HRS DOCUMENTATION RECORD COVER SHEET

Name of Site: Peck Iron and Metal

EPA ID No.: VAN000306115

<u>Contact Persons</u>

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<u>Pathways, Components, or Threats Not Scored</u>

<u>Ground Water Migration Pathway</u>

The ground water pathway was not scored. The surface water pathway was sufficient to list the site.

<u>Soil Exposure Pathway</u>

The soil exposure pathway was not scored. The surface water pathway was sufficient to list the site.

<u>Air Migration Pathway</u>

The air migration pathway was not scored. The surface water pathway was sufficient to list the site.

HRS DOCUMENTATION RECORD

Name of the Site:	Peck Iron and Metal	**Date:** April 2009
EPA Region:	3	
Street Address of Site*:	3850 Elm Avenue	
City, County, State:	City of Portsmouth, Virginia, 23704	
General Location in State:	Southeast Virginia, within the Elizabeth River watershed	
Topographic Map:	Norfolk South, Virginia	

Latitude* 36º48'34.07"N Longitude*: 76º18'31.76"W

Reference for latitude and longitude: The southwest corner of the buildings on the northern section of the facility was used to measure the latitude and longitude using Google Earth (www.earth.google.com) (Ref. 52; Ref. 53).

* The street address, coordinates, and contaminant locations presented in this HRS documentation record identify the general area in which the site is located. They represent one or more locations EPA considers to be part of the site based on the screening information EPA used to evaluate the site for NPL listing. EPA lists national priorities among the known "releases or threatened releases" of hazardous substances; thus, the focus is on the release, not precisely delineated boundaries. A site is defined as where a hazardous substance has been "deposited, stored, placed, or otherwise come to be located. "Generally, HRS scoring and the subsequent listing of a release merely represent the initial determination that a certain area may need to be addressed under the Comprehensive Environmental Response, Compensation, and Liability Act. Accordingly, EPA contemplates that the preliminary description of facility boundaries at the time of scoring will be refined as more information is developed as to where the contamination has come to be located.

	Scores
Ground Water Migration Pathway	Not Scored
Surface Water Migration Pathway	97.05
Soil Exposure Pathway	Not Scored
Air Migration Pathway	Not Scored
HRS Site Score	48.52

WORKSHEET FOR COMPUTING HRS SITE SCORE

	S pathway	S^2 pathway
Ground Water Migration Pathway Score (S_{gw})	NS	NS
Surface Water Migration Pathway Score (S_{sw})	97.05	9,418.7025
Soil Exposure Pathway Score (S_s)	NS	NS
Air Migration Score (S_a)	NS	NS
$S^2_{gw} + S^2_{sw} + S^2_s + S^2_a$		9,418.7025
$(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4$		2,354.675625
$\sqrt{(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4}$		48.52

Notes:
NS Not scored

TABLE 4-1 --SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET			
Factor Categories and Factors	Maximum Value	Value Assigned	
Watershed Evaluated: Paradise Creek			
Drinking Water Threat			
Likelihood of Release:			
1. Observed Release	550	550	
2. Potential to Release by Overland Flow:			
2a. Containment	10		
2b. Runoff	25		
2c. Distance to Surface Water	25		
2d. Potential to Release by Overland Flow [lines 2a(2b + 2c)]	500		
3.Potential to Release by Flood:			
3a. Containment (Flood)	10		
3b. Flood Frequency	50		
3c. Potential to Release by Flood (lines 3a x 3b)	500		
4. Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500		
5. Likelihood of Release (higher of lines 1 and 4)	550		550
Waste Characteristics:			
6. Toxicity/Persistence	(a)	10000	
7. Hazardous Waste Quantity	(a)	100	
8. Waste Characteristics	100		32
Targets:			
9. Nearest Intake	50		
10. Population:			
10a. Level I Concentration	(b)		
10b. Level II Concentration	(b)		
10c. Potential Contamination	(b)		
10d. Population (lines 10a + 10b + 10c)	(b)		
11. Resources	5	5	
12. Targets (lines 9 + 10d + 11)	(b)		5
Drinking Water Threat Score:			
13. Drinking Water Threat Score [(lines 5x8x12)/82,500, subject to a max of 100]	100		1.06
Human Food Chain Threat			
Likelihood of Release:			
14. Likelihood of Release (same value as line 5)	550		550
Waste Characteristics:			
15. Toxicity/Persistence/Bioaccumulation	(a)	5×10^8	
16. Hazardous Waste Quantity	(a)	100	
17. Waste Characteristics	1000		320
Targets:			
18. Food Chain Individual	50	20	
19. Population:			
19a. Level I Concentration	(b)		
19b. Level II Concentration	(b)		
19c. Potential Human Food Chain Contamination	(b)		
19d. Population (lines 19a + 19b + 19c)	(b)		
20. Targets (lines 18 + 19d)	(b)		20
Human Food Chain Threat Score:			
21. Human Food Chain Threat Score [(lines 14x17x20)/82500, subject to max of 100]	100		42.66

TABLE 4-1 --SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET (CONTINUED)			
Factor Categories and Factors	Maximum Value	Value Assigned	
Watershed Evaluated: Paradise Creek			
Environmental Threat			
Likelihood of Release:			
22. Likelihood of Release (same value as line 5)	550		550
Waste Characteristics:			
23. Ecosystem Toxicity/Persistence/Bioaccumulation	(a)	5×10^8	
24. Hazardous Waste Quantity	(a)	100	
25. Waste Characteristics	1000		320
Targets:			
26. Sensitive Environments:			
26a. Level I Concentration	(b)		
26b. Level II Concentration	(b)	25	
26c. Potential Contamination	(b)		
26d. Sensitive Environments (lines 26a + 26b + 26c)	(b)		
27. Targets (value from line 26d)	(b)		25
Environmental Threat Score:			
28. Environmental Threat Score [(lines 22x25x27)/82,500 subject to a max of 60]	60		53.33
Surface Water Overland/Flood Migration Component Score for a Watershed			
29. Watershed Score[c] (lines 13+21+28, subject to a max of 100}	100		97.05

Surface Water Overland/Flood Migration Component Score		
30. Component Score (S_{sw})[c] (highest score from line 29 for all watersheds evaluated)	100	97.05

[a] Maximum value applies to Waste Characteristics category.
[b] Maximum value is not applicable.
[c] Do not round to nearest integer.

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SITE SUMMARY

The former Peck Iron and Metal (Peck Iron) facility is located at 3850 Elm Avenue, Portsmouth, Virginia (Ref. 3, p. 1 and Figure 1). Facility operations began in the 1940s and continued for approximately 50 years. The former Peck Iron property is currently owned by The Peck Company, Inc., which acquired the property in the late 1940s. The property is situated on 33 acres in a mixed industrial and commercial area. Elm Avenue borders the property to the north and east. The Norfolk Naval Shipyard partially borders the property to the southeast and west and Norfolk Naval Shipyard facilities also occupy land on the north side of Elm Avenue. The Sherwin-Williams Paint facility borders the site to the west. Paradise Creek, a tributary of the Southern Branch of the Elizabeth River, flows adjacent to the southwest boundary of the property. A tidal marsh area is adjacent to Paradise Creek. The Sherwin-Williams Paint facility, Tax parcel 0386-0027, was formerly part of the Peck Iron facility (Ref. 3, pp 1, 2, and 3 and Figure 2).

The elevation of the property ranges from approximately mean sea level to approximately 10 feet above mean sea level (AMSL). The property is generally flat with a small mounded area (nearly 25 feet AMSL) located in the southeastern portion. The property is predominantly comprised of unpaved surfaces (compacted stones and gravel), though some partially vegetated areas are present (Ref. 3, p. 2 and Figure 1). Accumulations of scrap metal and miscellaneous debris are present throughout the property and extend beyond property boundaries in some areas (Ref. 40, p. 1-3). A portion of the property near Paradise Creek is heavily vegetated with trees, shrubs, tall grasses, and reeds. In 2003, a 6-acre portion of the marsh area in the southwestern section of the property was donated to the Elizabeth River Project (ERP) for permanent conservation. In the spring of 2003, ERP completed a wetland restoration of this 6-acre area (Ref. 3, p. 3; Ref. 32, p. 2; Ref. 40, p. 1-3).

Facility operations prior to the 1980s took place in and around the cinderblock buildings in the center of the property. One of the buildings contained a hydraulic guillotine that shear cut steel. Another building served as a sorting and storage room for nonferrous metals and contained a small furnace to melt aluminum scrap. A men's locker room and machine shop was located by a stop light in the front of the sorting and storage building (Ref. 32, p. 9).

The Peck Iron facility recycled scrap metals from federal and state governments, and from commercial, industrial, and private sources. The Department of Defense (DOD) processed and sold scrap metal to Peck Iron that was acquired from various military bases and Navy yards. Other large, nongovernment sellers to Peck Iron included Virginia Electric and Power, various railroads, landfills (sources of white goods [household appliances] and miscellaneous scrap), and nearby ship repair facilities. The facility is currently inactive (Ref. 32, pp. 2, 9, 10).

Numerous investigations conducted at the Peck Iron facility have identified high concentrations of polychlorinated biphenyls (PCB) and lead in surface soils on site. The highest concentrations of PCBs were found in the southern portion of the property. Analytical results indicate that much of the soil on site has lead concentrations up to 1,000 milligrams per kilogram (mg/kg), and a small area of soil in the southern portion of the property has shown lead concentrations exceeding 10,000 mg/kg. Extensive PCB investigations conducted in 2005 sampled the facility using a 50 by 50-foot grid system. The investigation studied samples collected from nearly 21 acres of surficial soil (0 to 18 inches below ground surface [bgs]) and from approximately 7 acres of soil from 18 to 36 inches bgs. Based on the investigations, PCB concentrations are estimated in surficial soils as follows: 11 acres – less than 10 mg/kg; 8 acres – between 10 and 100 mg/kg; and 2 acres – greater than 100 mg/kg. PCB concentrations in subsurface soils are estimated at a similar distribution: 4 acres – less than 10 mg/kg; 2 acres – between 10 and 100 mg/kg; and 1 acre – greater than 100 mg/kg (Ref. 3, p. 3).

Limited sediment sampling conducted in Paradise Creek revealed PCB concentrations ranging from 0.001 to 17 mg/kg (Ref. 3, pp. 3, 4).

To eliminate the possibility of exposure of trespassers, incidental, or recreational-use individuals to hazardous substances from the Peck Iron property, a chain link fence with a locked gate was installed in 2003 near the northwest corner of the facility. Though a tenant currently leases a small portion of the property along the western border, the remainder of the property is currently vacant. Accumulations of scrap metal and miscellaneous debris are present in a number of areas throughout the property (Ref. 3, p. 3).

In 2007, EPA completed an Administrative Order Removal Response Action for The Peck Company, Inc. The administrative order required Peck Company, Inc., to complete a response action plan (RAP) (Ref. 4, p. 1, 6). Data collected from the RAP were used to characterize Source 1 (contaminated soil) in this HRS documentation record. The southern portion of Source 1 is located within an intertidal emergent wetland adjacent to Paradise Creek (Ref. 38; Ref. 41; Ref. 67). The wetland area is contaminated with PCBs and lead. As discussed in this HRS documentation record, this wetland area is a Level II sensitive environment and Paradise Creek is a human food chain fishery.

2.2 SOURCE CHARACTERIZATION

2.2.1 SOURCE IDENTIFICATION

Name of source: Contaminated Soil
Number of source: 1
Source type: Contaminated Soil

Source 1 includes areas of soil contaminated with PCBs and lead (see Tables 2, 3, 5, and 6 of this documentation record) as shown in Reference 38. The areas of contaminated soil include areas within the sampling grid where contaminated soil samples had been collected and analyzed, as documented in Tables 2, 3, 5 and 6 of this report. Reference 38 shows the grid locations from which all the soil samples were collected. Soil samples were collected from every grid; shaded grids are those grids containing contaminated soil.

Soil samples were collected in response to an Administrative Order between EPA and Peck Company, Inc. Peck Company, Inc., the owner of the Peck Iron facility, hired an environmental consultant to collect soil samples from the Peck Iron property in accordance with the EPA Region III Administrative Order for Removal Response Action (EPA Docket No. CERC-03-2007-0075DC) dated January 11, 2007 (Ref. 4; Ref. 3, p. 1). In accordance with the order, the environmental consultant prepared a RAP to implement an extent of contamination study to characterize concentrations of arsenic, cadmium, chromium, lead, mercury, nickel, silver, and PCBs on the Peck Iron property. A field sampling plan (FSP) and quality assurance project plan (QAPP) were also prepared (Ref. 3, p. 1). The contractors prepared the Extent of Contamination Study Report documenting the sampling investigation (Ref. 40).

The RAP identified data gaps remaining from previous site characterizations conducted for the property and presented a plan to collect additional data. The RAP included collection of soil samples from the Peck Iron property using a 50 by 50-foot grid (Ref. 3, pp. 12, 13, 15, 16). In 2007, soil samples were collected from Peck Iron as proposed in the RAP. The soil sample analytical results identified PCB- and lead-contaminated soil as shown in Tables 2, 3, 5, and 6 of this documentation record. The soil contamination was the result of processing scrap materials containing cadmium (automobile parts); PCBs (originating from insulated wire, gaskets, fluorescent lights, and transformer oils); and lead (generated from scrapped bridge sections and automobile batteries) (Ref. 4, p. 3; Ref. 32, p. 5). The analytical results for the soil samples collected during the response action investigation are used to characterize Source 1.

Numerous environmental investigations had been conducted on the Peck Iron property prior to the response action investigation. Previous investigations identified high concentrations of PCBs and metals—in particular lead—in surficial soils. The highest concentrations of PCBs and lead were detected in the southern portion of the property. The majority of the property contains soil with lead levels up to 1,000 mg/kg; a small area of soil in the southern portion has lead exceeding 10,000 mg/kg. In early 2005, an extensive PCB investigation was completed on the property. Samples were collected from nearly 21 acres of surficial soils (0 to 18 inches bgs) and from approximately 7 acres of soils at 18 to 36 inches bgs. Based on the investigations, PCB concentrations are estimated in surficial soils as follows: 11 acres – less than 10 mg/kg; 8 acres – between 10 to 100 mg/kg; and 2 acres – greater than 100 mg/kg. PCB concentrations in subsurface soils are estimated at a similar distribution: 4 acres – less than 10 mg/kg; 2 acres – between 10 to 100 mg/kg; and 1 acre – greater than 100 mg/kg (Ref. 3, pp. 3, 4, 6, 7). Reports documenting the above investigations were not available for review; however, the results are discussed and presented in Reference 3. The investigations are, therefore, not used to characterize Source 1.

Location of source, with reference to a map of the facility: Source 1 includes shaded grid areas shown in Reference 38.

Containment:

Release to ground water: The ground water migration pathway was not scored.

Release via overland migration and/or flood: As documented in Tables 2, 3, 5, and 6 of this report, surface and subsurface soil samples collected from Source 1 contain PCBs and lead. Descriptions of Source 1 do not identify or illustrate any containment structures (Ref. 40, pp. 1-2, 1-3, 1-4, 2-2, Figure 1-1, and Figure 2-1). Aerial photographs of Source 1 show distributed earth and no surface water containment structures (Ref. 40, Figure 1-1 and Figure 2-1). Surface runoff from Source 1 flows to the tidal marsh adjacent to Paradise Creek on the southern boundary of the property and Source 1 (Ref. 40, p. 3-1). Observations of site property indicate that surface water runoff from the entire area of Source 1 is not contained (Ref. 68). No maintained engineered cover or functioning and maintained runon control system and runoff management system are documented in Source 1. Therefore, the containment factor for the surface water migration pathway is assigned a value of 10 (Ref. 1, Table 4-2).

Gas release to air: The gas release to air migration pathway was not scored.

Particulate release to air: The particulate release to air migration pathway was not scored.

2.4 WASTE CHARACTERISTICS

2.4.1 HAZARDOUS SUBSTANCES

Source 1 is characterized using soil samples collected from the Peck Iron property during the extent of contamination study conducted in 2007. The soil samples were collected from a 50-foot by 50-foot grid, as shown in Figure 2-1 of Reference 40. The soil samples were analyzed for metals (arsenic, cadmium, chromium, lead, mercury, nickel, and silver) and PCBs. Metals were analyzed using EPA SW-846 Methods 6010/7471, and PCBs were analyzed using EPA SW-846 Method 8082. The laboratory analyses were conducted at a Level IV Contract Laboratory Program (CLP)-equivalent data quality that included quality assurance/quality control (QA/QC) samples such as laboratory control standards, matrix spike/matrix spike duplicates (MS/MSD), and surrogates (at a minimum).

The QAPP for the sample collection, documentation, and analysis is provided in Reference 8.

