HAZARD RANKING SYSTEM (HRS) DOCUMENTATION RECORD COVER SHEET

Name of Site: Post and Lumber Preserving Co. Inc.

EPA ID No.: FLD004061925

Contact Persons

Documentation Record:

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Pathways, Components, or Threats Not Scored

The ground water migration pathway, the drinking water threat of the surface water migration pathway, the soil exposure pathway, and the air migration pathway were not scored in this Hazard Ranking System (HRS) documentation record because the human food chain and environmental threats of the surface water migration pathway are sufficient to qualify the site for the National Priorities List (NPL). The ground water migration pathway, the drinking water threat of the surface water migration pathway, the soil exposure pathway, and the air migration pathway are of concern to the U.S. Environmental Protection Agency (EPA) and may be considered during a future evaluation. At the time of the listing, the site score is sufficient without the threats and pathways mentioned above.

Ground Water Migration Pathway: Annual ground water monitoring is conducted at the Post and Lumber Preserving Co. Inc. (Post & Lumber) property (Ref. 50, p. 1). Analytical results for ground water samples collected from 1997 to 2015 indicated the presence of wood preserving contaminants, including arsenic (up to 1,330 micrograms per liter [µg/L]), copper (up to 390 µg/L), and pentachlorophenol (PCP) (up to 40,000 µg/L), in ground water underlying the Post & Lumber property (Ref. 50, pp. 15 through 21). Drinking water in Gadsden County is supplied by ground water wells completed in the Floridan aquifer (Refs. 49, p. 1; 51, p. 1). The Floridan aquifer is confined; therefore, hazardous substances detected during the annual ground water monitoring events are not expected to impact the drinking water wells (Ref. 9, p. 28). However, arsenic and PCP are present in ground water beneath the Post & Lumber property at concentrations above the Florida Department of Environmental Protection ground water cleanup target levels; therefore, the ground water migration pathway is of concern (Ref. 50, pp. 15 through 21).

Surface Water Migration Pathway, Drinking Water Threat: No drinking water intakes are located within the 15-mile target distance limit and the listing of the site would not be changed by evaluating the drinking water threat of the surface water migration pathway.

Air Migration and Soil Exposure Pathways: The listing of the site would not be changed by evaluating these pathways.

HAZARD RANKING SYSTEM (HRS) DOCUMENTATION RECORD

Name of Site:	Post and Lumber Preserving Co. Inc.
EPA Region:	4
Date Prepared:	September 2016
Street Address of Site*:	20 Post Plant Road
City, County, State, Zip:	Quincy, Gadsden County, Florida 32351
General Location in the State:	Northern portion of the State
Topographic Maps:	Quincy, Florida, 1994
Latitude:	30° 35′ 32.90″ North
Longitude:	84° 30′ 36.29″ West

Coordinates listed above for the Post and Lumber Preserving Co. Inc. were measured at the approximate center of Source No. 1 (Ref. 4) (see Figure 3 of this HRS documentation record).

* 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, disposed or placed, or has 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 CERCLA. 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.

Pathway	**Pathway Score**
Ground Water Migration	Not Scored
Surface Water Migration	72.66
Soil Exposure	Not Scored
Air Migration	Not Scored
HRS SITE SCORE	**36.33**

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})	72.66	5,279.4756
Soil Exposure Pathway Score (S_s)	NS	NS
Air Migration Pathway Score (S_a)	NS	NS
$S^2_{gw} + S^2_{sw} + S^2_s + S^2_a$		5,279.4756
$(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a) / 4$		1319.8689
$\sqrt{(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a) / 4}$		**36.33**

Note:

