	0.47	mg/kg	1.6E+01	(mg/kg-day)-1	6.2E-12	6.2E-13
		PCBs						
		PCBs, Total	100	mg/kg	3.5E-01	(mg/kg-day)-1	2.9E-11	2.9E-12
		Dioxin						
		Dioxin TEQ	1.9E-04	mg/kg	1.5E+05	(mg/kg-day)-1	2.3E-11	2.3E-12
		Inorganics						
		Antimony	20	mg/kg	NA	NA	NA	NA

TABLE E-7.47

CANCER - RME SUBSURFACE SOIL SITEWIDE

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Subsurface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		CSF/Unit Risk		Cancer Risk per Receptor Population	
			Value	Unit	Value	Unit	Construction Worker Value	Utility Worker Value
							Adult	Adult
Sitewide	Inhalation (cont.)	Arsenic	45	mg/kg	1.5E+01	(mg/kg-day)-1	5.6E-10	5.6E-11
		Cadmium	11	mg/kg	6.3E+00	(mg/kg-day)-1	5.7E-11	5.7E-12
		Chromium	343	mg/kg	4.2E+01	(mg/kg-day)-1	1.2E-08	1.2E-09
		Cobalt	16	mg/kg	NA	NA	NA	NA
		Iron	210260	mg/kg	NA	NA	NA	NA
		Lead	1082	mg/kg	NA	NA	NA	NA
		Manganese	2257	mg/kg	NA	NA	NA	NA
		Mercury	1.6	mg/kg	NA	NA	NA	NA
		Thallium	2.9	mg/kg	NA	NA	NA	NA
	Exp. Route Total						1.3E-08	1.3E-09
Exposure Point Total							8E-06	8E-07

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

TABLE E-7.48

NONCANCER - RME SUBSURFACE SOIL SITEWIDE

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Suburface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC Value	RfD/RfC Unit	Noncancer Risk per Receptor Population: Construction Worker Value	Noncancer Risk per Receptor Population: Utility Worker Value
							Adult	Adult
Sitewide	Ingestion	**VOCs & SVOCs**						
		4,4'-DDT	0.48	mg/kg	5.0E-04	(mg/kg-day)-1	1.2E-03	1.2E-04
		Benzene	0.12	mg/kg	4.0E-03	(mg/kg-day)-1	3.9E-05	3.9E-06
		Benzo(a)pyrene Equivalent	8.7	mg/kg	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	21	mg/kg	2.0E-02	(mg/kg-day)-1	1.4E-03	1.4E-04
		Dieldrin	0.47	mg/kg	5.0E-05	(mg/kg-day)-1	1.2E-02	1.2E-03
		PCBs						
		PCBs, Total	100	mg/kg	2.0E-05	(mg/kg-day)-1	6.5E-01	6.5E-02
		Dioxin						
		Dioxin TEQ	1.9E-04	mg/kg	NA	NA	NA	NA
		Inorganics						
		Antimony	20	mg/kg	4.0E-04	(mg/kg-day)-1	6.5E-02	6.5E-03
		Arsenic	45	mg/kg	3.0E-04	(mg/kg-day)-1	5.8E-02	5.8E-03
		Cadmium	11	mg/kg	1.0E-03	(mg/kg-day)-1	1.4E-02	1.4E-03
		Chromium	343	mg/kg	3.0E-03	(mg/kg-day)-1	4.9E-02	4.9E-03
		Cobalt	16	mg/kg	3.0E-04	(mg/kg-day)-1	6.9E-02	6.9E-03
		Iron	210260	mg/kg	7.0E-01	(mg/kg-day)-1	3.9E-01	3.9E-02
		Lead	1082	mg/kg	NA	NA	NA	NA
		Manganese	2257	mg/kg	1.4E-01	(mg/kg-day)-1	2.1E-02	2.1E-03
		Mercury	1.6	mg/kg	NA	NA	NA	NA
		Thallium	2.9	mg/kg	7.0E-05	(mg/kg-day)-1	5.4E-02	5.4E-03
	Exp. Route Total						1.4E+00	1.4E-01
Sitewide	Dermal	**VOCs & SVOCs**						
		4,4'-DDT	0.48	mg/kg	5.0E-04	(mg/kg-day)-1	1.1E-04	1.1E-05
		Benzene	0.12	mg/kg	4.0E-03	(mg/kg-day)-1	NA	NA
		Benzo(a)pyrene Equivalent	8.7	mg/kg	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	21	mg/kg	2.0E-02	(mg/kg-day)-1	4.1E-04	4.1E-05
		Dieldrin	0.47	mg/kg	5.0E-05	(mg/kg-day)-1	3.6E-03	3.6E-04
		PCBs						
		PCBs, Total	100	mg/kg	2.0E-05	(mg/kg-day)-1	3.9E-01	3.9E-02
		Dioxin						
		Dioxin TEQ	1.9E-04	mg/kg	NA	NA	NA	NA
		Inorganics						
		Antimony	20	mg/kg	6.0E-05	(mg/kg-day)-1	NA	NA
		Arsenic	45	mg/kg	3.0E-04	(mg/kg-day)-1	1.7E-02	1.7E-03
		Cadmium	11	mg/kg	2.5E-05	(mg/kg-day)-1	1.7E-03	1.7E-04
		Chromium	343	mg/kg	7.5E-05	(mg/kg-day)-1	NA	NA
		Cobalt	16	mg/kg	3.0E-04	(mg/kg-day)-1	NA	NA
		Iron	210260	mg/kg	7.0E-01	(mg/kg-day)-1	NA	NA
		Lead	1082	mg/kg	NA	NA	NA	NA
		Manganese	2257	mg/kg	5.6E-03	(mg/kg-day)-1	NA	NA
		Mercury	1.6	mg/kg	NA	NA	NA	NA
		Thallium	2.9	mg/kg	7.0E-05	(mg/kg-day)-1	NA	NA
	Exp. Route Total						4.1E-01	4.1E-02
Sitewide	Inhalation	**VOCs & SVOCs**						
		4,4'-DDT	0.48	mg/kg	NA	NA	NA	NA
		Benzene	0.12	mg/kg	8.6E-03	(mg/kg-day)-1	8.0E-10	8.0E-11
		Benzo(a)pyrene Equivalent	8.7	mg/kg	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	21	mg/kg	NA	NA	NA	NA
		Dieldrin	0.47	mg/kg	NA	NA	NA	NA
		PCBs						
		PCBs, Total	100	mg/kg	NA	NA	NA	NA
		Dioxin						
		Dioxin TEQ	1.9E-04	mg/kg	NA	NA	NA	NA
		Inorganics						
		Antimony	20	mg/kg	1.1E-05	(mg/kg-day)-1	1.0E-04	1.0E-05