A 50 by 50-foot grid system was established on the site property, and soil samples were collected from soil borings installed at grid locations where samples previously had not been collected (Ref. 3, pp. 13, 14 and Figure 4). Soil samples were collected from each cell within the grid from two to three sample depths: surface and up to two subsurface depths. Surface depth was defined as 0 to 18 inches bgs. Subsurface depth was defined as the interval from 18 inches bgs to the top of the saturated zone where native material was present; subsurface soil samples were a composite of the subsurface soil located within that depth interval. If native material was present, only one subsurface soil sample was collected. If the interval consisted of fill, two subsurface soil samples were collected: one composite sample of the fill in the unsaturated zone and one composite sample of the fill from the top to the bottom of the fill layer in the saturated zone. A rig-mounted hollow stem auger was used to install the soil borings. If refusal was encountered more than four times during the drilling, an excavator was used to excavate a test pit (Ref. 3 pp. 16, 17; Ref. 7, pp. 7 to 10; Ref. 40, p. 2-2). (The source of the fill materials is not documented. Fill material is present at depths greater than 18 inches bgs [Ref. 40, Table 2-1]).

Soil samples collected from the southern portion of the property were collected using an excavator. Test pits were excavated in the southern portion of the property because of the large amount of debris on the surface and subsurface of the site (Ref. 40, p. 2-2).

The FSP for the 2007 extent of contamination study soil sampling event is in Reference 7. The QAPP is in Reference 8. The soil sampling procedures used at the Peck Iron site during this sampling event are outlined in the documents and sections listed below:
· FSP, Section 3.2.1 – Surface Soil Sampling (includes soil homogenization methods)
· FSP, Section 3.2.2 – Subsurface Soil Sampling
· FSP, Section 3.2.3 – Soil Sampling from Test Pits
· FSP, Section 3.6 – Sampling Equipment Decontamination Procedures
· FSP, Section 3.7 – Field QC Samples
· FSP, Section 4.1 – Sample Containers, Preservation, and Holding Times
· FSP, Section 4.2 – Sample Documentation
· FSP, Section 4.3 – Sample Chain-of-Custody
· FSP, Section 4.4 – Sampling Packaging and Shipment
· QAPP, Section 5.0 – Sample Management

Each soil sampling location was noted with a labeled marking flag and recorded by a global positioning system (GPS). All survey data were downloaded for plotting on a map. Section 3.5 of the FSP describes survey methodologies (Ref. 3, p. 17).

Each soil sample was assigned a unique sequential number at the time of sampling that was permanently affixed to the sample container with polyethylene tape to prevent the loss of the label during shipment. The sample label was filled out using indelible ink and included the following information:

· Project name
· Sample location/site ID
· Sampling date and time
· Analyses to be performed
· Preservative
· Sampler

The sample identifier written on the each sample label consisted of the media type (e.g., SS for surface soil), and a sequential sample number. For example, SS-9 would be the sample ID for surface soil sample no. 9 collected at the Peck Iron and Metal site (Ref. 7, p. 31, 32).

The soil samples were collected between April 26 and October 17, 2007. During these months, sampling was delayed numerous times because of equipment and operator scheduling conflicts, equipment failure, detection of unexploded ordinance (UXO), and UXO surveyor scheduling conflicts (Ref. 40, p. 2-2).

The analytical results from the 2007 investigation are used to characterize Source 1. The background soil samples were collected from locations in the northern portion of the Peck Iron property. Figures illustrating sampling locations and their corresponding PCB and lead analytical results indicate these northern site locations were not as impacted by facility operations (Ref. 38; Ref. 40, Figures 4-1, 4-2, 4-3, and 4-4). The sampling locations contaminated with PCBs and lead are within the area where the majority of facility operations were conducted (Ref. 32, p. 9). The background and source soil samples are similar because the samples (1) were collected using the same procedures as documented in the RAP, FSP, and QAPP (Refs. 3, 7, and 8); (2) were collected within the same timeframe and, therefore, the same weather conditions (Tables 2, 3, 5, and 6 of this documentation record); (3) were collected at locations with similar topography and land use (Ref. 3, Figure 4); (4) were analyzed using the same methods (Ref. 8); and (5) were collected from similar soil characteristics (Ref. 3, pp. 9, 10). A field logbook was used to document the sampling event (Ref. 7, p. 31). However, a copy of the logbook notes has not been provided to EPA.

The background and contaminated sampling locations are shown in References 37 and 38, respectively.

Table 1 shows background soil concentrations of PCBs. Tables 2 and 3 show soil concentrations of PCBs at Source 1. Table 4 shows background soil concentrations of lead. Tables 5 and 6 show soil concentrations of lead at Source 1.

TABLE 1
BACKGROUND SOIL SAMPLES
PCB ANALYTICAL RESULTS

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-118-0	Polychlorinated Biphenyls (PCB-1248)	38	U	9.3	05/09/2007	36, pp. 9, 49
SL-118-0	Polychlorinated Biphenyls (PCB-1254)	38	U	6.0	05/09/2007	36, pp. 9, 49
SL-118-0	Polychlorinated Biphenyls (PCB-1260)	38	U	7.4	05/09/2007	36, pp. 9, 49
SL-118-18	Polychlorinated Biphenyls (PCB-1248)	40	U	9.7	05/09/2007	36, pp. 10, 49
SL-118-18	Polychlorinated Biphenyls (PCB-1254)	40	U	6.3	05/09/2007	36, pp. 10, 49
SL-118-18	Polychlorinated Biphenyls (PCB-1260)	40	U	7.8	05/09/2007	36, pp. 10, 49
SL-D19-18	Polychlorinated Biphenyls (PCB-1248)	46	U	7.2	07/02/2007	14, pp. 11, 60
SL-D19-18	Polychlorinated Biphenyls (PCB-1254)	46	U	3.2	07/02/2007	14, pp. 11, 60
SL-D19-18	Polychlorinated Biphenyls (PCB-1260)	46	U	6.7	07/02/2007	14, pp. 11, 60
SL-Q22-18	Polychlorinated Biphenyls (PCB-1248)	42	U	6.4	09/20/2007	27, pp. 18, 53
SL-Q22-18	Polychlorinated Biphenyls (PCB-1254)	42	U	2.9	09/20/2007	27, pp. 18, 53
SL-Q22-18	Polychlorinated Biphenyls (PCB-1260)	42	U	6.0	09/20/2007	27, pp. 18, 53
SL-Y26-18	Polychlorinated Biphenyls (PCB-1248)	39	U	6.1	07/06/2007	31, pp. 10, 64
SL-Y26-18	Polychlorinated Biphenyls (PCB-1254)	39	U	2.7	07/06/2007	31, pp. 10, 64

TABLE 1
BACKGROUND SOIL SAMPLES
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-Y26-18	Polychlorinated Biphenyls (PCB-1260)	39	U	5.7	07/06/2007	31, pp. 10, 64
SL-Z26-18	Polychlorinated Biphenyls (PCB-1248)	38	U	5.9	09/10/2007	19, pp. 12, 59
SL-Z26-18	Polychlorinated Biphenyls (PCB-1254)	38	U	2.7	09/10/2007	19, pp. 12, 59
SL-Z26-18	Polychlorinated Biphenyls (PCB-1260)	38	U	5.6	09/10/2007	19, pp. 12, 59

Notes:

Sampling locations are shown in Reference 37. Soil sample SL-118-0 was collected from grid FF-14 (Ref. 54). Soil samples ending with a “0” are surface soil samples. Surface soil samples were collected from a depth 0 to 18 inches below ground surface (bgs). Soil samples ending with “18” are subsurface soil samples. Subsurface soil samples were collected from a depth interval from 18 inches bgs to the top of the saturated zone where native material was present (Ref. 3, p. 16). The center letter and number in the sample identification identify the location within the grid from which the sample was collected. For example, SL-Z26-18 was collected from cell Z26 within the soil sampling grid shown in Reference 37. The last number in the sample identification identifies the depth from which the sample was collected.

µg/kg Micrograms per kilogram
Conc. Concentration
MDL Method detection limit (The MDL on the data sheets are adjusted for percent moisture and dilution [Ref. 65].)
PCB Polychlorinated biphenyls
Q Laboratory data qualifier
SL Soil sample
U Not detected above the reporting limit, but may have been detected between the MDL and the reporting limit

TABLE 2
SOURCE 1 SURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-R15-0	Polychlorinated Biphenyls (PCB-1248	14,000	D	640	07/02/2007	14, pp. 17, 61
SL-R15-0	Polychlorinated Biphenyls (PCB-1254)	60,000	D	290	07/02/2007	14, pp. 17, 61
SL-R15-0	Polychlorinated Biphenyls (PCB-1260)	9,200	D	600	07/02/2007	14, pp. 16, 61
SL-S18-0	Polychlorinated Biphenyls (PCB-1248)	19,000		120	06/26/2007	10, pp. 17, 57
SL-S18-0	Polychlorinated Biphenyls (PCB-1254)	92,000	D	560	06/26/2007	10, pp. 18, 57
SL-S18-0	Polychlorinated Biphenyls (PCB-1260)	32,000	D	1,200	06/26/2007	10, pp. 18, 57
SL-T18-0	Polychlorinated Biphenyls (PCB-1254)	42,000	D	260	06/26/2007	10, pp. 23, 57
SL-T18-0	Polychlorinated Biphenyls (PCB-1260)	9,300	D	530	06/26/2007	10, pp. 23, 57
SL-Z17-0	Polychlorinated Biphenyls (PCB-1254)	680		2.6	06/27/2007	11, pp. 14, 56
SL-T13-0	Polychlorinated Biphenyls (PCB-1254)	4,500		13	07/03/2007	12, pp. 21, 72
SL-T13-0	Polychlorinated Biphenyls (PCB-1260)	3,500		26	07/03/2007	12, pp. 21, 72
SL-AA2-0	Polychlorinated Biphenyls (PCB-1254)	110		3.3	09/05/2007	18, pp. 18, 41
SL-AA3-0	Polychlorinated Biphenyls (PCB-1254)	1,500		3.8	09/05/2007	18, pp. 16, 41

TABLE 2 (Continued)
SOURCE 1 SURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-AA3-0	Polychlorinated Biphenyls (PCB-1260)	530		8	09/05/2007	18, pp. 16, 41
SL-AA4-0	Polychlorinated Biphenyls (PCB-1248)	4,100		31	09/05/2007	18, pp. 9, 41
SL-AA4-0	Polychlorinated Biphenyls (PCB-1254)	16,000	D	140	09/05/2007	18, pp. 10, 41
SL-AA4-0	Polychlorinated Biphenyls (PCB-1260)	10,000	D	290	09/05/2007	18, pp. 10, 41
SL-AA5-0	Polychlorinated Biphenyls (PCB-1248)	8,600	D	61	09/05/2007	18, pp. 8, 41
SL-AA5-0	Polychlorinated Biphenyls (PCB-1254)	8,600	D	28	09/05/2007	18, pp. 8, 41
SL-AA5-0	Polychlorinated Biphenyls (PCB-1260)	1,700		23	09/05/2007	18, pp. 7, 41
SL-AA19-0	Polychlorinated Biphenyls (PCB-1248)	8,300	D	570	06/28/2007	9, pp. 29, 115
SL-AA19-0	Polychlorinated Biphenyls (PCB-1254)	58,000	D	260	06/28/2007	9, pp. 29, 115
SL-AA19-0	Polychlorinated Biphenyls (PCB-1260)	9,100		54	06/28/2007	9, pp. 28, 115
SL-AA21-0	Polychlorinated Biphenyls (PCB-1248)	1,800		28	09/13/2007	21, pp. 13, 65
SL-AA21-0	Polychlorinated Biphenyls (PCB-1254)	8,400	D	50	09/13/2007	21, pp. 14, 65
SL-AA21-0	Polychlorinated Biphenyls (PCB-1260)	4,100		26	09/13/2007	21, pp. 13, 65

TABLE 2
SOURCE 1 SURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-BB5-0	Polychlorinated Biphenyls (PCB-1254)	1,600		5.6	09/05/2007	18, pp. 15, 41
SL-BB5-0	Polychlorinated Biphenyls (PCB-1260)	860		12	09/05/2007	18, pp. 15, 41
SL-BB18-0	Polychlorinated Biphenyls (PCB-1254)	2,200		7	06/28/2007	9, pp. 23, 115
SL-BB18-0	Polychlorinated Biphenyls (PCB-1260)	2,000		15	06/28/2007	9, pp. 23, 115
SL-BB22-0	Polychlorinated Biphenyls (PCB-1254)	440		2.6	06/28/2007	9, pp. 47, 116
SL-BB22-0	Polychlorinated Biphenyls (PCB-1260)	290		5.5	06/28/2007	9, pp. 47, 116
SL-CC4-0	Polychlorinated Biphenyls (PCB-1254)	320		4.9	09/05/2007	18, pp. 13, 41
SL-CC5-0	Polychlorinated Biphenyls (PCB-1248)	640		2.9	09/05/2007	17, pp. 7, 39
SL-CC5-0	Polychlorinated Biphenyls (PCB-1254)	310		6.1	09/05/2007	17, pp. 7, 39
SL-CC18-0	Polychlorinated Biphenyls (PCB-1248)	360		6.3	06/28/2007	9, pp. 12, 115
SL-CC18-0	Polychlorinated Biphenyls (PCB-1254)	650		2.8	06/28/2007	9, pp. 12, 115
SL-CC18-0	Polychlorinated Biphenyls (PCB-1260)	420		5.9	06/28/2007	9, pp. 12, 115
SL-CC19-0	Polychlorinated Biphenyls (PCB-1248)	6,000	D	140	06/28/2007	9, pp. 34, 115

TABLE 2
SOURCE 1 SURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-CC19-0	Polychlorinated Biphenyls (PCB-1254)	11,000	D	65	06/28/2007	9, pp. 34, 115
SL-CC19-0	Polychlorinated Biphenyls (PCB-1260)	3,200		22	06/28/2007	9, pp. 33, 115
SL-DD5-0	Polychlorinated Biphenyls (PCB-1254)	79		2.9	09/05/2007	17, pp. 8, 39
SL-DD6-0	Polychlorinated Biphenyls (PCB-1254)	150		4.2	09/05/2007	17, pp. 9, 39
SL-DD6-0	Polychlorinated Biphenyls (PCB-1260)	68		8.7	09/05/2007	17, pp. 9, 39
SL-DD18-0	Polychlorinated Biphenyls (PCB-1254)	300		2.5	06/28/2007	9, pp. 16, 115
SL-DD18-0	Polychlorinated Biphenyls (PCB-1260)	270		5.3	06/28/2007	9, pp. 16, 115
SL-DD20-0	Polychlorinated Biphenyls (PCB-1248)	740		5.8	06/28/2007	9, pp. 39, 116
SL-DD20-0	Polychlorinated Biphenyls (PCB-1254)	890		2.6	06/28/2007	9, pp. 39, 116
SL-DD20-0	Polychlorinated Biphenyls (PCB-1260)	680		5.4	06/28/2007	9, pp. 39, 116
SL-DD22-0	Polychlorinated Biphenyls (PCB-1254)	60		2.6	06/28/2007	9, pp. 43, 116
SL-DD22-0	Polychlorinated Biphenyls (PCB-1260)	46		5.3	06/28/2007	9, pp. 43, 116
SL-EE3-0	Polychlorinated Biphenyls (PCB-1260)	70		8.0	09/05/2007	17, pp. 14, 39

TABLE 2
SOURCE 1 SURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-EE4-0	Polychlorinated Biphenyls (PCB-1254)	84		3.2	09/05/2008	17, pp. 13, 39
SL-EE4-0	Polychlorinated Biphenyls (PCB-1260)	66		6.6	09/05/2008	17, pp. 13, 39
SL-EE5-0	Polychlorinated Biphenyls (PCB-1254)	130		7.7	09/05/2007	17, pp. 11, 39
SL-FF19-0	Polychlorinated Biphenyls (PCB-1248)	710		11	06/28/2007	9, pp. 51, 116
SL-FF19-0	Polychlorinated Biphenyls (PCB-1254)	3,300	D	13	06/28/2007	9, pp. 52, 116
SL-FF19-0	Polychlorinated Biphenyls (PCB-1260)	1,100		11	06/28/2007	9, pp. 51, 116
SL-GG8-0	Polychlorinated Biphenyls (PCB-1254)	300		8.6	09/04/2007	16, pp. 10, 44
SL-GG8-0	Polychlorinated Biphenyls (PCB-1260)	230		18	09/04/2007	16, pp. 10, 44
SL-GG9-0	Polychlorinated Biphenyls (PCB-1254)	180		5.2	09/04/2007	16, pp. 11, 44
SL-GG10-0	Polychlorinated Biphenyls (PCB-1254)	180		4.5	09/04/2007	16, pp. 12, 44
SL-GG12-0	Polychlorinated Biphenyls (PCB-1254)	510		10	09/04/2007	16, pp. 15, 44
SL-GG12-0	Polychlorinated Biphenyls (PCB-1260)	250		22	09/04/2007	16, pp. 15, 44
SL-HH10-0	Polychlorinated Biphenyls (PCB-1254)	160		4.3	09/04/2007	16, pp. 13, 44