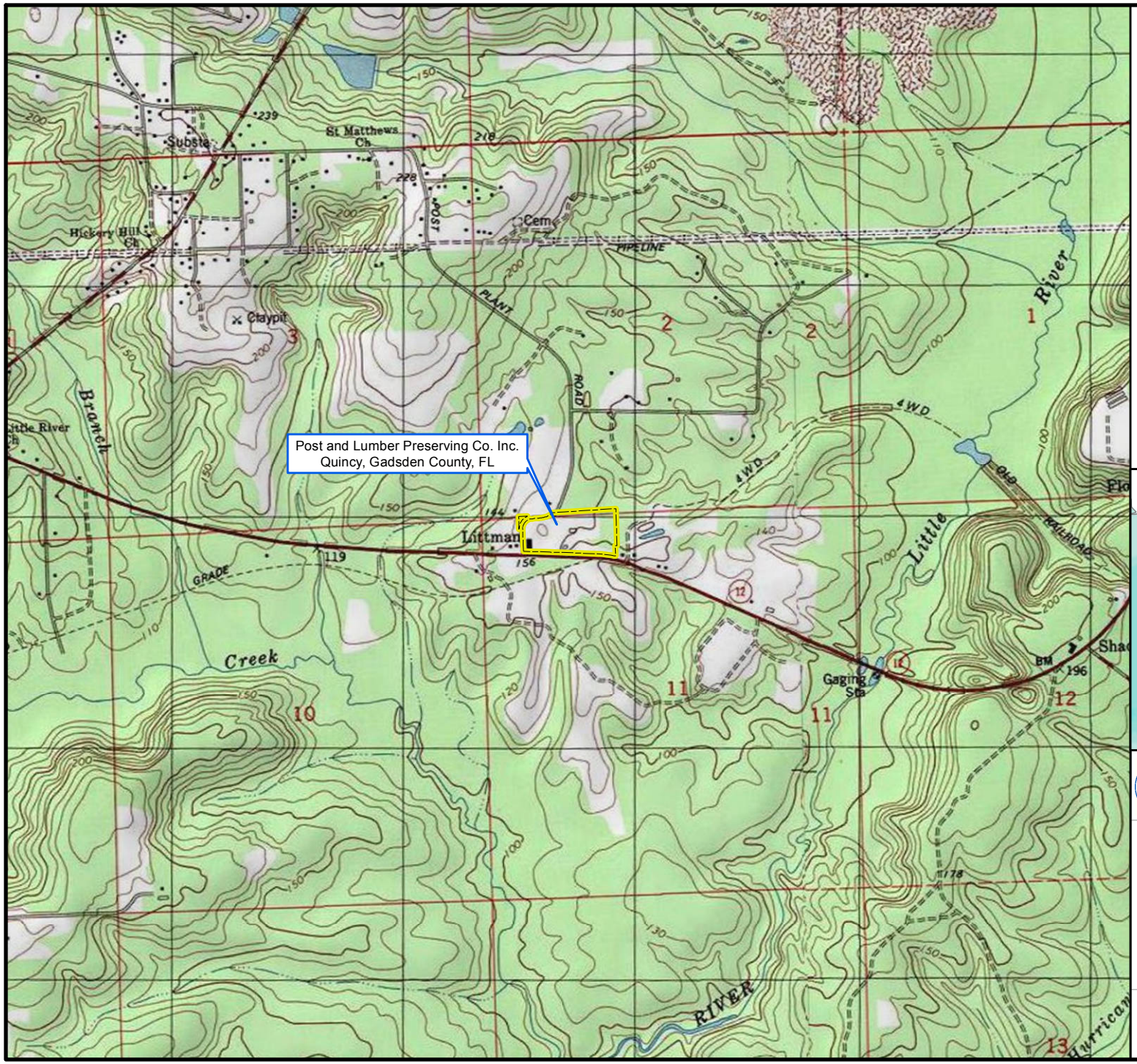
NS Not scored

Table 4-1 – Surface Water Overland/Flood Migration Component Scoresheet			
Factor Categories and Factors	**Maximum Value**	**Value Assigned**	
Drinking Water Threat			
Likelihood of Release:			
1. Observed Release	550	550	
2. Potential to Release by Overland Flow:			
2a. Containment	10	NS	
2b. Runoff	25	NS	
2c. Distance to Surface Water	25	NS	
2d. Potential to Release by Overland Flow [lines 2a(2b + 2c)]	500	NS	
3.Potential to Release by Flood:			
3a. Containment (Flood)	10	NS	
3b. Flood Frequency	50	NS	
3c. Potential to Release by Flood (lines 3a x 3b)	500	NS	
4. Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500	NS	
5. Likelihood of Release (higher of lines 1 and 4)	550		550
Waste Characteristics:			
6. Toxicity/Persistence	(a)	10,000	
7. Hazardous Waste Quantity	(a)	100	
8. Waste Characteristics	100		NS
Targets:			
9. Nearest Intake	50	NS	
10. Population:			
10a. Level I Concentrations	(b)	NS	
10b. Level II Concentrations	(b)	NS	
10c. Potential Contamination	(b)	NS	
10d. Population (lines 10a + 10b + 10c)	(b)	NS	
11. Resources	5	NS	
12. Targets (lines 9 + 10d + 11)	(b)		
Drinking Water Threat Score:			
13. Drinking Water Threat Score [(lines 5x8x12)/82,500, subject to a maximum of 100]	100		NS
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)	500,000,000	
16. Hazardous Waste Quantity	(a)	100	
17. Waste Characteristics	1,000		320
Targets:			
18. Food Chain Individual	50	20	