TABLE E-7.48

NONCANCER - RME SUBSURFACE SOIL SITEWIDE

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Non-residential Suburface Soil

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC Value	RfD/RfC Unit	Noncancer Risk per Receptor Population: Construction Worker Value	Noncancer Risk per Receptor Population: Utility Worker Value
							Adult	Adult
Sitewide	Inhalation (cont.)	Arsenic	45	mg/kg	NA	NA	NA	NA
		Cadmium	11	mg/kg	NA	NA	NA	NA
		Chromium	343	mg/kg	2.9E-05	(mg/kg-day)-1	2.3E-04	2.3E-05
		Cobalt	16	mg/kg	1.7E-06	(mg/kg-day)-1	5.4E-04	5.4E-05
		Iron	210260	mg/kg	NA	NA	NA	NA
		Lead	1082	mg/kg	NA	NA	NA	NA
		Manganese	2257	mg/kg	1.4E-05	(mg/kg-day)-1	9.3E-03	9.3E-04
		Mercury	1.6	mg/kg	8.6E-05	(mg/kg-day)-1	1.1E-06	1.1E-07
		Thallium	2.9	mg/kg	NA	NA	NA	NA
	Exp. Route Total						1.0E-02	1.0E-03
Exposure Point Total							2	0.2

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

Dermal absorption factor:

PCBs - 0.06

Other COPCs - obtained from RAGS Part E

Blood =	0.065	0.006
CNS =	0.03	0.003
Eye =	1.0	0.1
GI Tract =	0.4	0.04
Immune System =	1.0	0.1
Kidney =	0.016	0.002
Liver =	0.4	0.04
Lungs =	0.001	0.00006
Nails =	1.0	0.1
Nasal Septum =	0.000	0.0000
Skin =	1.1	0.1
Thyroid =	0.07	0.01
Whole Body =	0.065	0.006

TABLE E-7.49

CANCER - RME SURFACE WATER SITEWIDE

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	Snow Creek

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	CSF/Unit Risk Value	CSF/Unit Risk Unit	Cancer Risk per Receptor Population: Trespasser Value	Recreational User Value	
							Adolescent	Young Child	Adolescent
Snow Creek	Ingestion	**VOCs & SVOCs**							
		Benzo(a)pyrene Equivalent	5.9E-03	mg/l	7.3E+00	(mg/kg-day)-1	7.5E-07	1.4E-05	1.6E-06
		bis(2-Ethylhexyl)phthalate	3.3E-03	mg/l	1.4E-02	(mg/kg-day)-1	8.0E-10	1.5E-08	1.7E-09
		PCBs							
		PCBs, Total	5.0E-07	mg/l	2.0E+00	(mg/kg-day)-1	5.2E-12	9.8E-11	1.1E-11
		Dioxin							
		Dioxin TEQ	2.7E-09	mg/l	1.5E+05	(mg/kg-day)-1	7.0E-09	1.3E-07	1.5E-08
		Inorganics							
		Arsenic	5.4E-03	mg/l	1.5E+00	(mg/kg-day)-1	4.2E-08	7.9E-07	8.8E-08
		Cobalt	5.0E-03	mg/l	NA	NA	NA	NA	NA
		Lead	3.4E-02	mg/l	NA	NA	NA	NA	NA
		Manganese	6.9E-02	mg/l	NA	NA	NA	NA	NA
		Thallium	5.5E-03	mg/l	NA	NA	NA	NA	NA
	Exp. Route Total						8.0E-07	1.5E-05	1.7E-06
Snow Creek	Dermal	**VOCs & SVOCs**							
		Benzo(a)pyrene Equivalent	5.9E-03	mg/l	7.3E+00	(mg/kg-day)-1	3.5E-04	6.1E-04	7.3E-04
		bis(2-Ethylhexyl)phthalate	3.3E-03	mg/l	1.4E-02	(mg/kg-day)-1	NA	NA	NA
		PCBs							
		PCBs, Total	5.0E-07	mg/l	2.0E+00	(mg/kg-day)-1	8.7E-09	1.5E-08	1.8E-08
		Dioxin							
		Dioxin TEQ	2.7E-09	mg/l	1.5E+05	(mg/kg-day)-1	NA	NA	NA
		Inorganics							
		Arsenic	5.4E-03	mg/l	1.5E+00	(mg/kg-day)-1	9.4E-08	1.6E-07	2.0E-07
		Cobalt	5.0E-03	mg/l	NA	NA	NA	NA	NA
		Lead	3.4E-02	mg/l	NA	NA	NA	NA	NA
		Manganese	6.9E-02	mg/l	NA	NA	NA	NA	NA
		Thallium	5.5E-03	mg/l	NA	NA	NA	NA	NA
	Exp. Route Total						3.5E-04	6.1E-04	7.3E-04
Exposure Point Total							4E-04	6E-04	7E-04

Notes:

EU: Exposure Unit.

NA: Not Applicable.

Intestinal absorption factor:

PCBs - 0.3

Arsenic - 0.3

Other COPCs - 1.0

TABLE E-7.50

NONCANCER - RME SURFACE WATER SITEWIDE

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Anniston PCB Site, Operable Units 1 & 2