TABLE 2 (Continued)
SOURCE 1 SURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-HH10-0	Polychlorinated Biphenyls (PCB1260)	74		9.1	09/04/2007	16, pp. 13, 44
SL-HH11-0	Polychlorinated Biphenyls (PCB-1254)	900		12	09/04/2007	16, pp. 14, 44
SL-HH11-0	Polychlorinated Biphenyls (PCB1260)	620		26	09/04/2007	16, pp. 14, 44
SL-HH12-0	Polychlorinated Biphenyls (PCB-1254)	1,400		10	09/04/2007	16, pp. 16, 44
SL-HH12-0	Polychlorinated Biphenyls (PCB-260)	940		21	09/04/2007	16, pp. 16, 44
SL-HH13-0	Polychlorinated Biphenyls (PCB-1254)	500		14	09/04/2007	16, pp. 17, 34
SL-HH13-0	Polychlorinated Biphenyls (PCB-1260)	210		29	09/04/2007	16, pp. 17, 34
SL-HH23-0	Polychlorinated Biphenyls (PCB-1254)	8,200	D	51	06/28/2007	9, pp. 60, 116
SL-HH23-0	Polychlorinated Biphenyls (PCB-1260)	7,200	D	110	06/28/2007	9, pp. 60, 116
SL-106-0 (grid HH-17)	Polychlorinated Biphenyls (PCB-1254)	1,100		8.2	05/09/2007	55, pp. 10, 67; 54, p. 3
SL-106-0 (grid HH-17)	Polychlorinated Biphenyls (PCB-1260)	500		10	05/09/2007	55, pp. 10, 67; 54, p. 3
SL-107-0 (grid GG-17)	Polychlorinated Biphenyls (PCB-1254)	9,400	D	300	05/09/2007	55, pp. 13, 67; 54, p. 3

TABLE 2
SOURCE 1 SURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-107-0 (grid GG-17)	Polychlorinated Biphenyls (PCB-1260)	18,000	D	370	05/09/2007	55, pp. 13, 67; 54, p. 3
SL-108-0 (grid FF-16)	Polychlorinated Biphenyls (PCB-1254)	2,000		31	05/09/2007	55, pp. 15, 67; 54, p. 3
SL-108-0 (grid FF-16)	Polychlorinated Biphenyls (PCB-1260)	900		38	05/09/2007	55, pp. 15, 67; 54, p. 3
SL-109-0 (grid GG-16)	Polychlorinated Biphenyls (PCB-1254)	8,700		64	05/09/2007	55, pp. 17, 67; 54, p. 3
SL-109-0 (grid GG-16)	Polychlorinated Biphenyls (PCB-1260)	5,000		79	05/09/2007	55, pp. 17, 67; 54, p. 3
SL-110-0 (grid HH-16)	Polychlorinated Biphenyls (PCB-1254)	1,400	D	32	05/09/2007	55, pp. 20, 67; 54, p. 3
SL-110-0 (grid HH-16)	Polychlorinated Biphenyls (PCB-1260)	1,800	D	40	05/09/2007	55, pp. 20, 67; 54, p. 3
SL-111-0 (grid HH-15)	Polychlorinated Biphenyls (PCB-1254)	750		8.2	05/09/2007	55, pp. 22, 67; 54, p. 3
SL-111-0 (grid HH-15)	Polychlorinated Biphenyls (PCB-1260)	230		10	05/09/2007	55, pp. 22, 67; 54, p. 3
SL-112-0 (grid GG-15)	Polychlorinated Biphenyls (PCB-1254)	110		6.0	05/09/2007	55, pp. 24, 68; 54, p. 3
SL-113-0 (grid FF-15)	Polychlorinated Biphenyls (PCB-1254)	490		12	05/09/2007	55, pp. 30, 68; 54, p. 3
SL-113-0 (grid FF-15)	Polychlorinated Biphenyls (PCB-1260)	520		14	05/09/2007	55, pp. 30, 68; 54, p. 3
SL-114-0 (grid EE-15)	Polychlorinated Biphenyls (PCB-1248)	440		18	05/09/2007	55, pp. 26, 68; 54, p. 3
SL-114-0 (grid EE-15)	Polychlorinated Biphenyls (PCB-1254)	1,600		12	05/09/2007	55, pp. 26, 68; 54, p. 3

TABLE 2
SOURCE 1 SURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-114-0 (grid EE-15)	Polychlorinated Biphenyls (PCB-1260)	960		15	05/09/2007	55, pp. 26, 68; 54, p. 3
SL-120-0 (grid HH-14)	Polychlorinated Biphenyls (PCB-1254)	600		8.4	05/11/2007	49, pp. 15, 61; 54, p. 3
SL-120-0 (grid HH-14)	Polychlorinated Biphenyls (PCB-1260)	300		10	05/11/2007	49, pp. 15, 61; 54, p. 3
SL-121-0 (grid EE-13)	Polychlorinated Biphenyls (PCB-1254)	1,000		11	05/10/2007	35, pp. 21, 90; 54, p. 3
SL-121-0 (grid EE-13)	Polychlorinated Biphenyls (PCB-1260)	410		14	05/10/2007	35, pp. 21, 90; 54, p. 3
SL-123-0 (grid CC-12)	Polychlorinated Biphenyls (PCB-1248)	1,800		37	05/10/2007	35, pp. 23, 90; 54, p. 3
SL-123-0 (grid CC-12)	Polychlorinated Biphenyls (PCB-1254)	3,700		24	05/10/2007	35, pp. 23, 90; 54, p. 3
SL-123-0 (grid CC-12)	Polychlorinated Biphenyls (PCB-1260)	2,000		29	05/10/2007	35, pp. 23, 90; 54, p. 3
SL-124-0 (grid DD-12)	Polychlorinated Biphenyls (PCB-1248)	3,900		37	05/10/2007	35, pp. 27, 90; 54, p. 3
SL-124-0 (grid DD-12)	Polychlorinated Biphenyls (PCB-1254)	3,300		24	05/10/2007	35, pp. 27, 90; 54, p. 3
SL-124-0 (grid DD-12)	Polychlorinated Biphenyls (PCB-1260)	2,300		29	05/10/2007	35, pp. 27, 90; 54, p. 3
SL-125-0 (grid EE-12)	Polychlorinated Biphenyls (PCB-1248)	5,800	D	93	05/10/2007	35, pp. 30, 90; 54, p. 3
SL-125-0 (grid EE-12)	Polychlorinated Biphenyls (PCB-1254)	6,100	D	60	05/10/2007	35, pp. 30, 90; 54, p. 3
SL-125-0 (grid EE-12)	Polychlorinated Biphenyls (PCB-1260)	1,300	D	74	05/10/2007	35, pp. 30, 90; 54, p. 3

TABLE 2
SOURCE 1 SURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-126-0 (grid CC-11)	Polychlorinated Biphenyls (PCB-1254)	6,700	D	61	05/10/2007	35, pp. 34, 90; 54, p. 3
SL-126-0 (grid CC-11)	Polychlorinated Biphenyls (PCB-1260)	3,000	D	75	05/10/2007	35, pp. 34, 90; 54, p. 3
SL-127-0 (grid BB-11)	Polychlorinated Biphenyls (PCB-1248)	1,500		35	05/10/2007	35, pp. 12, 89; 54, p. 3
SL-127-0 (grid BB-11)	Polychlorinated Biphenyls (PCB-1254)	3,700		23	05/10/2007	35, pp. 12, 89; 54, p. 3
SL-127-0 (grid BB-11)	Polychlorinated Biphenyls (PCB-1260)	1,600		28	05/10/2007	35, pp. 12, 89; 54, p. 3
SL-128-0 (grid AA-11)	Polychlorinated Biphenyls (PCB-1254)	3,400		24	05/10/2007	35, pp. 36, 91; 54, p. 3
SL-128-0 (grid AA-11)	Polychlorinated Biphenyls (PCB-1260)	950		30	05/10/2007	35, pp. 36, 91; 54, p. 3
SL-130-0 (grid BB-10)	Polychlorinated Biphenyls (PCB-1248)	860		36	05/10/2007	35, pp. 14, 89; 54, p. 3
SL-130-0 (grid BB-10)	Polychlorinated Biphenyls (PCB-1254)	3,700		23	05/10/2007	35, pp. 14, 89; 54, p. 3
SL-130-0 (grid BB-10)	Polychlorinated Biphenyls (PCB-1260)	1,200		28	05/10/2007	35, pp. 14, 89; 54, p. 3
SL-131-0 (grid AA-9)	Polychlorinated Biphenyls (PCB-1248)	1,200		44	05/10/2007	35, pp. 38, 91; 54, p. 3
SL-131-0 (grid AA-9)	Polychlorinated Biphenyls (PCB-1254)	3,200		28	05/10/2007	35, pp. 38, 91; 54, p. 3
SL-131-0 (grid AA-9)	Polychlorinated Biphenyls (PCB-1260)	1,600		35	05/10/2007	35, pp. 38, 91; 54, p. 3
SL-133-0 (grid BB-8)	Polychlorinated Biphenyls (PCB-1254)	610		12	05/10/2007	35, pp. 16, 89; 54, p. 3

TABLE 2
SOURCE 1 SURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-133-0 (grid BB-8)	Polychlorinated Biphenyls (PCB-1260)	390		14	05/10/2007	35, pp. 16, 89; 54, p. 3
SL-133-0 (grid BB-8)	Polychlorinated Biphenyls (PCB-1268)	210		25	05/10/2007	35, pp. 16, 89; 54, p. 3
SL-134-0 (grid AA-8)	Polychlorinated Biphenyls (PCB-1260)	240		5.6	05/10/2007	35, pp. 19, 89; 54, p. 3
SL-134-0 (grid AA-8)	Polychlorinated Biphenyls (PCB-1268)	200		6.9	05/10/2007	35, pp. 19, 89; 54, p. 3
SL-135-0 (grid GG-13)	Polychlorinated Biphenyls (PCB-1254)	730		9.4	05/11/2007	49, pp. 16, 61; Ref. 54, p. 3
SL-135-0 (grid GG-13)	Polychlorinated Biphenyls (PCB-1260)	620		12	05/11/2007	49, pp. 16, 61; Ref. 54, p. 3
SL-136-0 (grid FF-13)	Polychlorinated Biphenyls (PCB-1254)	1,300		14	05/11/2007	49, pp. 17, 61; Ref. 54, p. 3
SL-136-0 (grid FF-13)	Polychlorinated Biphenyls (PCB-1260)	300		17	05/11/2007	49, pp. 17, 61; Ref. 54, p. 3
SL-137-0 (grid FF-12)	Polychlorinated Biphenyls (PCB-1260)	1,800	D	100	05/11/2007	49, pp. 21, 61; Ref. 54, p. 3
SL-138-0 (grid EE-11)	Polychlorinated Biphenyls (PCB-1254)	8,000	D	80	05/11/2007	49, pp. 24, 61; 54, p. 3
SL-138-0 (grid EE-11)	Polychlorinated Biphenyls (PCB-1260)	2,700	D	98	05/11/2007	49, pp. 24, 61; 54, p. 3
SL-139-0 (grid EE-10)	Polychlorinated Biphenyls (PCB-1254)	62,000	D	810	05/11/2007	49, pp. 26, 61; 54, p. 3
SL-139-0 (grid EE-10)	Polychlorinated Biphenyls (PCB-1260)	14,000	D	990	05/11/2007	49, pp. 26, 61, 60; 54, p. 3
SL-140-0 (grid DD-10)	Polychlorinated Biphenyls (PCB-1254)	2,400		26	05/11/2007	49, pp. 27, 61; 54, p. 3

TABLE 2
SOURCE 1 SURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-140-0 (grid DD-10)	Polychlorinated Biphenyls (PCB-1260)	660		32	05/11/2007	49, pp. 27, 61; 54, p. 3
SL-141-0 (grid CC-9)	Polychlorinated Biphenyls (PCB-1254)	3,900		30	05/11/2007	49, pp. 12, 60; 54, p. 4
SL-142-0 (grid DD-9)	Polychlorinated Biphenyls (PCB-1254)	430		9.9	05/11/2007	49, pp. 13, 60; 54, p. 4
SL-142-0 (grid DD-9)	Polychlorinated Biphenyls (PCB-1260)	160		12	05/11/2007	49, pp. 13, 60; 54, p. 4
157-0 (grid GG-26)	Polychlorinated Biphenyls (PCB-1248)	1,700		31	05/29/2008	39, pp. 10, 48; 54, p. 4
157-0 (grid GG-26)	Polychlorinated Biphenyls (PCB-1260)	900		38	05/29/2008	39, pp. 10, 48; 54, p. 4
158-0 (grid FF-26)	Polychlorinated Biphenyls (PCB-1254)	1,900		64	05/29/2008	39, pp. 13, 48; 54, p. 4
158-0 (grid FF-26)	Polychlorinated Biphenyls (PCB-1260)	1,100		78	05/29/2008	39, pp. 13, 48; 54, p. 4
159-0 (grid EE-26)	Polychlorinated Biphenyls (PCB-1260)	1,600		35	05/29/2008	39, pp. 15, 48; 54, p. 4
161-0 (grid CC-26)	Polychlorinated Biphenyls (PCB-1254)	3,300		120	05/29/2007	34, pp. 8, 30; 54, p. 4
161-0 (grid CC-26)	Polychlorinated Biphenyls (PCB-1260)	2,800		140	05/29/2007	34, pp. 8, 30; 54, p. 4
162-0 (grid BB-26)	Polychlorinated Biphenyls (PCB-1254)	670		6.6	05/29/2007	34, pp. 9, 30; 54, p. 4
162-0 (grid BB-26)	Polychlorinated Biphenyls (PCB-1260)	150		8.1	05/29/2007	34, pp. 9, 30; 54, p. 4
163-0 (grid AA-26)	Polychlorinated Biphenyls (PCB-1254)	8,500		110	05/29/2007	34, pp. 11, 30; 54, p. 4

TABLE 2
SOURCE 1 SURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
163-0 (grid AA-26)	Polychlorinated Biphenyls (PCB-1260)	1,200		140	05/29/2007	34, pp. 11, 30; 54, p. 4

Notes:

Sampling locations are shown in Reference 38. Soil samples ending with a "0" are surface soil samples. Surface soil samples were collected from a depth 0 to 18 inches (bgs) below ground surface (Ref. 3, p. 16). The center letter and number in the sample identification identify the location within the grid from which the sample was collected. For example, SL-HH23-0 was collected from cell HH23 within the soil sampling grid shown in Reference 38. The last number in the sample identification identifies the depth from which the sample was collected.

µg/kg Micrograms per kilogram
Conc. Concentration
D Analyzed at a dilution
MDL Method detection limit (The MDL on the data sheets are adjusted for percent moisture and dilution [Ref. 65].)
PCB Polychlorinated biphenyls
Q Laboratory data qualifier
SL Soil sample

TABLE 3
SOURCE 1 SUBSURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-G18-18	Polychlorinated Biphenyls (PCB-1254)	590		2.9	06/29/2007	12, pp. 14, 70
SL-G18-18	Polychlorinated Biphenyls (PCB-1260)	890		6.0	06/29/2007	12, pp. 14, 70
SL-G18-18	Polychlorinated Biphenyls (PCB-1268)	350		4.0	06/29/2007	12, pp. 14, 70
SL-H20-18	Polychlorinated Biphenyls (PCB-1254)	5,900		26	06/29/2007	12, pp. 16, 70
SL-H20-18	Polychlorinated Biphenyls (PCB-1260)	1,700		54	06/29/2007	12, pp. 16, 70
SL-J18-18	Polychlorinated Biphenyls (PCB-1254)	13,000	D	55	06/26/2007	10, pp. 10, 58
SL-I22-18	Polychlorinated Biphenyls (PCB-1254)	97		2.8	06/26/2007	10, pp. 12, 58
SL-M21-18	Polychlorinated Biphenyls (PCB-1254)	290		2.8	06/26/2007	10, pp. 14, 58
SL-M21-18	Polychlorinated Biphenyls (PCB-1260)	46		5.8	06/26/2007	10, pp. 14, 58
SL-N18-18	Polychlorinated Biphenyls (PCB-1248)	720		12	06/26/2007	10, pp. 16, 58
SL-N18-18	Polychlorinated Biphenyls (PCB-1254)	1,800		5.6	06/26/2007	10, pp. 16, 58
SL-015-18	Polychlorinated Biphenyls (PCB-1248)	500		13	06/29/2007	12, pp. 12, 70