Table 4-1 –Surface Water Overland/Flood Migration Component Scoresheet (Continued)			
Factor Categories and Factors	**Maximum Value**	**Value Assigned**	
19. Population			
19a. Level I Concentrations	(b)	0	
19b. Level II Concentrations	(b)	0	
19c. Potential Human Food Chain Contamination	(b)		0.000033
19d. Population (lines 19a + 19b + 19c)	(b)		0.000033
20. Targets (lines 18 + 19d)	(b)		20.000033
Human Food Chain Threat Score:			
21. Human Food Chain Threat Score [(lines 14x17x20)/82500, subject to maximum of 100]	100		42.66
Environmental Threat			
Likelihood of Release:			
22. Likelihood of Release (same value as line 5)	550		550
Waste Characteristics:			
23. Ecosystem Toxicity/Persistence/Bioaccumulation	(a)	50,000,000	
24. Hazardous Waste Quantity	(a)	100	
25. Waste Characteristics	1,000		180
Targets:			
26. Sensitive Environments			
26a. Level I Concentrations	(b)	0	
26b. Level II Concentrations	(b)	25	
26c. Potential Contamination	(b)	NS	
26d. Sensitive Environments (lines 26a + 26b + 26c)	(b)	25	
27. Targets (value from line 26d)	(b)		25
Environmental Threat Score:			
28. Environmental Threat Score [(lines 22x25x27)/82,500 subject to a maximum of 60]	60		30.00
Surface Water Overland/Flood Migration Component Score for a Watershed			
29. Watershed Score[c] (lines 13+21+28, subject to a maximum of 100)	100		72.66
Surface Water Overland/Flood Migration Component Score			
30. Component Score (S_{sw})[c] (highest score from line 29 for all watersheds evaluated; subject to a maximum of 100)	100		72.66

Notes:

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] Do not round to nearest integer
NS Not scored



Legend

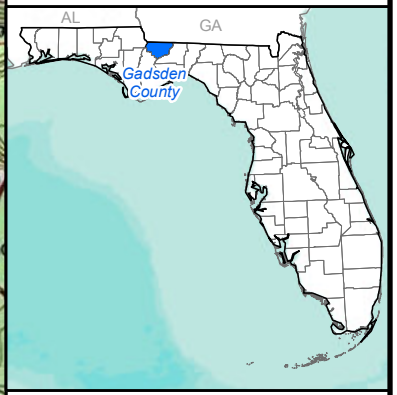
Property Boundary

N
W E
S

0 1,000 2,000

Feet

References: 5, pp. 1, 2, 3; 12, p. 116
Map Sources:
USGS 7.5 Minute Topographic Quadrangle Maps:
Quincy, FL 1994.



United States Environmental Protection Agency
Region 4

FIGURE 1

Property Location

TDD Name: Post & Lumber Preserving Co. Inc.

TDD No.: TT-05-016

City:	County:	State:
Quincy	Gadsden	Florida

TETRA TECH

Date: 8/5/2016
Analyst: helen.mayoral

File: C:\X\TT-05-016_Post_and_Lumber\GIS\MXDs\Site_Location\Site_Location.mxd

Legend

- Approximate Extent of Former Surface Impoundment
- Approximate Location of Runoff Drainage Ditch
- Extent of PPE
- Approximate Location of Former Sludge Pit
- Approximate Location of Former Wood Treatment Process and Drum Storage Areas
- Property Boundary
- Source No. 1

FDEP Delineated Wetlands

- HRS Eligible Palustrine Forested Wetlands

N
W E
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0 75 150
Feet

Note:
FDEP - Florida Department of Environmental Protection
HRS - Hazard Ranking System
PPE - Probable Point of Entry

Map Sources:
ESRI Aerial Imagery, 2012-2013; The source of this image is ESRI, used by EPA with ESRI's permission. References 5, pp. 1, 2, 3; 8, p. 46; 12, p. 323; 21, p. 57; 22, p. 6, 8,16.