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	Snow Creek

Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Unit	RfD/RfC* Value	RfD/RfC* Unit	Noncancer Risk per Receptor Population: Trespasser Value	Recreational User Value	
							Adolescent	Young Child	Adolescent
Snow Creek	Ingestion	**VOCs & SVOCs**							
		Benzo(a)pyrene Equivalent	5.9E-03	mg/l	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	3.3E-03	mg/l	2.0E-02	(mg/kg-day)-1	2.0E-05	6.3E-04	4.2E-05
		PCBs							
		PCBs, Total	5.0E-07	mg/l	2.0E-05	(mg/kg-day)-1	9.1E-07	9.5E-06	1.9E-06
		Dioxin							
		Dioxin TEQ	2.7E-09	mg/l	NA	NA	NA	NA	NA
		Inorganics							
		Arsenic	5.4E-03	mg/l	3.0E-04	(mg/kg-day)-1	6.6E-04	6.8E-02	4.6E-03
		Cobalt	5.0E-03	mg/l	3.0E-04	(mg/kg-day)-1	2.0E-03	6.3E-02	4.2E-03
		Lead	3.4E-02	mg/l	NA	NA	NA	NA	NA
		Manganese	6.9E-02	mg/l	1.4E-01	(mg/kg-day)-1	6.0E-05	1.9E-03	1.2E-04
		Thallium	5.5E-03	mg/l	7.0E-05	(mg/kg-day)-1	9.6E-03	3.0E-01	2.0E-02
	Exp. Route Total						1.2E-02	4.3E-01	2.9E-02
Snow Creek	Dermal	**VOCs & SVOCs**							
		Benzo(a)pyrene Equivalent	5.9E-03	mg/l	NA	NA	NA	NA	NA
		bis(2-Ethylhexyl)phthalate	3.3E-03	mg/l	2.0E-02	(mg/kg-day)-1	NA	NA	NA
		PCBs							
		PCBs, Total	5.0E-07	mg/l	2.0E-05	(mg/kg-day)-1	1.5E-03	1.5E-03	3.2E-03
		Dioxin							
		Dioxin TEQ	2.7E-09	mg/l	NA	NA	NA	NA	NA
		Inorganics							
		Arsenic	5.4E-03	mg/l	3.0E-04	(mg/kg-day)-1	1.5E-03	4.2E-03	3.0E-03
		Cobalt	5.0E-03	mg/l	3.0E-04	(mg/kg-day)-1	5.4E-04	1.6E-03	1.1E-03
		Lead	3.4E-02	mg/l	NA	NA	NA	NA	NA
		Manganese	6.9E-02	mg/l	5.6E-03	(mg/kg-day)-1	1.0E-03	2.9E-03	2.1E-03
		Thallium	5.5E-03	mg/l	7.0E-05	(mg/kg-day)-1	6.4E-03	1.8E-02	1.3E-02
	Exp. Route Total						1.1E-02	2.9E-02	2.3E-02
Exposure Point Total							0.02	0.5	0.05

Notes:

EU: Exposure Unit.

NA: Not Applicable.

* RfDs for total PCBs, arsenic, and chromium for the recreational user - young child are based on subchronic exposure. The chromium RfC for the recreational user - young child is also based on subchronic exposure.

Intestinal absorption factor:			
PCBs - 0.3	0.001	0.005	0.002
Arsenic - 0.3	0.002	0.001	0.00
Other COPCs - 1.0	0.002	0.001	0.00
	0.00002	0.0006	0.00004
	0.002	0.001	0.00
	0.004	0.07	0.01
	0.003	0.06	0.005

APPENDIX F

SERA Tables

Table F-1
Occurrence and Distribution of Chemicals of Concern (COC)

Exposure Medium: Sediment								
Chemical of Potential Concern	**Minimum Conc. (mg/kg)**	**Maximum Conc. (mg/kg)**	**Mean Conc. (mg/kg)**	**95% UCL of the Mean (mg/kg)**	**Background Conc. (mg/kg)**	**Screening Toxicity Value[a] (mg/kg)**	**HQ Value[b]**	**COC Flag (Y or N)**
tPCB	0.66	60	8.5	15	NP	0.06	1,000	Y
Barium	52	577	163	255	NP	NA	---	Y
Chromium	28	670	130	364	NP	43	16	Y
Cobalt	2	88.5	19	33.2	NP	50	1.8	Y
Lead	14.6	510	79	126	NP	36	14	Y
Manganese	340	4,610	1,661	2,643	1,100	NA	---	Y
Mercury	0.013	2.2	0.40	0.82	NP	0.18	12	Y
Nickel	12	92	32	50	NP	23	4	Y
Vanadium	5.7	64	28	40	41	NA	---	Y

NP = Not presented in the FS.

NA = Not available.

[a]Threshold Effect Concentrations taken from MacDonald et al. (2000).

[b]Maximum detected concentration divided by the Screening Toxicity Value.

Table F-2
Ecological Exposure Pathways of Concern

Exposure Medium	Sensitive Environment Flag (Y or N)	Receptor	Endangered/ Threatened Species Flag (Y or N)	Exposure Routes	Assessment Endpoints	Measurement Endpoints
Sediment	N	Benthic organisms	N	Ingestion, respiration, and direct contact with chemicals in sediment	Survival, growth, and reproduction of benthic communities	Compare sediment toxicity thresholds for benthic community to measured COPC concentrations in sediment
		Aquatic feeding birds	N	Consumption of/exposure to chemicals in food and sediment	Survival, growth, and reproduction of aquatic feeding birds	Compare measured concentrations of COPCs in sediment to SSRBCs for birds (mallard, tree swallow, spotted sandpiper, and pied-billed grebe) for each COPC
		Aquatic feeding mammals	N	Consumption of/exposure to chemicals in food and sediment	Survival, growth, and reproduction of aquatic feeding mammals	Compare measured concentrations of COPCs in sediment to SSRBCs for mammals (muskrat, little brown bat, and racoon) for each COPC

SSRBC = Site-specific risk-based concentration.

Table F-3 Sediment to Aquatic Biota Bioaccumulation Factors[1]
Anniston PCB Site, Anniston, Alabama

Constituent	Sediment to Aquatic Plants	Sediment to Emergent Insects	Sediment to Benthic Invertebrates[2]	Sediment to Crayfish[3]	Sediment to Mollusks	Sediment to Frogs[3]	Sediment to Snakes
tPCB	0.42	3.8	0.92	0.75	6.5	3.4	27
Barium	1.6	0.16	0.86	3.3	0.72	0.20	0.92
Chromium	0.20	0.57	0.23	0.14	0.73	0.13	0.95
Cobalt	0.66	0.44	0.69	*0.72*	0.72	0.46	0.26
Lead	0.40	0.05	0.44	0.22	0.37	0.06	0.37
Manganese	4.4	0.16	6.5	2.48	1.0	0.14	1.4
Mercury	0.11	0.25	0.39	0.27	0.47	0.75	1.1
Nickel	0.20	0.88	0.39	*0.59*	0.59	*1.2*	1.2
Vanadium	0.25	0.07	0.22	0.17	0.26	0.13	0.13

Notes:

[1]Bioaccumulation factors calculated as dry weight tissue to dry weight sediment.

[2]PCB uptake for benthic invertebrates also evaluated based on the regression equation from the laboratory data analysis (see Appendix A of SERA). The best fit equation employed is based on log normalized sediment dry and tissue dry weight (log (tissue concentration dw) = 0.6272*(log sediment PCBdw)+1.0224).