TABLE 3
SOURCE 1 SUBSURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-015-18	Polychlorinated Biphenyls (PCB-1254)	3,500	D	14	06/29/2007	12, pp. 13, 70
SL-015-18	Polychlorinated Biphenyls (PCB-1260)	730	D	30	06/29/2007	12, pp. 13, 70
SL-P22-18	Polychlorinated Biphenyls (PCB-1254)	550		3.1	06/26/2007	10, pp. 15, 58
SL-P22-18	Polychlorinated Biphenyls (PCB-1260)	340		6.5	06/26/2007	10, pp. 15, 58
SL-Q16-18	Polychlorinated Biphenyls (PCB-1254)	590,000	D	3,200	06/27/2007	11, pp.10, 55
SL-Q16-18	Polychlorinated Biphenyls (PCB-1260)	110,000	D	6,700	06/27/2007	11, pp. 10, 55
SL-R13-18	Polychlorinated Biphenyls (PCB-1260)	160,000	D	5,700	07/3/2007	12, pp. 20, 72
SL-R15-18	Polychlorinated Biphenyls (PCB-1248)	11,000	D	290	07/2/2007	14, pp. 21, 61
SL-R15-18	Polychlorinated Biphenyls (PCB-1254)	26,000	D	130	07/2/2007	14, pp. 21, 61
SL-R15-18	Polychlorinated Biphenyls (PCB-1260)	8,500	D	190	07/2/2007	14, pp. 21, 61
SL-S12-18	Polychlorinated Biphenyls (PCB-1248)	760		7.0	06/27/2007	11, pp. 13, 55
SL-S12-18	Polychlorinated Biphenyls (PCB-1254)	300		3.1	06/27/2007	11, pp. 13, 55
SL-S12-18	Polychlorinated Biphenyls (PCB-1260)	260		6.6	06/27/2007	11, pp. 13, 55
SL-S18-18	Polychlorinated Biphenyls (PCB-1254)	760		3.8	06/26/2007	10, pp. 21, 57

TABLE 3
SOURCE 1 SUBSURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-S21-18	Polychlorinated Biphenyls (PCB-1260)	100		7.6	09/21/2007	28, pp. 7, 23
SL-S21-18	Polychlorinated Biphenyls (PCB-1254)	480		3.6	09/21/2007	28, pp. 7, 23
SL-T13-18	Polychlorinated Biphenyls (PCB-1248)	3,700		58	07/3/2007	12, pp. 22, 72
SL-T13-18	Polychlorinated Biphenyls (PCB-1254)	8,800		26	07/3/2007	12, pp. 22, 72
SL-T13-18	Polychlorinated Biphenyls (PCB-1260)	5,300		54	07/3/2007	12, pp. 22, 72
SL-T20-18	Polychlorinated Biphenyls (PCB-1254)	98		3.0	07/3/2007	13, pp. 6, 31
SL-V9-18	Polychlorinated Biphenyls (PCB-1254)	31,000		150	07/9/2007	15, pp. 16, 59
SL-V9-18	Polychlorinated Biphenyls (PCB-1260)	38,000		320	07/9/2007	15, pp. 16, 59
SL-U10-18	Polychlorinated Biphenyls (PCB-1248)	27,000	D	410	07/9/2007	15, pp. 10, 58
SL-U10-18	Polychlorinated Biphenyls (PCB-1254)	54,000	D	180	07/9/2007	15, pp. 10, 58
SL-U10-18	Polychlorinated Biphenyls (PCB-1260)	20,000	D	380	07/9/2007	15, pp. 10, 58
SL-U14-18	Polychlorinated Biphenyls (PCB-1248)	380		6.6	06/27/2007	11, pp. 18, 55
SL-U14-18	Polychlorinated Biphenyls (PCB-1254)	480		3.0	06/27/2007	11, pp. 18, 55
SL-U14-18	Polychlorinated Biphenyls (PCB-1260)	210		6.2	06/27/2007	11, pp. 18, 55

TABLE 3
SOURCE 1 SUBSURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-U16-18	Polychlorinated Biphenyls (PCB-1254)	4,900		16	07/6/2007	31, pp. 20, 65
SL-U22-18	Polychlorinated Biphenyls (PCB-1254)	380		7.1	09/20/2007	27, pp. 11, 52
SL-U22-18	Polychlorinated Biphenyls (PCB-1260)	830		15	09/20/2007	27, pp. 11, 52
SL-W5-18	Polychlorinated Biphenyls (PCB-1248)	2,200		150	09/20/2007	27, pp. 9, 52
SL-W5-18	Polychlorinated Biphenyls (PCB-1254)	8,700		69	09/20/2007	27, pp. 9, 52
SL-W5-18	Polychlorinated Biphenyls (PCB-1260)	4,600		140	09/20/2007	27, pp. 9, 52
SL-W6-18	Polychlorinated Biphenyls (PCB-1248)	2,400		62	09/20/2007	27, pp. 10, 52
SL-W6-18	Polychlorinated Biphenyls (PCB-1254)	9,100		28	09/20/2007	27, pp. 10, 52
SL-W6-18	Polychlorinated Biphenyls (PCB-1260)	3,400		58	09/20/2007	27, pp. 10, 52
SL-W7-18	Polychlorinated Biphenyls (PCB-1254)	13,000	D	62	07/9/2007	15, pp. 18, 59
SL-W7-18	Polychlorinated Biphenyls (PCB-1260)	5,000	D	130	07/9/2007	15, pp. 18, 59
SL-W18-18	Polychlorinated Biphenyls (PCB-1254)	310		2.7	09/17/2007	23, pp. 16, 70
SL-W18-18	Polychlorinated Biphenyls (PCB-1260)	190		5.6	09/17/2007	23, pp. 16, 70
SL-W19-18	Polychlorinated Biphenyls (PCB-1254)	820		5.9	09/13/2007	21, pp. 23, 66

TABLE 3
SOURCE 1 SUBSURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-W19-18	Polychlorinated Biphenyls (PCB-1260)	350		12	09/13/2007	21, pp. 23, 66
SL-X21-18	Polychlorinated Biphenyls (PCB-1248)	55		6.1	09/13/2007	21, pp. 21, 65
SL-X21-18	Polychlorinated Biphenyls (PCB-1254)	120		2.8	09/13/2007	21, pp. 21, 65
SL-X5-18	Polychlorinated Biphenyls (PCB-1254)	12,000	D	51	07/9/2007	15, pp. 22, 59
SL-X5-18	Polychlorinated Biphenyls (PCB-1260)	2,800	D	110	07/9/2007	15, pp. 22, 59
SL-X18-18	Polychlorinated Biphenyls (PCB-1254)	310		3.4	09/17/2007	23, pp. 23, 70
SL-X18-18	Polychlorinated Biphenyls (PCB-1260)	110		7.1	09/17/2007	23, pp. 23, 70
SL-Y12-18	Polychlorinated Biphenyls (PCB-1254)	1,500		5.5	07/6/2007	31, pp. 19, 65
SL-Y12-18	Polychlorinated Biphenyls (PCB-1260)	540		11	07/6/2007	31, pp. 19, 65
SL-Y14-18	Polychlorinated Biphenyls (PCB-1254)	450		2.8	09/19/2007	25, pp. 8, 25
SL-Y14-18	Polychlorinated Biphenyls (PCB-1260)	290		5.7	09/19/2007	25, pp. 8, 25
SL-Y15-18	Polychlorinated Biphenyls (PCB-1254)	860		5.5	09/19/2007	24, pp. 14, 58
SL-Y15-18	Polychlorinated Biphenyls (PCB-1260)	550		12	09/19/2007	24, pp. 14, 58
SL-Y18-18	Polychlorinated Biphenyls (PCB-1248)	190		7.5	09/17/2007	23, pp. 15, 70

**TABLE 3
SOURCE 1 SUBSURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)**

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-Y18-18	Polychlorinated Biphenyls (PCB-1254)	1,200		3.4	09/17/2007	23, pp. 15, 70
SL-Y21-18	Polychlorinated Biphenyls (PCB-1254)	120		2.8	09/13/2007	21, pp. 20, 65
SL-Y21-18	Polychlorinated Biphenyls (PCB-1260)	120		5.7	09/13/2007	21, pp. 20, 65
SL-Z12-18	Polychlorinated Biphenyls (PCB-1254)	69		2.8	09/19/2007	24, pp. 19, 59
SL-Z13-18	Polychlorinated Biphenyls (PCB-1254)	950		11	09/19/2007	24, pp. 20, 59
SL-Z13-18	Polychlorinated Biphenyls (PCB-1260)	970		23	09/19/2007	24, pp. 20, 59
SL-Z14-18	Polychlorinated Biphenyls (PCB-1254)	290		2.8	09/19/2007	25, pp. 7, 25
SL-Z18-18	Polychlorinated Biphenyls (PCB-1260)	450		5.8	09/17/2007	23, pp. 19, 72
SL-Z19-18	Polychlorinated Biphenyls (PCB-1254)	990		3.5	09/17/2007	23, pp. 13, 70
SL-Z19-18	Polychlorinated Biphenyls (PCB-1260)	620		7.3	09/17/2007	23, pp. 13, 70
SL-Z20-18	Polychlorinated Biphenyls (PCB-1254)	680		3.5	07/05/2007	30, pp. 9, 48
SL-Z20-18	Polychlorinated Biphenyls (PCB-1260)	260		7.3	07/05/2007	30, pp. 9, 48
SL-Z21-18	Polychlorinated Biphenyls (PCB-1254)	950		3.5	09/13/2007	21, pp. 19, 65

TABLE 3
SOURCE 1 SUBSURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-Z21-18	Polychlorinated Biphenyls (PCB-1260)	430		7.2	09/13/2007	21, pp. 19, 65
SL-Z22-18	Polychlorinated Biphenyls (PCB-1254)	220		2.8	09/12/2007	20, pp. 21, 65
SL-Z22-18	Polychlorinated Biphenyls (PCB-1260)	160		5.8	09/12/2007	20, pp. 21, 65
SL-Z25-18	Polychlorinated Biphenyls (PCB-1254)	54		2.6	09/12/2007	20, pp. 16, 65
SL-Z25-18	Polychlorinated Biphenyls (PCB-1260)	43		5.5	09/12/2007	20, pp. 16, 65
SL-AA12-18	Polychlorinated Biphenyls (PCB-1248)	300		6.7	09/18/2007	26, pp. 14, 58
SL-AA12-18	Polychlorinated Biphenyls (PCB-1254)	320		3.0	09/18/2007	26, pp. 14, 58
SL-AA13-18	Polychlorinated Biphenyls (PCB-1254)	430		3.5	09/18/2007	26, pp. 16, 58
SL-AA13-18	Polychlorinated Biphenyls (PCB-1260)	180		7.3	09/18/2007	26, pp. 16, 58
SL-AA14-18	Polychlorinated Biphenyls (PCB-1254)	2,900		32	09/19/2007	25, pp. 6, 25
SL-AA14-18	Polychlorinated Biphenyls (PCB-1260)	920		66	09/19/2007	25, pp. 6, 25
SL-AA17-18	Polychlorinated Biphenyls (PCB-1260)	110		5.8	09/17/2007	23, pp. 21, 71
SL-AA18-18	Polychlorinated Biphenyls (PCB-1260)	520		5.6	09/17/2007	23, pp. 22, 71
SL-AA19-18	Polychlorinated Biphenyls (PCB-1254)	150		2.7	06/28/2007	9, pp. 31, 115

TABLE 3
SOURCE 1 SUBSURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-AA-20-18	Polychlorinated Biphenyls (PCB-1248)	4,000	D	62	09/17/2007	23, pp. 12, 72
SL-AA-20-18	Polychlorinated Biphenyls (PCB-1260)	1,400	D	58	09/17/2007	23, pp. 12, 72
SL-AA21-18	Polychlorinated Biphenyls (PCB-1254)	170		2.8	09/13/2007	21, pp. 17, 65
SL-AA23-18	Polychlorinated Biphenyls (PCB-1248)	240		13	09/12/2007	20, pp. 20, 65
SL-AA23-18	Polychlorinated Biphenyls (PCB-1254)	1,000		5.8	09/12/2007	20, pp. 20, 65
SL-AA23-18	Polychlorinated Biphenyls (PCB-1260)	600		12	09/12/2007	20, pp. 20, 65
SL-AA24-18	Polychlorinated Biphenyls (PCB-1254)	310		2.7	09/12/2007	20, pp. 17, 65
SL-AA24-18	Polychlorinated Biphenyls (PCB-1260)	85		5.6	09/12/2007	20, pp. 17, 65
SL-AA25-18	Polychlorinated Biphenyls (PCB-1260)	88		6.1	09/11/2007	29, pp. 15, 55
SL-BB12-18	Polychlorinated Biphenyls (PCB-1248)	1,600		58	09/18/2007	24, pp. 13, 57
SL-BB12-18	Polychlorinated Biphenyls (PCB-1254)	6,400		26	09/18/2007	24, pp. 13, 57
SL-BB12-18	Polychlorinated Biphenyls (PCB-1260)	3,500		55	09/18/2007	24, pp. 13, 57
SL-BB13-18	Polychlorinated Biphenyls (PCB-1254)	430		3.3	09/18/2007	26, pp. 11, 58
SL-BB13-18	Polychlorinated Biphenyls (PCB-1260)	83		6.8	09/18/2007	26, pp. 11, 58

TABLE 3
SOURCE 1 SUBSURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-BB14-18	Polychlorinated Biphenyls (PCB-1248)	160		12	09/18/2007	26, pp. 12, 58
SL-BB14-18	Polychlorinated Biphenyls (PCB-1254)	1,000		5.3	09/18/2007	26, pp. 12, 58
SL-BB14-18	Polychlorinated Biphenyls (PCB-1260)	610		11	09/18/2007	26, pp. 12, 58
SL-BB17-18	Polychlorinated Biphenyls (PCB-1254)	83		2.7	09/18/2007	26, pp. 19, 59
SL-BB17-18	Polychlorinated Biphenyls (PCB-1260)	62		5.7	09/18/2007	26, pp. 19, 59
SL-BB18-18	Polychlorinated Biphenyls (PCB-1254)	720,000		2,900	06/28/2007	9, pp. 25, 115
SL-BB18-18	Polychlorinated Biphenyls (PCB-1260)	1,100,000	D	24,000	06/28/2007	9, pp. 26, 115
SL-BB20-18	Polychlorinated Biphenyls (PCB-1254)	250		2.6	07/5/2007	30, pp. 13, 48
SL-BB20-18	Polychlorinated Biphenyls (PCB-1260)	63		5.4	07/5/2007	30, pp. 13, 48
SL-BB21-18	Polychlorinated Biphenyls (PCB-1254)	100		2.8	09/12/2007	21, pp. 12, 65
SL-BB25-18	Polychlorinated Biphenyls (PCB-1254)	51		2.7	09/11/2007	29, pp. 18, 56
SL-BB25-18	Polychlorinated Biphenyls (PCB-1260)	44		5.7	09/11/2007	29, pp. 18, 56
SL-CC19-18	Polychlorinated Biphenyls (PCB-1248)	9,500	D	170	06/28/2007	9, pp. 37, 116
SL-CC19-18	Polychlorinated Biphenyls (PCB-1254)	19,000	D	77	06/28/2007	9, pp. 37, 116

TABLE 3
SOURCE 1 SUBSURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-CC19-18	Polychlorinated Biphenyls (PCB-1260)	7,000	D	160	06/28/2007	9, pp. 37, 116
SL-CC20-18	Polychlorinated Biphenyls (PCB-1248)	7,600	D	580	09/14/2007	22, pp. 18, 75
SL-CC20-18	Polychlorinated Biphenyls (PCB-1254)	22,000	D	260	09/14/2007	22, pp. 18, 75
SL-CC20-18	Polychlorinated Biphenyls (PCB-1260)	8,800	D	550	09/14/2007	22, pp. 18, 75
SL-CC21-18	Polychlorinated Biphenyls (PCB-1248)	590		30	09/12/2007	20, pp. 15, 64
SL-CC21-18	Polychlorinated Biphenyls (PCB-1254)	2,200		14	09/12/2007	20, pp. 15, 64
SL-CC21-18	Polychlorinated Biphenyls (PCB-1260)	1,400		28	09/12/2007	20, pp. 15, 64
SL-CC23-18	Polychlorinated Biphenyls (PCB-1260)	2,100		23	09/11/2007	29, pp. 17, 56
SL-CC25-18	Polychlorinated Biphenyls (PCB-1254)	180		5.4	09/11/2007	29, pp. 16, 56
SL-CC25-18	Polychlorinated Biphenyls (PCB-1260)	130		11	09/11/2007	29, pp. 16, 56
SL-DD17-18	Polychlorinated Biphenyls (PCB-1254)	57		2.7	09/18/2007	26, pp. 17, 59
SL-DD18-18	Polychlorinated Biphenyls (PCB-1254)	120		2.7	06/28/2007	9, pp. 20, 115
SL-DD18-18	Polychlorinated Biphenyls (PCB-1260)	110		5.6	06/28/2007	9, pp. 20, 115
SL-DD19-18	Polychlorinated Biphenyls (PCB-1254)	42		2.7	09/14/2007	22, pp. 20, 76