United States Environmental Protection Agency Region 4

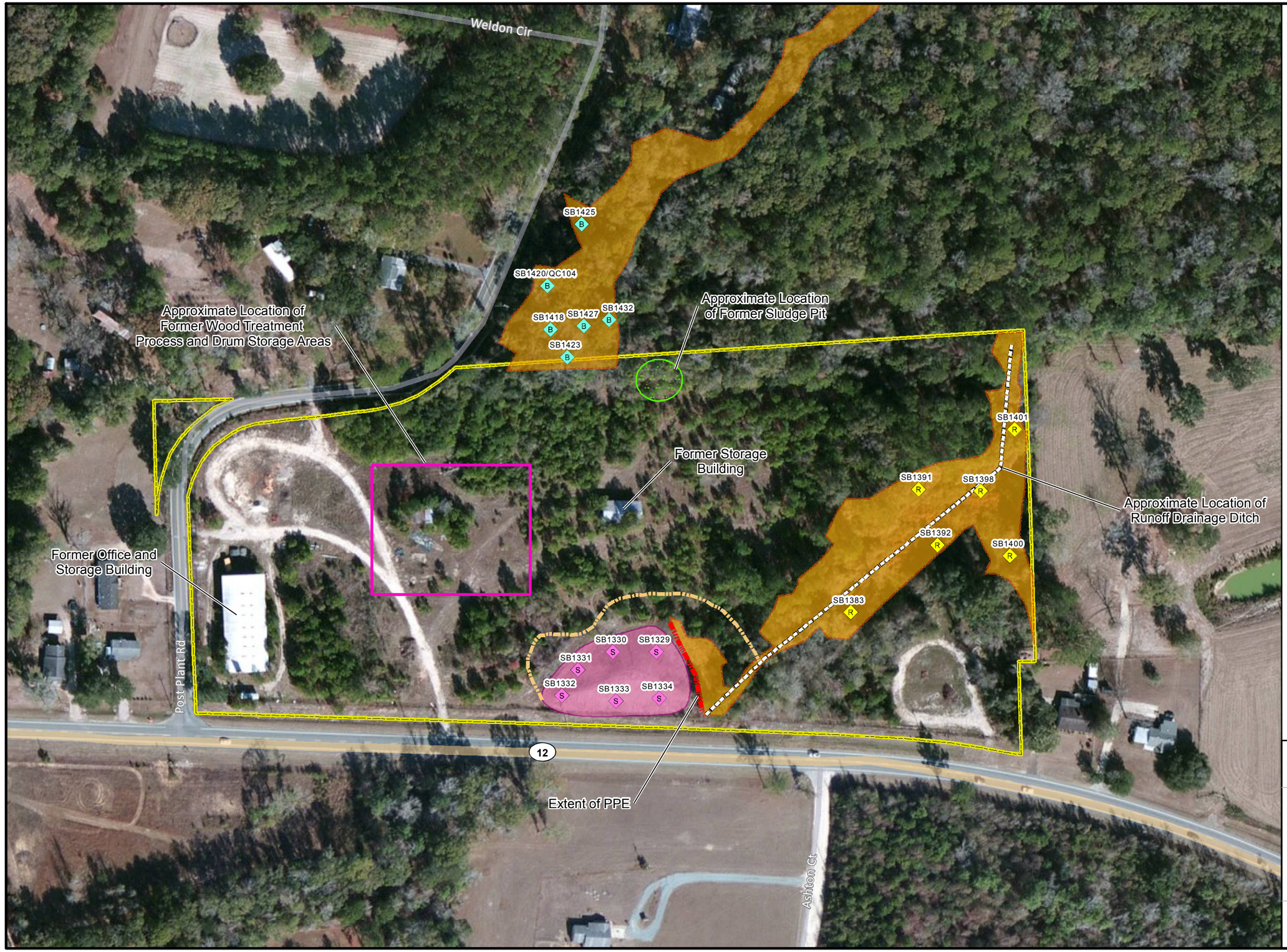
FIGURE 2
Property Layout and Source No. 1 Location

TDD Name: Post & Lumber Preserving Co. Inc.
TDD No.: TT-05-016
City: Quincy
County: Gadsden
State: Florida

TETRA TECH

Date: 8/5/2016
Analyst: helen.mayoral

File: C:\X\TT-05-016_Post_and_Lumber\GIS\MXDs\Site_Layout\Site_Layout_v2.mxd



Legend

- Observed Release Wetland Sample
- Background Wetland Sample
- Source Sample
- Approximate Extent of Former Surface Impoundment
- Approximate Location of Runoff Drainage Ditch
- Extent of PPE
- Approximate Location of Former Sludge Pit
- Approximate Location of Former Wood Treatment Process and Drum Storage Areas
- Property Boundary
- Source No. 1

FDEP Delineated Wetlands

- HRS Eligible Palustrine Forested Wetlands

N
W E
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0 75 150
Feet

Note:
FDEP - Florida Department of Environmental Protection
HRS - Hazard Ranking System
PPE - Probable Point of Entry

Map Sources:
ESRI Aerial Imagery, 2012-2013; The source of this image is ESRI, used by EPA with ESRI's permission.
References 5, pp. 1, 2, 3; 8, p. 46; 12, pp. 117, 323; 18, p. 15; 21, p. 57; 22, p. 6, 8,16; 30, pp. 10, 11.