[3] *Values shown in italics could not be computed because all tissue samples were nondetected. For cobalt and nickel in crayfish, mollusk value used as surrogate. For nickel in frogs, snake value used as a surrogate.*

dw: dry weight

SERA: streamlined ecological risk assessment

tPCB: total polychlorinated biphenyl

Table F-4 Avian Receptor Exposure Parameters
Anniston PCB Site, Anniston, Alabama

Parameter	Aquatic Herbivore		Aerial-Feeding Insectivore		Aquatic Invertivore		Aquatic Omnivore	
	Mallard		Tree Swallow		Spotted Sandpiper		Pied-Billed Grebe	
	Data	Source	Data	Source	Data	Source	Data	Source
Composition of Diet (%)								
Sediment	6%	Beyer et al. (1994) and Connor (1993), average of values	0%	Assumed to be negligible based on feeding strategy	18%	Beyer et al. (1994), average of four sandpiper values	6%	Mallard value assumed as a surrogate.
Aquatic Plants	80%	Herbivorous diet was chosen in order to evaluate mallard as an herbivorous receptor. Diet is based on professional judgment, supported by Dillon 1959 (in USEPA 1993) of a plant-based mallard diet in coastal Louisiana.	0%	--	0%	Diet adapted from Oring et al. (1997) using professional judgment to adjust based on food items available within Snow Creek portion of OU-1/OU-2.	10%	Diet adapted from Wetmore 1924 (in Muller and Storer 1999), using professional judgment to adjust based on food items available within Snow Creek portion of OU-1/OU-2.
Emergent Insects	0%		100%	Robertson et al. (1992)	50%		5%	
Benthic Invertebrates	10%		0%	--	50%		53%	
Crayfish	0%		0%	--	0%		20%	
Mollusk	10%		0%	--	0%		2%	
Amphibians	0%		0%	--	0%		10%	
Body Weight (kg)	1.2	Average of nonbreeding, adult birds (Drilling et al. 2002)	0.021	Robertson et al. (1992)	0.043	USEPA (1993), average of reported values	0.42	Average of both sexes (Muller and Storer 1999)
Food Ingestion Rate (kg/kg bw/d) (dw)	0.087	Average from Chukwudebe et al., 1998. Converted to dw using assumed % moisture in feed of 12%	0.24	Nagy (2001), allometric equation for insectivores	0.18	Nagy (2001), allometric equation for insectivores	0.071	Nagy (2001), allometric equation for omnivores

Notes:
%: percent
--: not applicable
dw: dry weight
kg: kilogram
kg/kg bw/d: kg/kg body weight per day
PCB: polychlorinated biphenyl
USEPA: United States Environmental Protection Agency

Beyer, W.N., E. Conner, and S. Gerould. 1994. Estimates of soil ingestion by wildlife. *J. Wildl. Manage.* 58:375-382.
Chukwudebe, A. C., J. B. Beavers, M. Jaber and P. G. Wislocki (1998). Toxicity of emamectin benzoate to mallard duck and bobwhite quail. Environ. Toxicol. Chem. 17(6): 1118-1123.
Connor, E.E. 1993. Soil ingestion and lead concentration in wildlife species. Master's Thesis. Virginia Polytechnic Institute and State University.
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Drilling, N., R. Titman, and F. McKinney. 2002. Mallard (*Anas platyrhynchos*). *The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/658
Muller, M.J. and R.W. Storer. 1999. Pied-Billed Grebe (*Podilymbus podiceps*). *The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology. Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/410
Nagy, K.A. 2001. Food requirements of wild animals: Predictive equations for free-living mammals, reptiles, and birds. *Nutrition Abstracts and Reviews, Series B,* 71:21R-31R.
Oring, L.W., E.M. Gray, and J.M. Reed. 1997. Spotted sandpiper (*Actitis macularius*). *The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology. Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/289
Robertson, R.J., B.J. Stutchbury, and R.R. Cohen. 1992. Tree Swallow (*Tachycineta bicolor*). P. 1-26. In: A Poole, P Stettenheim and F Gill (ed.) *The Birds of North America, No. 11.* The Birds of North America, Inc., Philadelphia, PA, USA.
USEPA. 1993. *Wildlife Exposure Factors Handbook.* EPA/600/R-93/187. U.S. Environmental Protection Agency, Washington, DC.
Wetmore, A. 1924. Food and economic relations of North American grebes. *U.S. Dep. Agr., Dep. Bull.* 1196:1-23. As cited in Muller and Storer 1999.

Table F-5 Mammalian Receptor Exposure Parameters
Anniston PCB Site, Anniston, Alabama

Parameter	Herbivore		Aerial-Feeding Insectivore		Omnivore	
	Muskrat		Little Brown Bat		Raccoon	
	Data	Source	Data	Source	Data	Source
Composition of Diet (%)						
Sediment	9%	Beyer et al. (1994), muskrat used as surrogate.	0%	Assumed to be negligible for aerial-feeding insectivores	9%	Beyer et al. (1994)
Aquatic Plants	90%	Diet adapted from USEPA 1993, using professional judgment to adjust based on food items available within Snow Creek portion of OU-1/OU-2. Primarily herbivorous, but in river and stream habitat diet includes mollusks (Neves and Odom 1989).	0%	--	44%	Diet adapted from USEPA 1993, using professional judgment to adjust based on food items available within Snow Creek portion of OU-1/OU-2.
Emergent Insects	0%		100%	Belwood and Fenton (1976), as cited in Sample and Suter (1994)	0%	
Benthic Invertebrates	5%		0%	--	13%	
Crayfish	0%		0%	--	15%	
Mollusk	5%		0%	--	13%	
Frogs	0%		0%	--	10%	
Snakes	0%		0%		5%	
Body Weight (kg)	1.1	Average of values given in Reid (2006)	0.01	Nagy (2001), allometric equation for little brown bat	5.6	USEPA (1993), average of adult and juvenile means values
Food Ingestion Rate (kg/kg bw/d) (dw)	0.07	Nagy (2001), allometric equation for Rodentia	0.18	Nagy (2001), allometric equation for little brown bat	0.03	Nagy (2001), allometric equation for Omnivores

Notes:
%: percent
--: not applicable
dw: dry weight
kg: kilogram
kg/kg bw/d: kg/kg body weight per day
OU: operable unit
PCB: polychlorinated biphenyl
USEPA: United States Environmental Protection Agency

Belwood, J.J. and M.B. Fenton. 1976. Variation in the diet of Myotis lucifugus (Chiroptera: Vespertilionidae). *Can. J. Zool.* 54:1674-1678. As cited in Sample and Suter 1994.
Beyer, W.N., E. Conner, and S. Gerould. 1994. Estimates of soil ingestion by wildlife. *J. Wildl. Manage.* 58:375-382.
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USEPA. 1993. *Wildlife Exposure Factors Handbook.* EPA/600/R-93/187. U.S. Environmental Protection Agency, Washington, DC.