TABLE 3
SOURCE 1 SUBSURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (μg/kg)	Q	MDL	Date	Reference
SL-DD20-18	Polychlorinated Biphenyls (PCB-1254)	300		2.7	06/28/2007	9, pp. 41, 116
SL-DD20-18	Polychlorinated Biphenyls (PCB-1260)	560		5.6	06/28/2007	9, pp. 41, 116
SL-EE19-18	Polychlorinated Biphenyls (PCB-1254)	1,500		5.3	09/14/2007	22, pp. 11, 75
SL-EE22-18	Polychlorinated Biphenyls (PCB-1248)	700		12	09/12/2007	21, pp. 10, 63
SL-EE22-18	Polychlorinated Biphenyls (PCB-1254)	870		5.3	09/12/2007	21, pp. 10, 63
SL-EE22-18	Polychlorinated Biphenyls (PCB-1260)	290		11	09/12/2007	21, pp. 10, 63
SL-EE23-18	Polychlorinated Biphenyls (PCB-1248)	120		6.1	09/11/2007	29, pp. 10, 55
SL-EE23-18	Polychlorinated Biphenyls (PCB-1254)	160		2.7	09/11/2007	29, pp. 10, 55
SL-EE23-18	Polychlorinated Biphenyls (PCB-1260)	62		5.7	09/11/2007	29, pp. 10, 55
SL-EE25-18	Polychlorinated Biphenyls (PCB-1254)	4,400		28	09/11/2007	29, pp. 11 , 55
SL-EE25-18	Polychlorinated Biphenyls (PCB-1260)	800		57	09/11/2007	29, pp. 11 , 55
SL-EE17-18	Polychlorinated Biphenyls (PCB-1254)	730		2.7	09/14/2007	22, pp. 15, 75
SL-EE17-18	Polychlorinated Biphenyls (PCB-1260)	740		5.7	09/14/2007	22, pp. 15, 75
SL-FF18-18	Polychlorinated Biphenyls (PCB-1254)	1,600		11	09/14/2007	22, pp. 13, 75

TABLE 3
SOURCE 1 SUBSURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-FF18-18	Polychlorinated Biphenyls (PCB-1260)	280		5.7	09/14/2007	22, pp. 12, 75
SL-FF19-18	Polychlorinated Biphenyls (PCB-1248)	1,700		12	06/28/2007	9, pp. 54, 116
SL-FF19-18	Polychlorinated Biphenyls (PCB-1254)	3,300	D	13	06/28/2007	9, pp. 55, 116
SL-FF19-18	Polychlorinated Biphenyls (PCB-1260)	1,400		11	06/28/2007	9, pp. 54, 116
SL-FF23-18	Polychlorinated Biphenyls (PCB-1254)	280		27	09/10/2007	19, pp. 21, 59
SL-FF23-18	Polychlorinated Biphenyls (PCB-1260)	300		5.6	09/10/2007	19, pp. 21, 59
SL-FF25-18	Polychlorinated Biphenyls (PCB-1254)	41		2.7	09/10/2007	19, pp. 17, 60
SL-FF25-18	Polychlorinated Biphenyls (PCB-1260)	63		5.7	09/10/2007	19, pp. 17, 60
SL-FF25-18	Polychlorinated Biphenyls (PCB-1260)	150		5.7	09/10/2007	19, pp. 18, 60
SL-GG19-18	Polychlorinated Biphenyls (PCB-1221)	890		160	09/14/2007	22, pp. 22, 76
SL-GG19-18	Polychlorinated Biphenyls (PCB-1248)	24,000	D	610	09/14/2007	22, pp. 23, 76
SL-GG19-18	Polychlorinated Biphenyls (PCB-1254)	63,000	D	280	09/14/2007	22, pp. 23, 76
SL-GG19-18	Polychlorinated Biphenyls (PCB-1260)	44,000	D	580	09/14/2007	22, pp. 23, 76
SL-GG23-18	Polychlorinated Biphenyls (PCB-1260)	48		5.7	07/5/2007	30, pp. 14, 48

TABLE 3
SOURCE 1 SUBSURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-GG24-18	Polychlorinated Biphenyls (PCB-1254)	390		2.5	09/10/2007	19, pp. 19, 60
SL-GG24-18	Polychlorinated Biphenyls (PCB-1260)	540		5.3	09/10/2007	19, pp. 19, 60
SL-HH18-18	Polychlorinated Biphenyls (PCB-1260)	97		6.6	09/14/2007	22, pp. 21, 76
SL-HH19-18	Polychlorinated Biphenyls (PCB-1254)	260		2.8	07/06/2007	31, pp. 11, 64
SL-HH19-18	Polychlorinated Biphenyls (PCB-1260)	98		5.7	07/06/2007	31, pp. 11, 64
SL-HH20-18	Polychlorinated Biphenyls (PCB-1254)	130		2.7	09/14/2007	22, pp. 19, 76
SL-HH21-18	Polychlorinated Biphenyls (PCB-1254)	300		5.0	09/12/2007	20, pp. 13, 64
SL-HH21-18	Polychlorinated Biphenyls (PCB-1260)	200		10	09/12/2007	20, pp. 13, 64
SL-HH22-18	Polychlorinated Biphenyls (PCB-1254)	5,200		29	09/12/2007	20, pp. 12, 64
SL-HH22-18	Polychlorinated Biphenyls (PCB-1260)	7,000		60	09/12/2007	20, pp. 12, 64
SL-HH27-18	Polychlorinated Biphenyls (PCB-1254)	140		2.6	06/29/2007	14, pp. 24, 62
SL-HH27-18	Polychlorinated Biphenyls (PCB-1260)	140		5.5	06/29/2007	14, pp. 24, 62
SL-108-18 (grid FF-16)	Polychlorinated Biphenyls (PCB-1254)	380		6.3	05/09/2007	55, pp. 16, 67; 54, p. 3
SL-108-18 (grid FF-16)	Polychlorinated Biphenyls (PCB-1260)	130		7.7	05/09/2007	55, pp. 16, 67; 54, p. 3

TABLE 3
SOURCE 1 SUBSURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
SL-109-18 (grid GG-16)	Polychlorinated Biphenyls (PCB-1254)	130		6.5	05/09/2007	55, pp. 18, 67; 54, p. 3
SL-109-18 (grid GG-16)	Polychlorinated Biphenyls (PCB-1260)	78		8.0	05/09/2007	55, pp. 18, 67; 54, p. 3
SL-111-18 (grid HH-15)	Polychlorinated Biphenyls (PCB-1254)	1,000		8.0	05/09/2007	55, pp. 23, 67; 54, p. 3
SL-111-18 (grid HH-15)	Polychlorinated Biphenyls (PCB-1260)	300		9.8	05/09/2007	55, pp. 23, 67; 54, p. 3
SL-113-18 (grid FF-15)	Polychlorinated Biphenyls (PCB-1254)	290		12	05/09/2007	55, pp. 31, 68; 54, p. 3
SL-113-18 (grid FF-15)	Polychlorinated Biphenyls (PCB-1260)	140		15	05/09/2007	55, pp. 31, 68; 54, p. 3
SL-123-18 (grid CC-12)	Polychlorinated Biphenyls (PCB-1254)	1,400		12	05/10/2007	35, pp. 26, 90; 54, p. 3
SL-128-18 (grid AA-11)	Polychlorinated Biphenyls (PCB-1248)	1,400		19	05/10/2007	35, pp. 37, 91; 54, p. 3
SL-128-18 (grid AA-11)	Polychlorinated Biphenyls (PCB-1254)	800		12	05/10/2007	35, pp. 37, 91; 54, p. 3
SL-128-18 (grid AA-11)	Polychlorinated Biphenyls (PCB-1260)	320		15	05/10/2007	35, pp. 37, 91; 54, p. 3
SL-130-18 (grid BB-10)	Polychlorinated Biphenyls (PCB-1248)	660		19	05/10/2007	35, pp. 15, 89; 54, p. 3
SL-130-18 (grid BB-10)	Polychlorinated Biphenyls (PCB-1254)	1,300		12	05/10/2007	35, pp. 15, 89; 54, p. 3
SL-130-18 (grid BB-10)	Polychlorinated Biphenyls (PCB-1260)	510		15	05/10/2007	35, pp. 15, 89; 54, p. 3
Sl-140-18 (grid DD-10)	Polychlorinated Biphenyls (PCB-1260)	100		7.2	05/11/2007	49, pp. 10, 60; 54, p. 3

TABLE 3
SOURCE 1 SUBSURFACE SOIL SAMPLE
PCB ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (µg/kg)	Q	MDL	Date	Reference
159-18 (grid EE-26)	Polychlorinated Biphenyls (PCB-1254)	110		6.1	05/29/2007	39, pp. 17, 48; 54, p. 4
162-18 (grid BB-26)	Polychlorinated Biphenyls (PCB-1254)	1,700		30	05/29/2007	34, pp. 10, 30; 54, p. 4
162-18 (grid BB-26)	Polychlorinated Biphenyls (PCB-1260)	370		37	05/29/2007	34, pp. 10, 30; 54, p. 4

Notes:

Sampling locations are shown in Reference 38. Soil samples ending in "18" are subsurface soil samples. Subsurface soil samples were collected from a depth interval from 18 inches below ground surface (bgs) to the top of the saturated zone where native material was present (Ref. 3, p. 16). The center letter and number in the sample identification identify the location within the grid from which the sample was collected. For example, SL-HH23-0 was collected from cell HH23 within the soil sampling grid shown in Reference 38. The last number in the sample identification identifies the depth (in inches) from which the sample was collected.

µg/kg Micrograms per kilogram
Conc. Concentration
D Analyzed at a dilution
MDL Method detection limit (The MDL on the data sheets are adjusted for percent moisture and dilution [Ref. 65].)
PCB Polychlorinated biphenyls
Q Laboratory data qualifier
SL Soil sample

TABLE 4
SOURCE 1 BACKGROUND SOIL SAMPLES
LEAD ANALYTICAL RESULTS

Sample Identification	Hazardous Substance	Conc. (mg/kg)	MDL	Date	Reference
SL-HH25-0	Lead	120	0.21	07/09/2007	15, pp. 32, 58
SL-HH27-0	Lead	140	0.20	06/29/2007	14, p. 42, 62
SL-Z27-0	Lead	34	0.19	09/10/2007	19, pp. 24, 59
SL-FF26-0	Lead	32	0.18	06/29/2007	14, pp. 44, 62
SL-F22-18	Lead	9.8	0.20	07/2/2007	14, pp. 26, 60
SL-G22-18	Lead	6.6	0.20	06/29/2007	12, pp. 35, 71
SL-I22-18	Lead	24	0.20	06/26/2007	10, pp. 28, 58
SL-FF25-18	Lead	18	0.21	09/10/2007	19, pp. 34, 60

Notes:

Sampling locations are shown in Reference 38. Soil samples ending with a "0" are surface soil samples. Surface soil samples were collected from a depth 0 to 18 inches below ground surface (bgs). Soil samples ending with "18" are subsurface soil samples. Subsurface soil samples were collected from a depth interval from 18 inches bgs to the top of the saturated zone where native material was present (Ref. 3, p. 16). The center letter and number in the sample identification identify the location within the grid from which the sample was collected. For example, SL-Z26-18 was collected from cell Z26 within the soil sample grid shown in Reference 38. The last number in the sample identification identifies the depth from which the sample was collected (in inches).

bgs Below ground surface
Conc. Concentration
MDL Method detection limit (The MDL on the data sheets are adjusted for percent moisture and dilution [Ref. 65].)
mg/kg Milligrams per kilogram
SL Soil sample

TABLE 5
SOURCE 1 SURFACE SOIL SAMPLES - LEAD ANALYTICAL RESULTS

Sample Identification	Hazardous Substance	Conc. (mg/kg)	MDL	Date	Reference
SL-D19-0	Lead	17,000	2.0	07/02/2007	14, pp. 27, 60
SL-G19-0	Lead	27,000	4.5	07/02/2007	14, pp. 29, 60
SL-H20-0	Lead	15,000	2.4	06/29/2007	12, pp. 31, 70
SL-F22-0	Lead	6,300	2.0	07/02/2007	14, pp. 25, 60
SL-G22-0	Lead	3,400	2.0	06/29/2007	12, pp. 34, 71
SL-L19-0	Lead	10,000	2.0	07/02/2007	14, pp. 34, 60
SL-M21-0	Lead	7,500	2.3	06/26/2007	10, pp. 30, 58
SL-N22-0	Lead	1,800	0.18	09/21/2007	28, pp. 10, 23
SL-015-0	Lead	1,300	0.21	06/29/2007	12, pp. 26, 70
SL-Q14-0	Lead	2,800	2.0	07/02/2007	14, pp. 40, 61
SL-P22-0	Lead	1,200	0.20	06/26/2007	10, pp. 32, 58
SL-Q22-0	Lead	1,400	0.23	09/20/2007	27, pp. 34, 53
SL-R13-0	Lead	420	0.20	07/03/2007	12, pp. 36, 72
SL-R15-0	Lead	4,800	2.1	07/02/2007	14, pp. 36, 61
SL-R22-0	Lead	1,300	0.20	09/20/2007	27, pp. 31, 53
SL-S18-0	Lead	11,000	2.1	06/26/2007	10, pp. 36, 57
SL-S21-0	Lead	1,700	0.20	09/21/2007	28, pp. 12, 23
SL-S22-0	Lead	3,100	1.1	09/20/2007	27, pp. 28, 52
SL-T10-0	Lead	870	0.23	07/09/2007	15, pp. 26, 58
SL-T13-0	Lead	1,700	0.20	07/03/2007	12, pp. 38, 72
SL-T18-0	Lead	1,800	0.20	06/26/2007	10, pp. 39, 57
SL-T20-0	Lead	1,700	0.21	07/03/2007	13, pp. 10, 31
SL-T22-0	Lead	4,100	1.0	09/20/2007	27, pp. 25, 52
SL-U10-0	Lead	3,300	2.0	07/09/2007	15, pp. 24, 58
SL-U21-0	Lead	740	0.31	07/03/2007	12, pp. 40, 72
SL-U22-0	Lead	810	0.62	09/10/2007	27, pp. 23, 52
SL-V9-0	Lead	7,400	2.1	07/09/2007	15, pp. 34, 59
SL-V19-0	Lead	1,000	0.19	07/03/2007	12, pp. 42, 72
SL-W6-0	Lead	1,700	0.19	09/20/2007	27, pp. 21, 52
SL-W7-0	Lead	530	0.20	07/09/2007	15, pp. 36, 59
SL-W18-0	Lead	1,400	0.20	09/17/2007	23, pp. 31, 70
SL-X18-0	Lead	990	2.1	09/17/2007	23, pp. 45, 72
SL-X19-0	Lead	710	0.21	07/03/2007	13, pp. 8, 30
SL-Z25-0	Lead	1,200	0.19	09/12/2007	20, pp. 33, 65
SL-Y13-0	Lead	3,300	1.0	09/19/2007	25, pp. 9, 25
SL-Y14-0	Lead	5,100	0.97	09/19/2007	25, pp. 14, 25
SL-Y15-0	Lead	2,100	0.97	09/19/2007	24, pp. 28, 58
SL-Y17-0	Lead	2,900	0.39	09/17/2007	23, pp. 34, 70
SL-Y18-0	Lead	1,000	0.21	09/17/2007	23, pp. 29, 70
SL-Z12-0	Lead	6,300	1.1	09/19/2007	24, pp. 37, 59
SL-Z13-0	Lead	1,600	0.18	09/19/2007	24, pp. 39, 59
SL-Z14-0	Lead	1,000	0.18	09/19/2007	25, pp. 12, 25
SL-Z18-0	Lead	530	0.18	09/17/2007	23, pp. 36, 71

TABLE 5
SOURCE 1 SURFACE SOIL SAMPLES - LEAD ANALYTICAL RESULTS (Continued)

Sample Identification	Hazardous Substance	Conc. (mg/kg)	MDL	Date	Reference
SL-Z19-0	Lead	530	0.18	09/17/2007	23, pp. 25, 70
SL-Z21-0	Lead	15,000	2.2	09/13/2007	21, pp. 34, 65
SL-Z22-0	Lead	3,700	0.97	09/12/2007	20, pp. 41, 65
SL-AA4-0	Lead	6,500	2.1	09/05/2007	18, pp. 21, 41
SL-AA5-0	Lead	2,900	1.1	09/05/2007	18, pp. 20, 41
SL-AA16-0	Lead	3,200	2.0	07/09/2007	15, pp. 30, 58
SL-AA12-0	Lead	7,500	1.0	09/18/2007	26, pp. 28, 58
SL-AA13-0	Lead	3,600	1.0	09/18/2007	26, pp. 31, 58
SL-AA14-0	Lead	3,300	1.1	09/19/2007	25, pp. 10, 25
SL-AA17-0	Lead	900	0.20	09/17/2007	23, pp. 39, 71
SL-AA20-0	Lead	1,300	2.0	09/17/2007	23, pp. 43, 72
SL-AA21-0	Lead	710	0.19	09/13/2007	21, pp. 30, 65
SL-BB4-0	Lead	1,200	0.25	09/05/2007	18, pp. 22, 41
SL-BB12-0	Lead	3,800	1.0	09/18/2007	24, pp. 26, 57
SL-BB13-0	Lead	3,500	1.0	09/18/2007	26, pp. 22, 58
SL-BB14-0	Lead	1,400	0.21	09/18/2007	26, pp. 24, 58
SL-BB16-0	Lead	1,700	0.23	09/18/2007	26, pp. 39, 59
SL-BB17-0	Lead	2,300	1.0	09/18/2007	26, pp. 37, 59
SL-BB21-0	Lead	430	0.26	09/13/2007	21, pp. 28, 65
SL-CC15-0	Lead	1,600	0.19	09/18/2007	24, pp. 24, 57
SL-CC16-0	Lead	1,200	0.20	09/18/2007	26, pp. 41, 59
SL-CC20-0	Lead	570	0.22	09/14/2007	22, pp. 37, 75
SL-CC21-0	Lead	2,900	0.97	09/12/2007	20, pp. 31, 64
SL-DD17-0	Lead	1,800	0.19	09/18/2007	26, pp. 33, 59
SL-DD21-0	Lead	1,100	0.19	09/12/2007	20, pp. 29, 64
SL-EE3-0	Lead	430	0.29	09/05/2007	17, pp. 23, 39
SL-EE18-0	Lead	2,800	1.9	09/14/2007	22, pp. 31, 75
SL-EE19-0	Lead	1,200	0.20	09/14/2007	22, pp. 27, 75
SL-EE22-0	Lead	1,100	0.19	09/12/2007	21, pp. 25, 63
SL-FF23-0	Lead	1,200	0.20	09/10/2007	19, pp. 41, 60
SL-GG19-0	Lead	3,100	2.0	09/14/2007	22, pp. 45, 76
SL-GG24-0	Lead	420	0.19	09/10/2007	19, pp. 37, 60
SL-HH12-0	Lead	490	3.8	09/04/2007	16, pp. 27, 44
SL-HH13-0	Lead	460	5.0	09/04/2007	16, pp. 28, 44
SL-HH19-0	Lead	1,200	2.2	09/14/2007	22, pp. 43, 76
SL-HH20-0	Lead	2,400	2.2	09/14/2007	22, pp. 39, 76
SL-HH22-0	Lead	3,400	0.21	09/12/2007	20, pp. 25, 64

Notes:

Sampling locations are shown in Reference 38. Soil samples ending with a “0” are surface soil samples. Surface soil samples were collected from a depth 0 to 18 inches below ground surface (bgs) (Ref. 3, p. 16). The center letter and number in the sample identification identify the location within the grid from which the sample was collected. For example, SL-HH23-0 was collected from cell HH23 within the soil sampling grid shown in Reference 38. The last number in the sample identification identifies the depth from which the sample was collected (in inches).