United States Environmental Protection Agency Region 4

FIGURE 3
Source and Observed Release Sampling Locations

TDD Name: Post & Lumber Preserving Co. Inc.
TDD No.: TT-05-016
City: Quincy **County:** Gadsden **State:** Florida

TETRA TECH

Date: 8/5/2016
Analyst: helen.mayoral

File: C:\X\TT-05-016_Post_and_Lumber\GIS\MXDs\Sampling\Source_Observed_Release_Sampling_v2.mxd

REFERENCES

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SITE DESCRIPTION

For HRS scoring purposes, the Post and Lumber Preserving Co. Inc. (Post & Lumber) site includes one source and an associated observed release to a palustrine forested wetland located on the property. Source No. 1 is a pile (also referred to in reports as the closed Resource Conservation and Recovery Act [RCRA] landfill) that contains approximately 12,000 to 15,000 cubic yards of bottom sludge/sediment and contaminated soil from the treatment process area, the overflow pond, and the former catchment basin and sump (Refs. 6; 7, pp. 49, 50; 8, p. 6). Hazardous substances including arsenic, chromium, copper, pentachlorophenol (PCP), and dioxins and furans have been detected in Source No. 1 (see Section 2.2.1, Source No. 1 and Figure 3 of this HRS documentation record). Palustrine forested wetlands adjacent to Source No. 1 contain the same constituents at concentrations greater than background levels, indicating that a release of hazardous substances has occurred to the surface water migration pathway, as documented in Sections 3.0 and 3.1 of this HRS documentation record. Little River, which receives runoff from Post & Lumber, is fished for human consumption (Refs. 39; 53).

Post & Lumber encompasses about 18 acres of land and is located at 20 Post Plant Road in Quincy, Gadsden County, Florida (Refs. 4; 5) (see Figure 1 of this HRS documentation record). More specifically, the geographic coordinates, as measured from the approximate center of Source No. 1, are latitude 30° 35′ 32.90″ north and longitude 84° 30′ 36.29″ west (Ref. 4). The EPA identification number as recorded in the Superfund Enterprise Management System (SEMS) database is FLD004061925 (Ref. 6). Post & Lumber is a former wood preserving company that operated from about 1948 to the mid-1980's (Refs. 8, p. 3; 15, p. 1). Buildings and features previously located on the property included an office and storage building, two additional storage buildings, peeling mills, a maintenance shop, a storage tank area, a treated wood storage area, a treatment process area, a catchment basin and sump, treatment sumps, a sludge pit, a former surface impoundment, and drainage ditches (Refs. 7, pp. 20, 21, 54; 8, p. 66) (see Figure 2 of this HRS documentation record).

Post & Lumber is bordered on the north by residential and farm land properties, with undeveloped land beyond; on the east by residential and farm land properties, with undeveloped land beyond; on the south by Havana Highway, with residential and farm land properties beyond, and on the west by Post Plant Road, with residential properties and undeveloped land beyond (see Figure 2 of this HRS documentation record). The topography of Post & Lumber is generally flat with a gradual slope to the northeast (Ref. 3) (see Figure 1 of this HRS documentation record).

OPERATIONAL HISTORY

Prior to 1948 when Post & Lumber took ownership, the property was operated as a saw mill (Ref. 9, p. 2). Post & Lumber began operations in 1948 pressure treating posts, poles, and beams using PCP (mixed with diesel fuel from 1954 to 1980 or water from 1980 to 1986), chromated zinc chloride (CZC) solution in the 1960s, fluorochrome arsenic phenol (FCAP) mixture in the 1970s, and chromated copper arsenate (CCA)—an aqueous solution of Wolman salts, fluoride, hexavalent chromium, arsenic, dimethyl phenol, and copper—from 1975 to 1990 (Refs. 7, pp. 14, 19, 21; 10). Pressure treating operations ceased in the mid-1980s, after which the property was used only as a distribution center for pressure treated-posts and lumber (Ref. 8, p. 3). Currently, the property is inactive and vacant (Refs. 11, p. 1; 12, p. 9).

Untreated wood was stored near the office until the bark could be removed in the peeling mills. After peeling, the wood was dried, then manually loaded into the treatment cylinder for treatment with PCP or a chromated treating solution (CZC, FCAP, or CCA). Specific treating conditions depended on the product (Ref. 7, p. 21). Following treatment, the lumber was rolled onto the drip track pad and sump for quality control testing. The treating solution remaining in the cylinder was pumped back into its holding tank. Treated materials were stored in the treated wood storage area prior to shipment to customers (Ref. 7, pp. 20, 21).

PCP and chromated wood treating processes generated K001 (bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or PCP), D004 (arsenic), and D007 (chromium) sludges, as well as steam condensates contaminated with entrained oils, organic compounds, and wood carbohydrates (Refs. 7, p. 23; 13, pp. 1, 5). According to facility management, no wastewater discharges occurred prior to 1960, when the facility constructed a surface impoundment to receive wood treating wastewaters and recycle process waters (Ref. 7, p. 23).

During operations, the former surface impoundment received processed wastewater and rainwater runoff from the treatment process area (Ref. 7, p. 49). The former surface impoundment managed listed K001 (bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or PCP) waste and D004 (arsenic) and D007 (chromium) characteristic waste (Refs. 7, p. 50; 13, pp. 1, 5).