Table F-6 PCB Toxicity Values for Benthic Invertebrates
Anniston PCB Site, Anniston, Alabama

Species	Endpoint	Endpoint Type	Total PCB Concentrations (mg tPCB/kg dw sed)				
			EC0[a]	EC0*[a]	EC10*[a]	EC20*[a]	EC50*[a]
C. dilutus	13-d survival	Survival	---[b]	14	76	123	288
	13-d ash-free dry weight	Growth	---[b]	6	17	32	121
	13-d biomass per replicate chamber	Growth	---[b]	10	18	28	86
	Emergence percentage	Reproduction	---[b]	2	7	14	71
	Emergence time	Growth	---[c]	---[c]	---[c]	---[c]	---[c]
	Adult survival time	Survival	1.03	98	186	323	1420
	No. of egg cases	Reproduction	---[b]	21	31	46	146
	No. of eggs/egg case	Reproduction	---[c]	---[c]	---[c]	---[c]	---[c]
	Hatch percentage	Reproduction	---[c]	---[c]	---[c]	---[c]	---[c]
	Total young	Reproduction	---[b]	69	89	114	261
	Young/egg case	Reproduction	18	209	260	324	685
	Adult biomass per replicate chamber[d]	Growth	---[b]	0.4	1	3	17
H. azteca	28-d survival	Survival	---[b]	UND[e]	105	152	261
	28-d dry weight	Growth	---[c]	---[c]	---[c]	---[c]	---[c]
	28-d biomass per replicate chamber	Growth	---[b]	2	25	58	252
	28-d length	Growth	---[c]	---[c]	---[c]	---[c]	---[c]
	42-d survival	Survival	---[b]	31	127	165	262
	42-d dry weight	Growth	---[c]	---[c]	---[c]	---[c]	---[c]
	42-d biomass per replicate chamber	Growth	---[b]	18	40	68	231
	42-d length	Growth	---[c]	---[c]	---[c]	---[c]	---[c]
	42-d total young	Reproduction	---[b]	9	13	18	50
	42-d young/female	Reproduction	---[b]	1	3	5	26
	42-d young/female (normalized to 42-d survival)	Reproduction	---[b]	1	3	4	20

Notes:

[a] EC0 = the tPCB concentration at which the average reference-sediment response would be predicted to occur, when projected onto the concentration-response curve generated for that endpoint with OU-4 sediments. EC0*, EC10*, EC20* and EC50* are the regression-predicted PCB_A concentrations that would cause an additional 0%, 10%, 20%, or 50% effect beyond the lowest response measured in the reference sediments (i.e., 1×, 0.9×, 0.8×, and 0.5× the response at the "bottom" of the reference envelope).

[b] EC0 could not be estimated when the average reference-sediment response was greater than the regression-predicted maximum control-normalized response.

[c] Could not be calculated because a decreasing concentration-response relationship did not exist for this endpoint.

[d] Estimated as adult survival × 13-d ash-free dry weight, assuming adult ash-free dry weight (which was not measured) for each sediment was proportional to the 13-d ash-free dry weight that was measured for the sediment. Therefore, this endpoint has high uncertainty associated with it.

[e] UND: undefined EC0*, because the lowest control-normalized reference-sediment response (88.8%) was greater than the regression-predicted maximum control-normalized response (85.9%).

%: percent

d: day

mg tPCB/kg dw sed: milligrams total polychlorinated biphenyl per kilogram dry weight of sediment

PCB: polychlorinated biphenyl

Table F-7 Sediment Toxicity Benchmarks
Anniston PCB Site, Anniston, Alabama

COPC	Low Threshold[1]	High Threshold[1]
	mg/kg dw	mg/kg dw
tPCBs site-specific	See Table 7-11a	See Table 7-11a
tPCBs	0.06	0.68
Barium	NV	NV
Chromium (III)	43	111
Cobalt	50	NV
Lead	36	128
Manganese	NV	NV
Mercury (total)	0.18	1.1
Nickel	23	49
Vanadium	NV	NV

Notes:
[1] Benchmarks are Threshold Effect Concentrations and Probable Effects Concentrations taken from MacDonald et al. (2000).
COPC: constituent of potential concern
mg/kg dw: milligrams per kilogram dry weight
NV: no benchmark value available
tPCB: total polychlorinated biphenyl

MacDonald, D.D., C.G. Ingersoll, and T.A. Berger. 2000. Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. *Arch. Environ. Contam. Toxicol.* 39:20-31.

Table F-8 Avian and Mammalian Toxicity Reference Values
Anniston PCB Site, Anniston, Alabama

COPC	Wildlife Toxicity Reference Values (mg/kg bw/d except as noted)					
	Birds			Mammals		
	NOAEL TRV	LOAEL TRV	Reference	NOAEL TRV	LOAEL TRV	Reference
Organics						
tPCB (mid-range sensitivity)	0.47	1.4	Koval et al 1987; NOAEL extrapolated	0.23	0.68	McCoy et al. 1995
tPCB (high sensitivity)	0.043	0.13	Lillie et al. 1974; NOAEL extrapolated	NA	NA	NA
Total TEQ (µg/kg bw/d)	0.14	NV	Custer et al. 2005	0.025	NV	Moore et al. 2012
Metals						
Barium	21	42	Sample et al. 1996[1]	52	121	USEPA 2005a
Chromium	2.7	2.8	USEPA 2008	2.4	2.8	USEPA 2008
Cobalt	7.6	8	USEPA 2005b	7.3	10	USEPA 2005b
Lead	1.6	3.3	USEPA 2005c	4.7	8.9	USEPA 2005c
Manganese	179	348	USEPA 2007a	52	65	USEPA 2007a
Mercury	0.023	0.068	Spalding et al. 2000; NOAEL extrapolated	0.075	0.15	Dansereau et al. 1999
Nickel	6.7	8.2	USEPA 2007b	1.7	3.4	USEPA 2007b
Vanadium	0.34	0.70	USEPA 2005d	4.2	8.3	USEPA 2005d