Conc.	Concentration
MDL	Method detection limit (The MDL on the data sheets are adjusted for percent moisture and dilution [Ref. 65].)
mg/kg	Milligram per kilogram
SL	Soil sample

TABLE 6
SOURCE 1 SUBSURFACE SOIL SAMPLES - LEAD ANALYTICAL RESULTS

Sample Identification	Hazardous Substance	Conc. (mg/kg)	MDL	Date	Reference
SL-G18-18	Lead	800	0.20	06/29/2007	12, pp. 29, 70
SL-N18-18	Lead	2,100	0.22	06/26/2007	10, pp. 35, 58
SL-O15-18	Lead	670	0.21	07/03/2007	12, pp. 27, 70
SL-R13-18	Lead	1,700	0.22	07/03/2007	12, pp. 37, 72
SL-R15-18	Lead	2,800	2.0	07/02/2007	14, pp. 38, 61
SL-T13-18	Lead	3,400	2.1	07/03/2007	12, pp. 39, 72
SL-T18-18	Lead	890	0.29	06/26/2007	10, pp. 40, 57
SL-W6-18	Lead	1,500	0.21	09/20/2007	27, pp. 22, 52
SL-W19-18	Lead	750	1.1	09/13/2007	21, pp. 44, 66
SL-Y15-18	Lead	940	0.20	09/19/2007	24, pp. 29, 58
SL-Z21-18	Lead	740	0.25	09/13/2007	21, pp. 35, 65
SL-AA12-18	Lead	1,500	0.22	09/18/2007	26, pp. 29, 58
SL-AA13-18	Lead	620	0.27	09/18/2007	26, pp. 32, 58
SL-BB12-18	Lead	11,000	2.0	09/18/2007	24, pp. 27, 57
SL-BB14-18	Lead	3,500	1.0	09/18/2007	26, pp. 25, 58
SL-CC20-18	Lead	1,300	1.9	09/14/2007	22, pp. 38, 75
SL-EE22-18	Lead	560	0.19	09/12/2007	21, pp. 26, 64
SL-GG19-18	Lead	3,800	2.0	09/14/2007	22, pp. 46, 76
SL-123-18 (grid CC-12)	Lead	3,000	2.2	05/10/2007	35, pp. 52, 90; 54, p. 3
SL-124-18 (grid DD-12)	Lead	3,600	2.1	05/10/2007	35, pp. 53, 90; 54, p. 3
SL-126-18 (grid CC-11)	Lead	1,900	0.28	05/10/2007	35, pp. 60, 90; 54, p. 3
SL-128-18 (grid AA-11)	Lead	670	0.23	05/10/2007	35, pp. 62, 91; 54, p. 3

Notes:

Sampling locations are shown in Reference 38. Soil samples ending in "18" are subsurface soil samples. Subsurface soil samples were collected from a depth interval from 18 inches below ground surface (bgs) to the top of the saturated zone where native material was present (Ref. 3, p. 16). The center letter and number in the sample identification identify the location within the grid from which the sample was collected. For example, SL-HH23-0 was collected from cell HH23 within the soil sampling grid shown in Reference 38. The last number in the sample identification identifies the depth from which the sample was collected (in inches).

Conc. Concentration
MDL Method detection limit (The MDL on the data sheets are adjusted for percent moisture and dilution [Ref. 65].)
mg/kg Milligrams per kilogram
SL Soil sample

2.4.1 HAZARDOUS SUBSTANCES

2.4.2.1 Hazardous Waste Quantity

2.4.2.1.1 Hazardous Constituent Quantity

The information available is not sufficient to adequately support evaluation of the hazardous constituent quantity for Source 1.

2.4.2.1.2 Hazardous Waste Stream Quantity

The information available is not sufficient to adequately support evaluation of the hazardous waste stream quantity for Source 1.

2.4.2.1.3 Volume

The information available is not sufficient to adequately support evaluation of the volume for Source 1.

2.4.2.1.4 Area

As documented in Tables 2, 3, 5, and 6 of this documentation record, soil samples collected from Source 1 contain PCBs and lead. Based on the contaminated soil sampling locations shown in Reference 38, the area of contaminated soil is estimated to be 435,000 square feet (Ref. 38). The assigned area hazardous waste quantity value is 435,000 divided by 34,000, or 12.79411765 (Ref. 1, Table 2-5).

Area Assigned Value: 12.79411765

2.4.2.1.5 Source Hazardous Waste Quantity Value

The source area hazardous waste quantity (HWQ) value assigned for Source 1 is 12.79411765 (Ref. 1, Table 2-5).

Source HWQ Value: 12.79411765

4.0 SURFACE WATER MIGRATION PATHWAY

4.1 OVERLAND/FLOOD MIGRATION COMPONENT

4.1.1 GENERAL CONSIDERATIONS

4.1.1.1 Definition of Hazardous Substance Migration Pathway for Overland/Flood Component

The hazardous substances migration pathway includes both the overland and in-water segments of the pathway that hazardous substances would take as they migrate from the source (Ref. 1, Section 4.1.1.1). As shown in References 38, 40 (Figure 4-2), and 41, portions of Source 1 are documented within an intertidal emergent wetland that is contiguous with Paradise Creek. Source 1 soil sampling locations documenting observed contamination within the wetland area of the property include grids AA2 through AA5; BB4; BB5; DD5; DD6; EE3; EE4; EE5; GG-8; GG9; GG10; GG12; HH10; HH11; HH12; and HH13 (Ref. 38; Ref. 40, Figure 4-2; Ref. 41; Ref. 67; and Tables 2, 3, 5, and 6 of this documentation record).

Surface water runoff from Source 1 areas outside of the tidal marsh flow toward the tidal marsh and into Paradise Creek on the southwestern boundary of the Source 1. The land in the southwestern portion of the site property, including areas of Source 1, gently slopes towards Paradise Creek as it transitions to a tidal marsh along the creek. Paradise Creek at this location is 100 feet wide and has a mean tidal range of approximately 3 feet. The topography of Source 1 and the surrounding area is relatively flat with elevations ranging from approximately mean sea level (MSL) to 10 feet AMSL (Ref. 40, p. 3-1; Ref. 38; Ref. 53; Re 57). Figure 4-2 of Reference 40 shows a steep slope on the east side of the Peck Iron property and east of Source 1.

An aerial photograph of Source 1 and the surrounding area (Figure 1-1 of Reference 40) shows many areas of disturbed soil in and surrounding the boundaries of Source 1. The dark shaded area in the aerial photograph along the southwestern boundary of Source 1 appears to be the tidal marsh portion of Source 1 (Ref. 40, Figure 1-1 and Figure 4-2; Ref. 38; Ref. 41). The aerial photograph shows a large amount of debris scattered throughout the Peck Iron and Metal property and in the contaminated soil areas of Source 1 (Ref. 40, Figure 1-1)

4.1.1.2 Target Distance Limit

The target distance limit (TDL) defines the maximum distance over which targets are evaluated. The 15-mile TDL starts at the probable point of entry (PPE) to surface water and includes 15 miles downstream from the most downstream PPE to surface water and the distance between the most upstream and downstream PPE (Ref. 1, Section 4.1.1.2). The most upstream contaminated sampling location in the Source 1 sampling grid is cell HH13, and the most downstream contaminated sampling location in Source 1 is cell AA5 (Ref. 38). Both sampling locations are within the wetland portion of Source 1 and are, therefore both the PPE to surface water (Ref. 38; Ref. 40, Figure 4-2; Ref. 41; Ref. 67). Cell location HH13 is identified as PPE-1, and AA5 is identified as PPE-2 in References 41 and 46. Reference 46 illustrates the 15-mile TDL and includes the distance between PPE-1 and PPE-2 and 15 miles downstream of PPE-2. The TDL includes Paradise Creek and 1 mile south to the southern branch of the Elizabeth River. The southern branch of the Elizabeth River continues 3 miles north to the confluence of the Elizabeth River. The Elizabeth River flows 6 miles north to James River. The James River, at Hampton Road, completes the 15-mile TDL. The TDL is summarized in Table 7.

TABLE 7
15-MILE TARGET DISTANCE LIMIT

Surface Water Body	Distance Measured from PPE-2	Reference
Paradise Creek	0 to 1 mile	46
Southern branch of Elizabeth River	1 to 4 miles	46
Elizabeth River	4 to 9 miles	46
James River at Hampton Road	9 to 15 miles	46

Notes:
PPE-2 Second probable point of entry

Tides are considered when defining the TDL (Ref. 1, Section 4.1.1.2). After evaluating tidal influence for Paradise Creek, it was determined that evaluating targets upstream of the PPEs to the extent of tidal influence would not significantly increase the target values for Paradise Creek.

4.1.2.1 LIKELIHOOD OF RELEASE

An observed release to by direct observation Paradise Creek is documented in the sections below.

4.1.2.1.1 Observed Release

An observed release by direct observation to Paradise Creek is documented in the sections below.

Direct Observation

The soil contamination in Source 1 extends into an intertidal emergent wetland, as shown in References 38, 41, and 67. The wetland is contiguous to Paradise Creek. Therefore, an observed release to the wetland and to Paradise Creek can be documented by direct observation. Soil sampling locations within the wetland include grid cells AA2 through AA5; BB4; BB5; DD5; DD6; EE3; EE4; EE5; GG-8; GG9; GG10; GG12; HH10; HH11; HH12; and HH13 (Ref. 38; Ref. 41; Ref. 67). Concentrations of PCBs and lead detected in soil samples collected from the wetland portion of Source 1 are summarized in Table 8.

TABLE 8
SOURCE 1 WETLAND SOIL SAMPLES
PCB AND LEAD CONCENTRATIONS

Sample Identification	Hazardous Substance	Concentration	Q	MDL	Date	Reference
SL-AA2-0	Polychlorinated Biphenyls PCB-1254	110 µg/kg		3.3	09/05/2007	18, pp. 18, 41
SL-AA3-0	Polychlorinated Biphenyls (PCB-1254)	1,500 µg/kg		3.8	09/05/2007	18, pp. 16, 41
SL-AA3-0	Polychlorinated Biphenyls (PCB-1260)	530 µg/kg		8	09/05/2007	18, pp. 16, 41
SL-AA4-0	Polychlorinated Biphenyls (PCB-1248)	4,100 µg/kg		31	09/05/2007	18, pp. 9, 41
SL-AA4-0	Polychlorinated Biphenyls (PCB-1254)	16,000 µg/kg	D	140	09/05/2007	18, pp. 10, 41
SL-AA4-0	Polychlorinated Biphenyls (PCB-1260)	10,000 µg/kg	D	290	09/05/2007	18, pp. 10, 41
SL-AA4-0	Lead	6,500 mg/kg		2.1	09/05/2007	18, pp. 21, 41
SL-AA5-0	Polychlorinated Biphenyls (PCB-1248)	8,600 µg/kg	D	61	09/05/2007	18, pp. 8, 41
SL-AA5-0	Polychlorinated Biphenyls (PCB-1254)	8,600 µg/kg	D	28	09/05/2007	18, pp. 8, 41
SL-AA5-0	Polychlorinated Biphenyls (PCB-1260)	1,700 µg/kg		23	09/05/2007	18, pp. 7, 41
SL-AA5-0	Lead	2,900 mg/kg		1.1	09/05/2007	18, pp. 20, 41
SL-BB4-0	Lead	1,200 mg/kg		0.25	09/05/2007	18, pp. 22, 41
SL-BB5-0	Polychlorinated Biphenyls (PCB-1254)	1,600 µg/kg		5.6	09/05/2007	18, pp. 15, 41
SL-BB5-0	Polychlorinated Biphenyls (PCB-1260)	860 µg/kg		12	09/05/2007	18, pp. 15, 41
SL-DD5-0	Polychlorinated Biphenyls (PCB-1254)	79 µg/kg		2.9	09/05/23007	17, pp. 8, 39
SL-DD6-0	Polychlorinated Biphenyls (PCB-1254)	150 µg/kg		4.2	09/05/23007	17, pp. 9, 39

TABLE 8
SOURCE 1 WETLAND SOIL SAMPLES
PCB AND LEAD CONCENTRATIONS (Continued)

Sample Identification	Hazardous Substance	Concentration	Q	MDL	Date	Reference
SL-DD6-0	Polychlorinated Biphenyls (PCB-1260)	68 µg/kg		8.7	09/05/23007	17, pp. 9, 39
SL-EE3-0	Polychlorinated Biphenyls (PCB-1260)	70 µg/kg		8.0	09/05/2007	17, pp. 14, 39
SL-EE3-0	Lead	430 mg/kg		0.29	09/05/2007	17, pp. 23, 39
SL-EE4-0	Polychlorinated Biphenyls (PCB-1254)	84 µg/kg		3.2	09/05/2008	17, pp. 13, 39
SL-EE4-0	Polychlorinated Biphenyls (PCB-1260)	66 µg/kg		6.6	09/05/2008	17, pp. 13, 39
SL-EE5-0	Polychlorinated Biphenyls (PCB-1254)	130 µg/kg		7.7	09/05/2007	17, pp. 11, 39
SL-GG8-0	Polychlorinated Biphenyls (PCB-1254)	300 µg/kg		8.6	09/04/2007	16, pp. 10, 44
SL-GG8-0	Polychlorinated Biphenyls (PCB-1260)	230 µg/kg		18	09/04/2007	16, pp. 10, 44
SL-GG9-0	Polychlorinated Biphenyls (PCB-1254)	180 µg/kg		5.2	09/04/2007	16, pp. 11, 44
SL-GG10-0	Polychlorinated Biphenyls (PCB-1254)	180 µg/kg		4.5	09/04/2007	16, pp. 12, 44
SL-GG12-0	Polychlorinated Biphenyls (PCB-1254)	510 µg/kg		10	09/04/2007	16, pp. 15, 44
SL-GG12-0	Polychlorinated Biphenyls (PCB-1260)	250 µg/kg		22	09/04/2007	16, pp. 15, 44
SL-HH10-0	Polychlorinated Biphenyls (PCB-1254)	160 µg/kg		4.3	09/04/2007	16, pp. 13, 44
SL-HH10-0	Polychlorinated Biphenyls (PCB1260)	74 µg/kg		9.1	09/04/2007	16, pp. 13, 44
SL-HH11-0	Polychlorinated Biphenyls (PCB-1254)	900 µg/kg		12	09/04/2007	16, pp. 14, 44

TABLE 8
SOURCE 1 WETLAND SOIL SAMPLES
PCB AND LEAD CONCENTRATIONS (Continued)

Sample Identification	Hazardous Substance	Concentration	Q	MDL	Date	Reference
SL-HH11-0	Polychlorinated Biphenyls (PCB-1260)	620 µg/kg		26	09/04/2007	16, pp. 14, 44
SL-HH12-0	Polychlorinated Biphenyls (PCB-1254)	1,400 µg/kg		10	09/04/2007	16, pp. 16, 44
SL-HH12-0	Polychlorinated Biphenyls (PCB-1260)	940 µg/kg		21	09/04/2007	16, pp. 16, 44
SL-HH12-0	Lead	490 mg/kg		3.8	09/04/2007	16, pp. 27, 44
SL-HH13-0	Polychlorinated Biphenyls (PCB-1254)	500 µg/kg		14	09/04/2007	16, pp. 17, 44
SL-HH13-0	Polychlorinated Biphenyls (PCB-1260)	210 µg/kg		29	09/04/2007	16, pp. 17, 44
SL-HH13-0	Lead	460 mg/kg		5.0	09/04/2007	16, pp. 28, 44

Notes:

Sampling locations are shown in References 38 and 41. Soil samples ending with a "0" are surface soil samples. Surface soil samples were collected from a depth 0 to 18 inches below ground surface (bgs). Soil samples ending in "18" are subsurface soil samples. Subsurface soil samples were collected from a depth interval from 18 inches bgs to the top of the saturated zone where native material is present (Ref. 3, p. 16). The center letter and number in the sample identification identify the location within the grid from which the sample was collected. For example, SL-HH23-0 was collected from cell HH23 within the soil sampling grid shown in References 38 and 41. The last number in the sample identification identifies the depth from which the sample was collected (in inches).