Post & Lumber submitted a notification of Hazardous Waste Activity as a generator, transporter, and treatment, storage, and disposal (TSD) facility on August 18, 1980. The facility's RCRA Part A Permit application, dated November 19, 1980, specified that the facility generated 1,200 pounds per year of both arsenic (D004) and chromium (D007) wastes, and 800 pounds per year of K001. All wastes were reportedly stored in drums in a container storage area. The former surface impoundment was not listed in this permit application (Ref. 7, p. 29).

From 1981 to 1983, EPA and the Florida Department of Environmental Regulation (FDER) (now the Florida Department of Environmental Protection [FDEP]) conducted numerous inspections at Post & Lumber. During these inspections, various deficiencies and issues of non-compliance were observed (Ref. 9, p. 5). Some of these deficiencies and issues of non-compliance included: disposal of wastewater into the former surface impoundment, disposal of sludge into a pit located in the northeastern portion of the property, and leaking PCP and wolman salt tanks, among others (Ref. 9, p. 5). During subsequent re-inspections, some of the deficiencies persisted and in February 1983, FDER issued a notice of violation (NOV) to Post & Lumber (Ref. 9, p. 5). The NOV specified that Post & Lumber cease unpermitted discharges to ground water and surface water and conduct a cleanup investigation including development of sampling and cleanup plans (Ref. 9, pp. 5, 6).

On October 14, 1983, a Consent Order was issued to the Post & Lumber requiring installation of an adequate ground water monitoring network, compliance with financial responsibility requirements, and implementation of an approved closure plan for the former surface impoundment by September 1, 1984. On February 24, 1984, FDER issued a Temporary Operating Permit to Post & Lumber to store hazardous wastes in containers and in the former surface impoundment (Ref. 7, p. 29). Because the Post & Lumber could not obtain non-sudden liability insurance or comply with other specific permit conditions (ground water monitoring and closure of the former surface impoundment), FDER filed a Petition for Enforcement against Post & Lumber on December 7, 1984. Additionally, on September 28, 1984, a federal complaint was filed. These actions ended with a Consent Decree, signed on September 29, 1987, to perform the required RCRA ground water monitoring, as well as closure and post-closure care of the former surface impoundment (Ref. 7, p. 30). Between 1982 and 1989, Post & Lumber received several Warning Notices, Notices of Violations, and Notices of Deficiencies, including a Warning Notice on July 1, 1985, to correct inadequate and eroded dikes surrounding the former surface impoundment (Source No. 1) (Ref. 7, pp. 30, 31).

In 1985, after determination that hazardous wastes were being managed within the former surface impoundment, Post & Lumber submitted a closure permit application, and Closure Permit No. HF20-103078 was issued on September 11, 1987. Disposal of the wastewater from within the former surface impoundment (approximately 575,000 gallons) occurred at the City of Quincy's wastewater treatment plant (Ref. 7, p. 49). Bottom sludge/sediment and contaminated soil from the wood processing area were placed in the southern portion of the former surface impoundment and closed as a RCRA landfill (Ref. 8, p. 46). This resulting pile of bottom sludge/sediment and contaminated soil is evaluated as Source No. 1

(see Figure 2 of this HRS documentation record). The remaining portion of the former surface impoundment was backfilled with soil and bark chips, and covered with a geomembrane, topsoil, and vegetation (Refs. 7, p. 50; 8, p. 6). Source No. 1, pile of bottom sludge/sediments and contaminated soil from the wood processing area, is referred to as landfill, closed RCRA unit, RCRA landfill, and as a RCRA Closure Unit (CU) in various documents prepared for Post & Lumber (Refs. 7, pp. 7, 8, 13; 8, p. 3; 12, p. 13; 18, pp. 1, 4). The terms Source No. 1 and RCRA CU, evaluated as a pile, will be used for the remainder of this HRS documentation record.

In a memorandum dated May 2, 2007, the EPA Region 4 RCRA Division notified the Superfund Remedial & Site Evaluation Branch that due to Post & Lumber's bankrupt status, the facility has been unable to proceed with further environmental investigations or remediation activities pursuant to RCRA/HSWA requirements. Therefore, the EPA Region 4 RCRA Division and the FDEP Bureau of Hazardous Waste Regulation deferred Post & Lumber to the EPA Region 4 Superfund Program (Ref. 55, p. 1).

PREVIOUS INVESTIGATIONS

A number of previous environmental investigations occurred at and in the vicinity of Post & Lumber. Table 1 lists previous investigations at Post & Lumber, including hazardous substances detected in samples collected.