Notes:
COPC: constituent of potential concern
LOAEL: lowest observed adverse effect level
mg/kg bw/d: milligrams per kilogram of body weight per day
NA: not applicable
NV: no value available
NOAEL: no observed adverse effect level
OU: operable unit
tPCB: total polychlorinated biphenyl
TRV: toxicity reference value
Total TEQ: 2,3,7,8-TCDD toxic equivalents
µg/kg bw/d: micrograms per kilogram of body weight per day

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Table F-9 PCB Site-Specific Risk-Based Concentrations for Benthic Invertebrates
Anniston PCB Site, Anniston, Alabama

Species	Endpoint	Site-Specific Risk Based Concentrations (mg tPCB/kg dw sed)			
		EC0[b]	EC0*[a]	EC10*[a]	EC20*[a]
C. dilutus[d]	13-d survival	0.05[c]	14	76	123
	13-d ash-free dry weight	0.05[c]	6	17	32
	13-d biomass per replicate chamber	0.05[c]	10	18	28
	Emergence percentage	0.05[c]	2	7	14
	Adult survival time	1[b]	98	186	323
	No. of egg cases	0.05[c]	21	31	46
	Total young	0.05[c]	69	89	114
	Young/egg case	18[b]	209	260	324
H. azteca[d]	28-d survival	0.05[c]	UND[e]	105	152
	28-d biomass per replicate chamber	0.05[c]	2	25	58
	42-d survival	0.05[c]	31	127	165
	42-d biomass per replicate chamber	0.05[c]	18	40	68
	42-d total young	0.05[c]	9	13	18
	42-d young/female	0.05[c]	1	3	5
	42-d young/female (normalized to 42-d survival)	0.05[c]	1	3	4

Notes:

[a] EC0*, EC10*, and EC20* are the regression-predicted PCB_A concentrations that would cause an additional 0%, 10%, or 20% effect beyond the lowest response measured in the reference sediments (i.e., 1×, 0.9×, and 0.8× the response at the "bottom" of the reference envelope).

[b] EC0 is the tPCB concentration at which the average reference-sediment response would be predicted to occur, when projected onto the concentration-response curve generated for that endpoint with OU-4 sediments.

[c] EC0 was set at a concentration of 0.05 (the mean reference sediment concentration) when the average reference-sediment response was greater than the regression-predicted maximum control-normalized response.

[d] SSRBCs are not calculated for 7 endpoints because a decreasing concentration-response relationship did not exist for the endpoint (See table 7-18a). In addition values for the adult biomass endpoint for *C. dilutus* are not included as SSRBCs because of the high uncertainty associated with the fact that adult ash-free dry weight was not measured.

[e] UND: undefined EC0*, because the lowest control-normalized reference-sediment response (88.8%) was greater than the regression-predicted maximum control-normalized response (85.9%).

d: day

mg/kg dw sed: milligrams per kilogram dry weight sediment

OU: operable unit

tPCB: total polychlorinated biphenyl

UND: undefined

Table F-10 Benthic Invertebrate, Avian and Mammalian Site-Specific Risk-Based Concentrations
Anniston PCB Site, Anniston, Alabama

Constituent	Benthic Invertebrates	Mallard	Tree Swallow	Spotted Sandpiper	Pied-Billed Grebe	Muskrat	Little Brown Bat	Raccoon
NOAEL Site-Specific Risk-Based Concentrations (mg/kg except where noted)								
Organics								
tPCB (mid-range sensitivity)	See Table 7-13a	5	0.5	1	5	4	0.3	3
tPCB (high sensitivity)	0.06	0.4	0.05	0.1	0.4	NA	NA	NA
Total TEQ (µg/kg)	NC	2	0.9	1	2	0.5	0.2	0.3
Metals								
Barium	NC	160	542	169	214	474	1,819	1,235
Chromium	43	97	19	26	131	109	24	229
Cobalt	50	120	72	57	149	142	94	370
Lead	36	41	136	22	58	140	528	403
Manganese	NC	473	4,661	287	563	169	1,808	549
Mercury	0.2	1	0.3	0.3	0.7	5	1.7	7
Nickel	23	243	32	46	164	77	11	110
Vanadium	NC	13	20	6	19	178	334	495
LOAEL Site-Specific Risk-Based Concentrations (mg/kg except where noted)								
Organics								
tPCB (mid-range sensitivity)	See Table 7-13a	14	2	3	14	12	1	8
tPCB (high sensitivity)	0.68	1	0.1	0.3	1	NA	NA	NA
Total TEQ (µg/kg)	NC	NC	NC	NC	NC	NC	NC	NC
Metals								
Barium	NC	322	1,086	340	429	1,106	4,249	2,884
Chromium	111	102	20	27	138	128	28	269
Cobalt	NC	123	74	59	153	193	128	504
Lead	128	82	272	43	117	265	1,000	763
Manganese	NC	919	9,063	559	1,095	214	2,282	693
Mercury	1	3	1	1	2	9	3	13
Nickel	49	295	39	56	199	154	22	220
Vanadium	NC	26	42	12	38	355	667	988

Notes:
LOAEL: lowest observed adverse effect level
mg/kg: milligram per kilogram
NA: not applicable
NC: no criteria available
NOAEL: no observed adverse effect level
tPCB: total polychlorinated biphenyl
Total TEQ: 2,3,7,8-TCDD toxic equivalents
µg/kg: micrograms per kilogram

Table F-11 PCB Site-Specific Risk-Based Concentrations Exceedances for Benthic Invertebrates
Anniston PCB Site, Anniston, Alabama

Species	Endpoint	Percent of Samples Exceeding SSRBC			
		EC0	EC0* [a]	EC10* [a]	EC20* [a]
C. dilutus	13-d survival	100%	18%	0%	0%
	13-d ash-free dry weight	100%	39%	14%	2%
	13-d biomass per replicate chamber	100%	29%	14%	6%
	Emergence percentage	100%	65%	39%	18%
	Adult survival time	88%	0%	0%	0%
	No. of egg cases	100%	10%	4%	2%
	Total young	100%	0%	0%	0%
	Young/egg case	14%	0%	0%	0%
H. azteca	28-d survival	100%	0%	0%	0%
	28-d biomass per replicate chamber	100%	71%	8%	2%
	42-d survival	100%	4%	0%	0%
	42-d biomass per replicate chamber	100%	14%	2%	0%
	42-d total young	100%	29%	20%	14%
	42-d young/female	100%	76%	57%	41%
	42-d young/female (normalized to 42-d survival)	100%	76%	61%	45%

Notes:

95% UCL concentration exceeds SSRBC.