µg/kg Micrograms per kilogram
D Concentration reported from dilution
MDL Method detection limit (The MDL on the data sheets are adjusted for percent moisture and dilution [Ref. 65].)
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyls
Q Laboratory data qualifier
SL Soil sample

As part of the extent of contamination study, sediment samples were collected from Paradise Creek, adjacent to the wetland in Source 1. The sampling locations are shown in Reference 40, Figure 2-2. References 47 and 48 provide the sediment sample analytical results. None of the sediment samples collected contained PCBs (Ref. 47; Ref. 48). PCBs were not detected in the sediments in Paradise Creek adjacent to the wetland in Source 1 and the presence of PCBs in the Source 1 wetland is attributed to Source 1, and no other upstream or downstream source.

ATTRIBUTION:

The contaminated soil within Source 1 is attributed to the former operations at Peck Iron. In response to a request for information issued by EPA pursuant to Section 104(e) of CERCLA, Peck Company, Inc., acknowledged that from 1945 to approximately 1990 the business conducted at the facility was the purchase, processing, storage, and shipping of metal scrap from various military bases; other federal, state, and local government agencies; and local businesses. Scrap metal handled at the facility included damaged and obsolete equipment, attachments, parts, and other miscellaneous materials, including scrapped naval vessels. Peck Company, Inc., disclosed that some of these scrap materials contained cadmium (automobile parts); PCBs (insulated wire, gaskets, fluorescent lights and transformer oils); and lead (scrapped bridge sections and automobile batteries) (Ref. 4, p. 3; Ref. 32, p. 5). Therefore, the PCB and lead contamination identified in Source 1 is attributed to operations at Peck Iron and not from adjacent properties or other sources.

Additionally, during a meeting with EPA, the former principal of Peck Company, Inc stated that PCB-containing transformers had been disassembled and wires had been burned at the facility to remove insulation (Ref. 4, p. 3). Therefore, the PCB contamination identified in Source 1 is attributed to operations at Peck Iron and not from adjacent properties or other sources.

The contamination in Source 1 is expected to migrate to wetlands on the southwestern border of the Peck Iron property adjacent to Paradise Creek because of the slight topographic gradient across the Peck Iron property and Source 1 towards the wetlands (Ref. 53; Ref. 67). Additionally, the areas of Source 1 are not contained and are subject to flooding. Source 1 is located in the flood plain of Paradise Creek and is subject to extensive flooding and erosion during weather events such as tropical storms and hurricanes. Source 1 is within a 100-year flood plain (Ref. 6, pp. 3, 4 and Appendix B; Ref. 45; Ref. 68).

A map showing the Peck Iron property boundaries and surrounding areas illustrate that Source 1 lies within the current and former property boundaries of the Peck Iron site (Ref. 40, Figure 1-2). A description of properties adjacent to the Peck Iron property is described in the sections below.

PROPERTIES ADJACENT TO THE PECK IRON FACILITY

The contamination on the Peck Iron and Metal facility in Source 1 is attributed to previous facility operations as discussed in the previous section. Based on the topography of the area, the contamination in Source 1 is not attributed to adjacent properties (Ref. 53). Additionally, a map of the manholes (storm sewer inlets) and storm drains surrounding the Peck Iron property indicate that surface water runoff from adjacent properties enters the Portsmouth storm water system (Ref. 58).

The Scott Center Landfill is located along the western boundary of Peck Iron (Ref. 5, p. 2-3 and Figure 1-1). A current aerial photograph of the landfill shows the landfill property includes three baseball diamonds surrounded by wetlands of Paradise Creek on the southern portion of the property and a parking lot east of the landfill, separating the landfill from Source 1 (Ref. 44; Ref. 67). The topography of the Scott Center Landfill property shown in Reference 53 is relatively flat, as is the topography of Source 1 and the Peck Iron property; however both properties have a slight gradient towards Paradise Creek (Ref. 40, p. 3-1; Ref. 38; Ref. 53). Several manholes are located between the landfill and Source 1 (Peck Iron) that carry storm water from the landfill to Paradise Creek (Ref. 58). Additionally, the landfill has two shallow swales that run north to south through the landfill (Ref. 63, p. 28). The swales carry surface water runoff directly to

Paradise Creek (Ref. 63, pp. 28, 29). A photograph of the landfill shows a storm drain on the east side of the landfill and a drainage ditch that collects the drainage from the storm drain and discharges to Paradise Creek upstream of Peck Iron (Ref. 64, pp. 4, 5, 9, 10, 11). The figure shows that all the surface water runoff from the Scott Center Landfill (Site 2) flows to Paradise Creek (Ref. 64, pp. 10, 11). The storm drain system would prevent surface water runoff from Scott Center Landfill from flowing onto the Peck Iron property or Source 1.

On the north side of Peck Iron are roads and the Norfolk Naval Shipyard (NNSY), both of which are relatively flat. Surface water runoff from these areas is expected to follow the slight contours of the land. Surface water runoff flows into storm drains. The presence of railroads, roads, and storm drains are expected to prevent surface water runoff from NNSY flowing to the Peck Iron property (Ref. 44; Ref. 53; Ref. 58).

Figure 4-2 of Reference 40 shows a steep slope on the southeast side of the Peck Iron property and Source 1. Therefore, no surface water runoff from land on the eastern portion of the Peck Iron property is expected to drain onto the property.

The Southeastern Public Service Authority’s Refuse Derived Fuel (SPSA) property is located on the southeastern boundary of the Peck Iron property (Ref. 42, p. 30). Since 1988, the plant was designed to process 2,000 tons of waste per day into fuel that is burned to create steam and electricity (Ref. 43). Reference 44 indicates the majority of the SPSA property is covered with asphalt and buildings. Based on the topography of the area, surface water runoff from SPSA is expected to flow southwest to Paradise Creek or to storm drains (Ref. 53; Ref. 58).

OTHER POSSIBLE SOURCES OF CONTAMINATION TO PARADISE CREEK

As part of the extent of contamination study for Peck Iron, sediment samples were collected from the portion of Paradise Creek adjacent to the wetland in Source 1. The sampling locations are shown in Reference 40, Figure 2-2. References 47 and 48 provide the analytical results from the sediment samples. None of the sediment samples contained PCBs (Ref. 47; Ref. 48). There is no evidence of an active upstream or downstream source of PCBs to the wetlands of Source 1 because PCBs were not detected in the sediments in the portion of Paradise Creek adjacent to the wetland in Source 1.

Numerous potential sources of hazardous substances are located along the Paradise Creek watershed upstream and downstream of Source 1. The land use data for the Paradise Creek watershed have been divided into five broad categories: residential; commercial and industrial; undeveloped; public; and Navy (Ref. 5, p. 2-1 and Figure 2-1). Residential property makes up the largest portion of the watershed area, with 39-percent coverage; 30 percent is used for commercial and industrial activities; 20 percent includes undeveloped land or wetlands; 7 percent consists of Navy property; and 4 percent is public property. The residential land use category includes single-family and multi-family residential areas. The undeveloped land use category includes wetlands, agricultural land, forests, fields, and parks. The public land use category includes schools and other government buildings (Ref. 5, p. 2-1, 2-2).

Most of the Paradise Creek watershed is comprised of residential areas. The remaining land use adjacent to Paradise Creek includes 25 percent commercial/industrial, 11 percent Navy property, and 9 percent undeveloped land or wetlands (Ref. 5, p. 2-2). The predominant land use immediately surrounding Peck Iron is occupied by NNSY. A description of NNSY is provided in the section below.

Norfolk Naval Shipyard

NNSY is located north of Peck Iron and several of its shipyard and landfill areas are located along Paradise Creek, west of Source 1 (Ref. 42, Figure 2; Ref. 44). In March 1998, EPA proposed adding NNSY to the National Priorities List (NPL). EPA's primary concern about NNSY was the site's potential impacts to Paradise Creek and the Elizabeth River. NNSY was formally added to the NPL on July 22, 1999 (Ref. 42, p. 4). NNSY has two annexes used for activities associated with NNSY, but operate under a separate Navy command. The two annexes are called Scott Center Landfill, located along Paradise Creek, and Southgate Annex, located along the southern branch of the Elizabeth River. A third (former) annex (St. Helena Annex) is now owned by a shipbuilding company, and a fourth (St. Juliens Creek Annex) was transferred to Naval Station Norfolk. Activities associated with NNSY also extend to two noncontiguous areas: (1) the New Gosport area, south of the headwaters of Paradise Creek and north of Peck Iron on Paradise Creek and (2) the Paradise Creek Disposal Area, located south of Peck Iron on Paradise Creek, near where Paradise Creek empties into the southern branch of the Elizabeth River (Ref. 42, p. 1 and Figure 2). The Paradise Creek Disposal area is shown as the West and East Landfill on Figure 2 of Reference 42.

Activities at NNSY included construction, conversion, overhaul, repair, maintenance, and outfitting ships and other watercraft. Manufacturing, research, development, and testing activities are also performed at the shipyard. NNSY also provides logistics support and hosts approximately 36 tenant commands. Wastes generated from NNSY activities include oils, solvents and cleaners, paint, thinners, plating wastes, blasting residue, scrap metal, batteries, and asbestos. Solid waste associated with activities at NNSY, including blasting grit, sludge from the wastewater treatment plant, and fly ash, have been disposed of in the southern portion of the property, primarily at locations along Paradise Creek. Five of these locations are in an area known as the Paradise Creek Disposal Area that is not contiguous with the main portion of the shipyard. Another location is in the New Gosport area, which is northwest of Peck Iron along Paradise Creek (Ref. 42, p. 3).

In 1983, efforts began to identify contamination resulting from the handling and disposal of products used in areas currently or formerly part of NNSY. Many locations that historically received waste products are south of the main shipyard, including five locations in the Paradise Creek Disposal Area, a landfill within Scott Center Landfill, and a landfill in the New Gosport area. Subsequent investigations and evaluations conducted under the U.S. Department of Defense's Installation Restoration Program (IRP) resulted in the identification of additional potential IRP sites and the inactivation of other IRP sites that did not require further action. Many environmental assessments have since been conducted at NNSY (Ref. 42, p. 1).

The Navy prepared a watershed contaminated source document for the southern branch of the Elizabeth River Watershed to identify the existence of Navy and non-Navy sources whose activities may have or continue to impact the sediments of the southern branch of the Elizabeth River (Ref. 5, p. 1-1). This document identified three Navy properties located along Paradise Creek that may have impacted sediments: (1) the Paradise Creek Disposal Area; (2) the Scott Center Landfill and; (3) the New Gosport Landfill. The Paradise Creek Disposal Area covers approximately 91 acres on the north bank of Paradise Creek, and is located approximately 1,000 feet downstream and south of Peck Iron. The disposal area is adjacent to the southern edge of the NNSY and was an area used by the Navy as a landfill for solid waste, long-term storage, and maintenance of waste-handling vehicles and equipment. Material such as sand, silt and clay generated from maintenance dredging of the nearby waterways was also disposed of here. Wastes reportedly disposed of include abrasive blast material (ABM), paint residues, sanitary wastes, solvents, and other industrial residues. The landfill has not received waste since 1983 and was officially closed by the Virginia Department of Environmental Quality (VDEQ) in 1989 (Ref. 5, p. 2-2 and Figure 1-1; Ref. 53). The primary contaminant of ABM is lead (Ref. 42, p. 17).

Paradise Creek Disposal Area also is known as Site 3 and 4, Sanitary Landfill (Ref. 63, p. 7, Figure 3-3, p. 8). Surface and subsurface soil samples collected from the Site 3 and 4 contained chlorobenzene (up to 5,500 µg/kg), ethyl benzene (up to 71 µg/kg), numerous chlorinated VOCs (up to 4,900 µg/kg), PAHs (up to 6,000 µg/kg), and PCBs (up to 440 µg/kg) (Ref. 63, Tables 5-17, 5-18, 5-19, 5-21, and 5-22, pp. 48 to 51 and pp. 53 to 54). Lead was detected up to 3,360 mg/kg in the soil samples (Ref. 63, Table 5-20, p. 51).

A second Navy disposal area identified adjacent to Paradise Creek is the Scott Center Landfill. This landfill covers 1.7 acres, with 5.3 acres of marsh land located between the landfill and the channel of Paradise Creek (Ref. 5, p. 2-4 and Figure 1-1). The Scott Center Landfill is located on the northwest boundary of the Peck Iron property. The landfill was used intermittently during the late 1950s for the disposal of wastes generated from drydock operations. The majority of the waste disposed of here is reported to be hydraulic fill. The Navy initiated a nontime-critical removal action at the Scott Center Landfill in August 2004 to remove landfill materials and impacted marsh sediments. At completion of the removal action, the Navy restored the tidal wetlands (Ref. 5, p. 2-4 and Figure 1-1).

In 1992, as part of an investigation at the Scott Center Landfill, a sediment sample was collected in Paradise Creek downstream from the landfill (Ref. 63, pp. 4, 5). The sample contained PCBs at 240 micrograms per kilogram (µg/kg) (Ref. 63, pp. 5, 6). In 1995, as part of a remedial investigation, surface soil samples were collected from the landfill and contained SVOCs (400 to 1,900 µg/kg) and PCBs (84 to 2,100 µg/kg) (Ref. 63, pp. 32 and 33). Lead was detected in surface soil samples from 40 to 1,220 mg/kg (Ref. 63, p. 34). PCBs were detected in Paradise Creek sediment samples from 150 to 470 µg/kg (Ref. 64, pp. 22, 24). The sampling locations were adjacent to the landfill (Ref. 63, p. 29).

The third Navy disposal area identified adjacent to Paradise Creek is the New Gosport Landfill. This landfill is located on the upper reaches of Paradise Creek above the George Washington Highway Bridge (Route 17), approximately 0.5 mile upstream of the Peck Iron property. NNSY used the landfill between 1969 and 1970 for disposal of an estimated 6,500 cubic yards of abrasive blast material. The site was remediated in 2001 with the removal of waste and creation of sustainable tidal wetlands encompassing 1.9 acres (Ref. 5, p. 2-4 and Figure 1-1). Lead contamination was associated with the New Gosport Landfill (Ref. 42, pp. 2, 16, 17).

Within NNSY are 123 outfalls regulated under the current Virginia Pollutant Discharge Elimination System (VPDES) permit (VA0005215). One of these outfalls discharges into Paradise Creek south and downstream of the Peck Iron. Outfalls are shown in Reference 5, Figure 4-1 (Ref. 5, p. 4-3 and Figure 4-1).

Atlantic Wood

The Atlantic Wood Industries (AWI) facility is located west of Peck Iron. There is the potential that contamination from the facility could reach Paradise Creek by tidal carry or outfalls. NNSY properties are located on the north and south boundaries of Atlantic Wood (Ref. 42, Figure 2). This facility was proposed to the NPL on June 10, 1986, and was formally added to the NPL on February 21, 1990 (Ref. 56, p. 2). The facility is a source of creosote and pentachlorophenol (PCP), metals, polyaromatic hydrocarbons (PAH), and dioxins contamination (Ref. 42, p. 11).

The AWI property covers approximately 48 acres of land on the industrialized waterfront area of Portsmouth, Virginia. This land is surrounded by NNSY, the operations center for the Portsmouth Public School District, the southern branch of the Elizabeth River, and several other small industrial properties. From 1926 to 1992, a wood-treating facility operated at the site using both creosote and PCP. The property was contaminated from treatment operation activities, storage of treated wood, and disposal of wastes. At one time, the Navy leased part of the property from AWI and disposed of waste on site, including used abrasive blast media (ABM) from the sand blasting of naval equipment. The Navy also disposed of sludge from the production of acetylene in a wetland on the border of the South Gate Annex of NNSY and the AWI site. Sediments in the Elizabeth River contain visible creosote. The ground water and soil at the facility are also heavily contaminated with creosote. Creosote contamination previously migrated into a storm sewer and discharged to an inlet of the Elizabeth River at the northeast corner of the site near the Jordan Bridge (Ref. 56, p. 1).