Company/ Agency	Investigation, Sponsor	Date	Samples Collected	Hazardous Substances Detected	References
Environmental Science and Engineering, Inc. (ESE)	RCRA Compliance Sampling; FDER Contract No. WM 154	August 1986	Ground water	Arsenic Chromium	14, pp. 1, 4
RCRA Facility Assessment and Visual Site Inspection	A.T. Kearney, Inc., EPA	July to November 1990	None	NA	7, pp. 4, 7
FDEP	Expanded Site Inspection, FDEP	May 1995	Soil, ground water, sediment	PCP Arsenic Chromium Copper	9, pp. 1, 73 through 84
Rust Environment & Infrastructure (Rust)	Contamination Assessment Report, FDEP	June and July 1997, November 1997 to January 1998	Soil, ground water, surface water, sediment	PCP Arsenic Chromium Copper Dioxins/furans	8, pp. I, 1, 11 through 17
Earth Tech, Inc. (Earth Tech)	Final Comprehensive Site Assessment Report, FDEP	September and October 2001	Soil, ground water, sediment	PCP Arsenic Dioxins/furans	15, pp. 1 through 5
Earth Tech	Additional Soil and Sediment Assessment Report, FDEP	October to November 2004	Soil, sediment	PCP Arsenic Dioxins/furans	16, pp. 1, 3, 6, 13, 14

Company/ Agency	Investigation, Sponsor	Date	Samples Collected	Hazardous Substances Detected	References
Earth Tech	Addendum to Additional Soil and Sediment Assessment Report, FDEP	March 2005	Soil, sediment	Arsenic Dioxins/furans	17, pp. 1, 5 through 26
AECOM Technical Services, Inc. (AECOM)	RCRA Closure Unit Cover Installation As-Built Report, FDEP	February 2012	Soil	PCP Arsenic Chromium Copper Dioxins/furans	18, pp. 1, 4, 10, 11
Shaw Environmental, Inc. (a CB&I Company) (CB&I)	Draft Supplemental Soil Assessment Report, FDEP	June 2013	Soil, ground water	PCP Arsenic Chromium Copper Dioxins/furans	12, pp. 1, 15 through 20
AMEC Environment and Infrastructure, Inc. (AMEC)	Additional CERCLA HRS Scoring Assessment, FDEP	June 2013	Soil, sediment	Arsenic Dioxins/furans	11, pp. 1, 2, 3, 4, 5, 6
CB&I	Field Work Completion Package, FDEP	April and June 2015	Soil, sediment	Arsenic Chromium Copper Dioxins/furans	19, pp. 1, 81 to 86

Notes:

CERCLA	Comprehensive Environmental Response Compensation and Liability Act
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
HRS	Hazard Ranking System
NA	Not applicable
PCP	Pentachlorophenol
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment

2.2 SOURCE CHARACTERIZATION

2.2.1 SOURCE IDENTIFICATION

Number of source: 1

Name of source: RCRA Closure Unit

Source Type: Pile

Description and Location of Source (with reference to a map of site):

Source No. 1 is a pile located in the southeastern portion of the Post & Lumber property (Refs. 8, p. 46; 18, pp. 15, 116) (see Figure 2 of this HRS documentation record). The pile contains bottom sludge/sediments and contaminated soil that resulted from the closure of the former surface impoundment and contaminated soils from the wood processing area (Refs. 8, p. 3; 18, p. 4). Source No. 1 is also referred to as the Closed RCRA Landfill, RCRA landfill, and RCRA CU in historical documents, but will be referred to as RCRA CU in this HRS documentation record (Refs. 7, p. 49; 8, pp. 3, 46; 18, pp. 4, 15, 116). EPA estimated the volume of bottom sludge/sediments and contaminated soil contained within Source No. 1 as between 12,000 and 15,000 cubic yards (Ref. 18, p. 4). Based on the 2012 as-built drawing and Figure 3 of this HRS documentation record, the area of Source No. 1 is about 0.22 acre or 9,583.2 square feet (ft^2) (Refs. 18, pp. 15, 116; 52) (see Figure 3 of this HRS documentation record). The area of Source No. 1 was estimated by connecting the sampling locations and measuring the area inside the polygon (Ref. 52).

Since completion of the cap in 1987, no records of any additional maintenance are known to have occurred until 2010. In October 2010, AECOM performed site maintenance, which included an assessment of the overall condition of the cap (Ref. 18, p. 4). During the site maintenance, AECOM cleared thick vegetation and shrubs from around the base of the former impoundment and cut down and removed approximately two dozen medium-sized trees growing on the slopes of the cap (Ref. 18, pp. 4, 5). AECOM determined that the roots from the trees and shrubs had penetrated the cap and compromised its integrity. As a result, FDEP directed AECOM to design and construct an improved interim cover to be installed over the original existing cap (Ref. 18, p. 5).