[a] EC0*, EC10*, and EC20* are the regression-predicted PCB_A concentrations that would cause an additional 0%, 10%, or 20% effect beyond the lowest response measured in the reference sediments (i.e., 1×, 0.9×, and 0.8× the response at the "bottom" of the reference envelope).

[b] Estimated as adult survival × 13-d ash-free dry weight, assuming adult ash-free dry weight (which was not measured) for each sediment was proportional to the 13-d ash-free dry weight that was measured for the sediment. Therefore, this endpoint has high uncertainty associated with it.

[c] UND: undefined EC0*, because the lowest control-normalized reference-sediment response (88.8%) was greater than the regression-predicted maximum control-normalized response (85.9%).

%: percent
d: day
EC0: the tPCB concentration at which the average reference-sediment response would be predicted to occur, when projected onto the concentration-response curve generated for that endpoint with OU-4 sediments.
PCB: polychlorinated biphenyl
SSRBC: site-specific risk-based concentration

Table F-12 Site-Specific Risk-Based Concentrations Exceedances for All Constituents of Potential Concern
Anniston PCB Site, Anniston, Alabama

NOAEL SSRBC Comparisons (percent of samples exceeding SSRBC)								
COPC	**Benthic Invertebrate**	**Mallard**	**Tree Swallow**	**Spotted Sandpiper**	**Pied-Billed Grebe**	**Muskrat**	**Little Brown Bat**	**Raccoon**
Organics								
tPCB (mid-range sensitivity)	See Table 7-14a	43%	100%	88%	43%	47%	100%	59%
tPCB (high sensitivity)	100%	100%	100%	100%	100%	NA	NA	NA
Total TEQ	NA	0%	0%	0%	0%	0%	0%	0%
Metals								
Barium	NC	33%	8%	33%	17%	8%	0%	0%
Chromium	58%	33%	100%	100%	33%	33%	100%	17%
Cobalt	8%	0%	8%	8%	0%	0%	0%	0%
Lead	53%	53%	7%	93%	33%	7%	0%	7%
Manganese	NC	92%	0%	100%	83%	100%	33%	83%
Mercury	67%	8%	25%	42%	17%	0%	8%	0%
Nickel	33%	0%	25%	25%	0%	17%	100%	0%
Vanadium	NC	83%	50%	92%	67%	0%	0%	0%
LOAEL SSRBC Comparisons (percent of samples exceeding SSRBC)								
	Benthic Invertebrate	**Mallard**	**Tree Swallow**	**Spotted Sandpiper**	**Pied-billed Grebe**	**Muskrat**	**Little Brown Bat**	**Raccoon**
Organics								
tPCB (mid-range sensitivity)	See Table 7-14a	18%	75%	57%	18%	22%	88%	31%
tPCB (high sensitivity)	96%	80%	100%	100%	80%	NA	NA	NA
Total TEQ	NC	NC	NC	NC	NC	NC	NC	NC
Metals								
Barium	NC	8%	0%	8%	8%	0%	0%	0%
Chromium	33%	33%	100%	100%	33%	33%	100%	17%
Cobalt	NC	0%	8%	8%	0%	0%	0%	0%
Lead	7%	13%	7%	53%	13%	7%	0%	0%
Manganese	NC	50%	0%	83%	50%	100%	17%	75%
Mercury	8%	0%	8%	17%	0%	0%	0%	0%
Nickel	25%	0%	25%	17%	0%	0%	42%	0%
Vanadium	NC	25%	25%	83%	25%	0%	0%	0%

Notes:

95% UCL concentration exceeds SSRBC.

%: percent
COPC: constituent of potential concern
LOAEL: lowest observed adverse effect level
NOAEL: no observed adverse effect level
NA: not applicable
NA: no criteria available
SSRBC: site-specific risk-based concentration
tPCB: total polychlorinated biphenyl
TEQ: 2,3,7,8-TCDD toxic equivalents

Table F-13 Avian and Mammalian Site-Specific Risk-Based Concentrations and Percent Sample Exceedances - Laboratory Bioaccumulation Scenario
Anniston PCB Site, Anniston, Alabama

Constituent	Mallard	Spotted Sandpiper	Pied-Billed Grebe	Muskrat	Raccoon
NOAEL Site-Specific Risk-Based Concentrations (mg/kg)					
tPCB (mid-range sensitivity)	2 (67%)	0.2 (100%)	0.5 (100%)	2 (67%)	1 (88%)
tPCB (high sensitivity)	0.2 (100%)	0.02 (100%)	0.05 (100%)	NA	NA
LOAEL Site-Specific Risk-Based Concentrations (mg/kg)					
tPCB (mid-range sensitivity)	5 (43%)	0.7 (94%)	2 (67%)	5 (43%)	3 (57%)
tPCB (high sensitivity)	0.5 (100%)	0.06 (100%)	0.1 (100%)	NA	NA

Notes:
%: percent
LOAEL: lowest observed adverse effect level
mg/kg: milligram per kilogram
NA: not applicable
NOAEL: no observed adverse effect level
tPCB: total polychlorinated biphenyl

Table F-14 Polychlorinated Biphenyl Remedial Goal Options[1] for Benthic Invertebrates
Anniston PCB Site, Anniston, Alabama

Basis	*C. dilutus*			*H. azteca*		
	Growth	Reproduction	Survival	Growth	Reproduction	Survival
	Low (or NOAEL-equivalent) RGOs[3] for Benthic Invertebrates					
EC0 surrogate[2]	0.05	0.05	0.05	0.05	0.05	0.05
EC0*	6	2	14	2	1	31
	High (or LOAEL-Equivalent) Toxicity Value-Based RGOs[3] for Benthic Invertebrates					
EC10*	17	7	76	25	3	105
EC20*	28	14	123	58	4	152

Notes:

[1]All values are mg/kg sediment dry weight.

[2]EC0 surrogate values are the mean reference sediment concentration.

The tPCB concentration associated with the mean reference response EC0 could not be calculated.

[3]Low and high toxicity value-based RGOs represent the value for the most sensitive endpoint within each category from site-specific toxicity testing.

EC0: the tPCB concentration at which the average reference-sediment response would be predicted to occur, when projected onto the concentration-response curve generated for that endpoint with OU-4 sediments.