PAHs, PCP, dioxins and metals contamination (mainly arsenic, chromium, copper, lead and zinc) have been detected in soils, ground water, and sediments. A number of these compounds have also been detected in stormwater runoff from the facility (Ref. 56, p. 1).

TIDAL INFLUENCE OF PARADISE CREEK AND CHEMICAL CHARACTERISTICS OF CONTAMINANTS

PCBs are hydrophobic organic chemicals because they have relatively low water solubility and will readily absorb to both suspended particulates and sediments (Ref. 33, pp. 444, 453, 454, 497; Ref. 5, p. 5-4). PCBs in water are transported by diffusion and currents. PCBs in surface water essentially exist in three phases: dissolved, particulate, and colloid associated. The heavier and less soluble congeners in the water column are more likely to be associated with particulates and colloids, and do not freely exchange into the vapor phase. However, the more water soluble, lower chlorinated (and *ortho*-rich) congeners are predominantly in the dissolved state in the water column and can readily partition into the vapor phase (Ref. 42, pp. 490, 491). PCBs leave the water column by partitioning onto sediments and suspended particulates, and by volatilization at the air/water interface. PCBs can be immobilized for relatively long periods of time in aquatic sediments. The adsorption of dissolved PCBs onto solids (suspended particulates and sediments) is greatest for solids composed primarily of organic matter and clay. The more highly chlorinated component (and *ortho*-poor) PCBs, which have lower water solubility and higher octanol water partition coefficients (K_{ow}), have a greater tendency to bind to solids as a result of strong hydrophobic interactions (Ref. 33, p. 491). Based on the low energy, depositional environment of Elizabeth River System, including Paradise Creek, it is anticipated that PCBs released to Paradise Creek remained trapped once deposited in sediment and eventually become buried in place, especially those found in wetlands (Ref. 5, p. 5-4).

As documented in the attribution section of this documentation record, there are many possible sources of PCB contamination to sediments of Paradise Creek. There is the potential for PCBs entrained in sediments of Paradise Creek to become resuspended from propeller wash, storms, and dredging and carried by the tide from Paradise Creek (Ref. 5, p. 5-4). The elevation changes in Paradise Creek from tidal changes are not measured. However, the elevations of the tidal changes are measured in the southern branch of the Elizabeth River at Money Point, Virginia, located over 2 miles south of Peck Iron (Ref. 53; 57, pp. 1, 2, 3). The mean change in tidal elevations, or mean lower low water, is 2.194 meters or 9.6 feet (3.2 feet times 2.194 meters) (Ref. 57, p. 2). Therefore, there is the potential for PCB contaminated sediments in Paradise Creek to be carried into the wetlands of Source 1. However, the PCB contamination in the wetland portion of Source 1 extends over 200 feet from the shores of Paradise Creek inland to the north (Ref. 38; Ref. 41; Ref. 67). Therefore, the PCB contamination detected in the Source 1 tidal wetland samples is at least partially attributed to the PCB contamination from operations at Peck Iron.

Hazardous Substance in the Release:

Lead
PCBs

4.1.2.2 WASTE CHARACTERISTICS

4.1.2.2.1 Toxicity/Persistence

Table 9 summarizes the toxicity and persistence factor values for the hazardous substances associated with sources at the facility and in the observed release to surface water. The values are assigned in accordance with Section 4.1.2.21 of Reference 1. The toxicity and persistence values were obtained from Reference 2.

TABLE 9
TOXICITY/PERSISTENCE FACTOR VALUES

Hazardous Substance	Source/ Observed Release	Toxicity Factor Value	Persistence Factor Value*	Toxicity/ Persistence Factor Value	Reference
Lead	1	10,000	1	10,000	2, p. BI-8
Polychlorinated biphenyl	1	10,000	1	10,000	2, p. BI-10

Notes:
* Persistence value is for a river.

Toxicity/Persistence Factor Value: 10,000 (Ref. 1, Table 4-12)

4.1.2.2.2 Hazardous Waste Quantity

The hazardous waste quantity value for Source 1 is summarized in Table 10.

TABLE 10
HAZARDOUS WASTE QUANTITY VALUES

Source No.	Source Type	Source Hazardous Waste Quantity
1	Contaminated soil	12.79411765

Sum of Values: 12.79411765

The hazardous waste quantity value of 100 is assigned to the surface water migration pathway because an observed release to surface water and actual contamination at Level II concentrations in a wetland are documented. If any target for a migration pathway is subject to Level II concentrations, a value of 100 is assigned if the value obtained from Table 2-6 of Reference 1 is less than 100 (Ref. 1, Section 2.4.2.2).

Hazardous Waste Quantity (HWQ) Factor Value: 100

4.1.2.2.3 Waste Characteristics Factor Category Value

The toxicity/persistence and hazardous waste quantity factor values are multiplied to obtain the drinking water threat-waste characteristics factor category for the watershed from Table 2-7 of Reference 1.

10,000 (toxicity/persistence factor value) × 100 (hazardous waste quantity factor value) = 1×10^6

Using the product of the toxicity/persistence and hazardous waste quantity factor values, the waste characteristics factor category value is obtained from Table 2-7 of Reference 1 as a value of 32.

Waste Characteristics Factor Category Value: 32

4.1.2.3 DRINKING WATER TARGETS

No drinking water intakes have been identified within the 15-mile TDL.

4.1.2.3.3 Resources

There is a public boating launch on the southern branch of the Elizabeth River (Ref. 60). The Elizabeth River is therefore a designated water recreational area. The resource factor is assigned a value of 5 (Ref. 1, Section 4.1.2.3.3).

Resources Factor Value: 5

4.1.3.2 WASTE CHARACTERISTICS

This section describes waste characteristics.

4.1.3.2.1 Toxicity/Persistence/Bioaccumulation

Table 11 summarizes the toxicity/persistence and bioaccumulation factor values for the hazardous substances associated with Source 1. The values are assigned in accordance with Section 4.1.2.21 of Reference 1. The toxicity/persistence and bioaccumulation values were obtained from Reference 2.

TABLE 11
TOXICITY/PERSISTENCE FACTOR VALUES

Hazardous Substance	Source	Toxicity/ Persistence Factor Value	Bioaccumulation Factor Value	Toxicity/ Persistence/ Bioaccumulation Factor Value	Ref.
Lead	1	10,000	5,000*	5×10^{7}	2, BI-8
Polychlorinated biphenyls (PCB)	1	10,000	50,000*	5×10^{8}	2, p. BI-10

* The bioaccumulation value for PCBs is the same for fresh and salt water. The bioaccumulation value for lead is higher for salt water. Because Paradise Creek is considered brackish, the higher of the bioaccumulation values is used (Ref. 51, p. 3). The values are assigned in accordance with Section 4.1.3.2.1.3 of Reference 1.

Toxicity/Persistence/Bioaccumulation Factor Value: 5×10^{8} (Ref. 1, Table 4-16)

4.1.3.2.2 Hazardous Waste Quantity

The hazardous waste quantity value for Source 1 is summarized in Table 12.

TABLE 12
HAZARDOUS WASTE QUANTITY VALUES

Source No.	Source Type	Source Hazardous Waste Quantity
1	Contaminated soil	12.79411765

Sum of Values: 12.79411765

The hazardous waste quantity value of 100 is assigned to the surface water migration pathway because an observed release to surface water and actual contamination at Level II concentrations in a wetland are documented. If any target for a migration pathway is subject to Level II concentrations, a value of 100 is assigned if the value obtained from Table 2-6 of Reference 1 is less than 100 (Ref. 1, Section 2.4.2.2).

Hazardous Waste Quantity (HWQ) Factor Value: 100

4.1.3.2.3 Waste Characteristics Factor Category Value

The toxicity/persistence factor value and bioaccumulation potential factor value are used to determine the waste characteristics factor category value. The toxicity/persistence factor value (10,000) is multiplied by the hazardous waste quantity value (100). The product of these two values (1×10^6) is multiplied by the bioaccumulation potential factor value (50,000). The product of these two values (5×10^{10}) is used to obtain the waste characteristics factor category value (320) from Table 2-7 of Reference 1.

10,000 (toxicity/persistence factor value) × 100 (hazardous waste quantity factor value) = 1×10^6

$1 \times 10^6 \times$ 50,000 (bioaccumulation factor value) = 5×10^{10}

Using 5×10^{10}, the waste characteristics factor category value is obtained from Table 2-7 of Reference 1, as a value of 320.

Waste Characteristics Factor Category Value: 320

4.1.3.3 HUMAN FOOD CHAIN THREAT – TARGETS

According to NOAA, human food chain fisheries exist in Paradise Creek (Ref. 6, p. 4). Crab pots used for catching crabs have been observed in the area of Paradise Creek where the Source 1 wetland soil samples were collected (Ref. 50). The southern branch of the Elizabeth River contains an essential fish habitat (EFH) for the life of the windowpane flounder (*Scopthalmus aquosus*) (Ref. 59). Windowpane flounder are a commercially harvested fish species in the Mid-Atlantic, including the Elizabeth River (Ref. 66).

Estuarine and marine fish inhabit the Elizabeth River and surrounding areas. Many of the finfish inhabiting the Elizabeth River are both recreationally and commercially valuable species. The Elizabeth River serves as a nursery ground for spot (*Leiostomus xanthurus*), Atlantic croaker (*Micropogonias undulatus*), Atlantic menhaden (*Brevoortia tyrannus*), weakfish (*Cynoscion regalis*), striped bass (*Morone saxatilis*), black sea bass (*Centropristis striata*), and summer flounder (*Paralichthys dentatus*). The fringing marsh habitats within the less disturbed, upper reaches of this system are expected to provide nursery grounds for young fish. The Elizabeth River serves as a feeding ground for species such as adult bluefish (*Pomatomus saltatrix*), weakfish, spot, and Atlantic croaker. Anadromous fish such as American shad (*Alosa sapidissima*), alewife (*Alosa pseudoharengus*), and striped bass travel the length of the Elizabeth River to reach freshwater spawning grounds at the head of the Elizabeth River (Ref. 5, p. 5-6; Ref. 60, pp. 2 through 7).

A fish consumption advisory for the Elizabeth River system, including the southern branch of the Elizabeth River, has been issued by the Virginia Department of Health for numerous fish species (Ref. 62, p. 2).

<u>Actual Human Food Chain Contamination</u>

4.1.3.3.1 Food Chain Individual

As noted in Section 4.1.2.1.1 of this HRS documentation record, an observed release of hazardous substances having a bioaccumulation factor value of 500 or greater is documented in Paradise Creek and a human food chain fishery is present within the TDL (Ref. 50). The food chain individual factor is assigned a value of 20 (Ref. 1, Section 4.1.3.3.1).

Food Chain Individual Factor Value: 20 (Ref. 1, Section 4.1.3.3.1)

4.1.3.3.2 Population

No Level I or Level II concentrations have been documented. Documentation regarding the amount of fish and crabs harvested from surface water bodies within the TDL has not been identified. A human food chain population value of zero is assigned (Ref. 1, Section 4.1.3.3.2),

Human Food Chain Population Value: 0

4.1.3.3.2.3 Potential Human Food Chain Contamination

Potential human food chain contamination has been evaluated but is not scored.

Potential Human Food Chain Contamination Value: Evaluated but not scored.

4.1.4 ENVIRONMENTAL THREAT

4.1.4.2 Waste Characteristics

4.1.4.2.1 Ecosystem Toxicity/Persistence/Bioaccumulation

Table 13 presents the ecosystem toxicity/persistence factor values for hazardous substances detected in Source 1.

TABLE 13
ECOSYSTEM TOXICITY/PERSISTENCE FACTOR VALUES

Hazardous Substance	Source	Ecosystem Toxicity Value*	Persistence Value**	Ecosystem Toxicity/ Persistence Factor Value	Ref.
Lead	1	1,000	1	1,000	2, p. BI-8
PCBs	1	10,000	1	10,000	2, p. BI-10

Notes:
*Ecotoxicities for fresh and salt water are the same.
** Persistence values for Elizabeth River
PCB Polychlorinated biphenols

Table 14 presents the ecosystem toxicity/persistence/bioaccumulation factor values for hazardous substances detected in Source 1.

TABLE 14
ECOSYSTEM TOXICITY/PERSISTENCE/BIOACCUMULATION FACTOR VALUES

Hazardous Substance	Source	Ecosystem Toxicity/ Persistence Factor Value	Ecosystem Bioaccumulation Value *	Ecosystem Toxicity/ Persistence/ Bioaccumulation Value	Ref.
Lead	1	1,000	50,000	5×10^7	2, p. BI-8
PCBs	1	10,000	50,000	5×10^8	2, p. BI-10

Note:
* The ecosystem bioaccumulation value for PCBs is the same for fresh and salt water. The ecosystem bioaccumulation value for lead is higher for fresh water. Because Paradise Creek is considered brackish, the higher of the two bioaccumulation values is used (Ref. 51). The values are assigned in accordance with Sections 4.1.3.2.1.3 and 4.1.4.2.1.3 of Reference 1.
PCB Polychlorinated biphenols

Ecosystem Toxicity/Persistence/Bioaccumulation Potential Factor Value: 5×10^8

4.1.4.2.2 Hazardous Waste Quantity

As documented in Section 4.1.4.3.1.2 of this HRS documentation record, a wetland and sensitive environment are subject to Level II concentrations; therefore, a minimum value of 100 is assigned for the hazardous waste quantity factor value (Ref. 1, Section 2.4.2.2 and Table 2-6).

Hazardous Waste Quantity Factor Value = 100

4.1.4.2.3 Waste Characteristics Factor Category Value

The waste characteristics factor category value is determined by taking the product of the highest ecosystem toxicity/persistence factor value (10,000) and the hazardous waste quantity value (100), and multiplying the product by the highest ecosystem bioaccumulation factor value (50,000) (Ref. 1, Section 4.1.4.2.3).

$10{,}000 \times 100 = 1 \times 10^6$

ecosystem toxicity/persistence factor value × hazardous waste quantity factor value: 1×10^6

$1 \times 10^6 \times 50{,}000 = 5 \times 10^{10}$

(ecosystem toxicity/persistence × hazardous waste quantity) × ecosystem bioaccumulation potential factor value: 5×10^{10}

Waste Characteristics Factor Category Value: 320 (Ref. 1, Table 2-7)

4.1.4.3 ENVIRONMENTAL THREAT – TARGETS

Sensitive environments associated with Paradise Creek are documented in the sections below.

4.1.4.3.1 Sensitive Environments

Level I and Level II concentrations and potential contamination to sensitive environments associated with Paradise Creek are documented in the sections below.

4.1.4.3.1.1 Level I Concentrations

No Level I concentrations were documented. The Level I concentrations factor value is 0 (Ref. 1, Section 4.1.4.3.1.1).

Level I Concentrations Factor Value: 0

4.1.4.3.1.2 Level II Concentrations

Actual environmental contamination has been documented in the wetlands of Paradise Creek, as discussed in Section 4.1.1.1 of this HRS documentation record. As presented in Table 8 of this record, soil samples collected from Source 1 wetlands contain PCBs and lead at concentrations documenting observed soil contamination. The wetland area is shown in References 38, 41, and 67. These soil sampling locations are listed below.

Sample ID: SL-AA2-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

Sample ID: SL-AA3-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

Sample ID: SL-AA4-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

Sample ID: SL-AA5-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

Sample ID: SL-BB4-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

Sample ID: SL-BB5-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

Sample ID: SL-DD5-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

Sample ID: SL-DD6-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

Sample ID: SL-EE3-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

Sample ID: SL-EE4-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

Sample ID: SL-EE5-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

Sample ID: SL-GG8-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

Sample ID: SL-GG9-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

Sample ID: SL-GG10-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

Sample ID: SL-GG12-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

Sample ID: SL-HH10-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

Sample ID: SL-HH11-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

Sample ID: SL-HH12-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

Sample ID: SL-HH13-0
Sample Medium: Soil
Location: Wetland, Paradise Creek
References: See Table 8 and Reference 38

When the PPE to surface water is into a wetland, the wetland perimeter is used to determine the length of the wetland subject to Level II concentrations (Ref. 1, Section 4.1.4.3.1.2). The wetland subject to Level II concentrations (as shown in Table 15 below) is estimated to have a 0.45-mile perimeter (Ref. 38; Ref. 41; Ref. 67). The perimeter of the wetland was determined using the data files provided by the National Wetland Inventory. The perimeter also can be measured using Reference 41 and a map wheel.

TABLE 15
LEVEL II SENSITIVE ENVIRONMENTS – PARADISE CREEK

Sensitive Environment	Reference	Sensitive Environment Type	Sensitive Environment Value (Ref. 1, Table 4-24)
Wetland	41	Wetland	25

The Level II concentrations value is the sum of the sensitive environment values subject to Level II concentrations, or 25 (Ref. 1, Section 4.1.4.3.1.2).

Level II Concentrations Factor Value: 25

4.1.4.3.1.3 <u>Potential Contamination</u>

Potential contamination to sensitive environments was not scored.