EC0*, EC10*, EC20*: the regression-predicted tPCB concentrations that would cause an additional 0%, 10%, or 20% effect beyond the lowest response measured in the reference sediments (i.e., 1×, 0.9×, and 0.8× the response at the "bottom" of the reference envelope).

LOAEL: lowest observed adverse effect level

mg/kg: milligram per kilogram

NOAEL: no observed adverse effect level

RGO: remedial goal options

tPCB: total polychlorinated biphenyl

Table F-15 Remedial Goal Options[1] for Ecological Receptors for OU-1/OU-2 - 100% Site Use
Anniston PCB Site, Anniston, Alabama

Constituent	NOAEL-Based or NOAEL Equivalent RGOs							
	Benthic Invertebrates	**Mallard**	**Tree Swallow**	**Spotted Sandpiper**	**Pied-Billed Grebe**	**Muskrat**	**Little Brown Bat**	**Raccoon**
tPCB (mid-range sensitivity)	see Table C-14	5	0.5	1	5	4	0.3	3
tPCB (high sensitivity)	NA	0.4	0.05	0.1	0.4	NA	NA	NA
Barium	NC	160	542	169	214	474	1818.8	1235
Chromium	43	97	19	26	131	109	23.7	229
Cobalt	50	120	72	57	149	142	93.6	370
Lead	36	41	136	22	58	140	528.1	403
Manganese	NC	473	4661	287	563	169	1808.3	549
Mercury	0.2	1	0.3	0.3	0.7	5	1.7	7
Nickel	23	243	32	46	164	77	10.9	110
Vanadium	NC	13	20	6	19	178	333.9	495
	LOAEL-Based or LOAEL Equivalent RGOs							
tPCB (mid-range sensitivity)	see Table C-14	14	2	3	14	12	1	8
tPCB (high sensitivity)	NA	1	0.1	0.3	1	NA	NA	NA
Barium	NC	322	1086	340	429	1106	4249	2884
Chromium	111	102	20	27	138	128	28	269
Cobalt	NC	123	74	59	153	193	128	504
Lead	128	82	272	43	117	265	1000	763
Manganese	NC	919	9063	559	1095	214	2282	693
Mercury	1	3	1	0.8	2	9	3	13
Nickel	49	295	39	56	199	154	22	220
Vanadium	NC	26	42	12	38	355	667	988

Notes:

[1]All values are mg/kg sediment dry weight.

%: percent

LOAEL: lowest observed adverse effect level

mg/kg: milligram per kilogram

NA: not applicable

NC: no toxicity criteria available - RGO value could not be developed

NOAEL: no observed adverse effect level

OU: Operable Unit

RGO: remedial goal options

tPCB: total polychlorinated biphenyl

Table F-16 Remedial Goal Options[1] for Ecological Receptors for OU-1/OU-2 - 50% Site Use
Anniston PCB Site, Anniston, Alabama

Constituent	Mallard	Tree Swallow	Spotted Sandpiper	Pied-Billed Grebe	Muskrat	Little Brown Bat	Raccoon
	NOAEL-Based RGOs						
tPCB (mid-range sensitivity)	9	1	2	9	8	0.7	6
tPCB (high sensitivity)	0.9	0.1	0.2	0.9	NA	NA	NA
Barium	321	1,083	339	428	947	3,638	2,469
Chromium	194	39	52	262	219	47	458
Cobalt	240	144	115	299	283	187	739
Lead	82	272	43	117	280	1,056	806
Manganese	945	9,323	575	1,127	339	3,617	1,099
Mercury	2	0.5	0.5	1	9	3	13
Nickel	485	64	93	328	154	22	220
Vanadium	26	41	12	38	356	668	990
	LOAEL-Based RGOs						
tPCB (mid-range sensitivity)	28	3	6	28	24	2	17
tPCB (high sensitivity)	3	0.3	0.6	3	NA	NA	NA
Barium	643	2,172	679	858	2,212	8,497	5,768
Chromium	204	41	54	276	257	56	538
Cobalt	246	148	118	306	387	255	1,008
Lead	163	543	86	234	530	2,000	1,526
Manganese	1,838	18,125	1,117	2,190	428	4,565	1,387
Mercury	7	2	2	4	19	7	26
Nickel	590	77	112	399	309	43	440
Vanadium	52	83	24	77	710	1,334	1,977

Notes:

[1]All values are mg/kg sediment dry weight and are based on an assumption of 50% Site use by receptors.

%: percent

LOAEL: lowest observed adverse effect level

mg/kg: milligram per kilogram

NA: not applicable

NC: no toxicity criteria available - RGO value could not be developed

NOAEL: no observed adverse effect level

OU: Operable Unit

RGO: remedial goal options

tPCB: total polychlorinated biphenyl

Table F-17
COC Concentrations Expected to Provide Adequate Protection of Ecological Receptors

Habitat Type/Name	Exposure Medium	COC	Protective Level	Units	Basis*	Assessment Endpoint
Freshwater; small pools, riffles, and runs/Snow Creek, downstream of the 11th Street Ditch to Highway 78 in Oxford, AL	Sediment	tPCB	3	mg/kg	Benthic reproduction (lowest OU4 site-specific EC10, *H. azteca*)	Survival, growth, and reproduction of benthic communities
		Barium	322	mg/kg	Lowest LOAEL (mallard)	Survival, growth, and reproduction of aquatic feeding birds
		Chromium	111	mg/kg	LOAEL (benthic)	Survival, growth, and reproduction of benthic communities
		Cobalt	59	mg/kg	Lowest LOAEL (sandpiper)	Survival, growth, and reproduction of aquatic feeding birds
		Lead	128	mg/kg	LOAEL (benthic)	Survival, growth, and reproduction of benthic communities
		Manganese	1,100	mg/kg	Mean upgradient concentration	NA
		Mercury	1	mg/kg	LOAEL (benthic and tree swallow)	Survival, growth, and reproduction of benthic communities and aquatic feeding birds
		Nickel	49	mg/kg	LOAEL (benthic)	Survival, growth, and reproduction of benthic communities
		Vanadium	41	mg/kg	Two times the mean of sediment background concentration at Fort McClellan (SAIC, 1998)	NA
	Surface Water	PCB	0.014	µg/L	NRWQC chronic freshwater value (EPA, 2016); goal is to reduce the exceedances for sediment COCs.	NA

*All values calculated in the site-specific SERA (Environ, 2015) unless otherwise noted.
NRWQC = National recommended water quality criteria.