In February 2012, prior to installation of the new cover, AECOM collected six samples (SB1329 through SB1334) within 2 and 9 feet below the surface of Source No. 1. These samples were analyzed for PCP, arsenic, chromium, copper, and dioxins/furans (Ref. 18, p. 10). PCP concentrations ranged from 0.55 to 830 milligrams per kilogram (mg/kg), arsenic concentrations ranged from 28 to 380 mg/kg, chromium concentrations ranged from 50 to 470 mg/kg, copper concentrations ranged from 19 to 230 mg/kg, and dioxin Toxicity Equivalents (TEQ) ranged from 4,300 to 22,000 nanograms per kilogram (ng/kg) (Ref. 18, pp. 10, 11, 27).

Currently, Source No. 1 (RCRA CU) and the former office and storage building remain on the Post & Lumber property (Ref. 4, p. 2). Source No. 1 extends about 20 to 30 feet above ground surface (Ref. 47). A wetland area is located immediately adjacent to the eastern side of Source No. 1 (Ref. 18, pp. 15, 116).

2.2.2 HAZARDOUS SUBSTANCES ASSOCIATED WITH THE SOURCE

2012 AECOM RCRA Closure Unit As-Built Cover Installation

Subsurface soil samples listed in Table 2 of this HRS documentation record were collected by AECOM on behalf of FDEP during the 2012 RCRA Closure Unit As-Built Cover Installation (Ref. 18, pp. 1, 10).

Source No. 1 samples were collected at depths ranging from 2 to 9 feet below the surface of Source No. 1 (Ref. 18, p. 10) (see Figure 3 of this HRS documentation record).

Source No. 1 samples were collected by use of direct-push technology (DPT) and hand augers. TestAmerica analyzed the samples by application of EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) Methods 6010B (arsenic, chromium, and copper), 8151A (PCP), and 8290 (dioxins and furans) (Ref. 18, p. 10). AECOM conducted data validation of the sample results. Comparisons of data elements in the data package to EPA Contract Laboratory Program (CLP) National Functional Guidelines (NFG) for Organic and Inorganic Data Review indicated acceptability of overall data quality (Ref. 18, pp. 10, 127 through 132).

Practical quantitation limits (PQL) are listed on the analytical data sheets in Reference 18, Appendix L. PQLs are the lowest concentrations of each substance that can be reasonably quantified and were adjusted for sample characteristics that may have affected quantitation, such as concentration, dilutions, and percent moisture (Ref. 43). PQLs on the analytical data sheets are equivalent to sample quantitation limits (SQL) as defined by the HRS (Refs. 1, p. 51586; 43).

The chain-of-custody record appears in Reference 18, page 167. Locations of Source No. 1 samples listed in Table 2 of this HRS documentation record are provided in Reference 18, p. 15 (see Figure 3 of this HRS documentation record).

TABLE 2: Analytical Results for Source No. 1 – February 2012

Sample ID	Hazardous Substance	Hazardous Substance Concentration	Practical Quantitation Limit	Reference
Contaminated Subsurface Soil Samples				
SB1329/S2709	PCP	130,000 µg/kg	20,000 µg/kg	18, p. 143
SB1329/S2709	Arsenic	60 mg/kg	1.1 mg/kg	18, p. 143
SB1329/S2709	Chromium	190 mg/kg	1.1 mg/kg	18, p. 143
SB1329/S2709	Copper	62 mg/kg	2.3 mg/kg	18, p. 143
SB1329/S2709	1,2,3,4,6,7,8-HpCDD	440,000 pg/g	3,100 pg/g	18, p. 143
SB1329/S2709	OCDD	3,300,000 J pg/g (330,000 pg/g)	6,100 pg/g	18, pp. 128, 140, 143; 45, pp. 1, 2, 3
SB1330/S2710	PCP	830,000 µg/kg	190,000 µg/kg	18, p. 144
SB1330/S2710	Arsenic	380 mg/kg	1.0 mg/kg	18, p. 144
SB1330/S2710	Chromium	470 mg/kg	1.0 mg/kg	18, p. 144
SB1330/S2710	Copper	230 mg/kg	2.0 mg/kg	18, p. 144
SB1330/S2710	1,2,3,4,6,7,8-HpCDD	910,000 pg/g	2,600 pg/g	18, p. 144
SB1330/S2710	OCDD	6,200,000 J pg/g (620,000 pg/g)	13,000 pg/g	18, pp. 128, 140, 144; 45, pp. 1, 2, 3
SB1331/S2711	PCP	550 µg/kg	250 µg/kg	18, p. 145
SB1331/S2711	Arsenic	33 mg/kg	1.4 mg/kg	18, p. 145

TABLE 2: Analytical Results for Source No. 1 – February 2012				
Sample ID	**Hazardous Substance**	**Hazardous Substance Concentration**	**Practical Quantitation Limit**	**Reference**
SB1331/S2711	Chromium	110 mg/kg	1.4 mg/kg	18, p. 145
SB1331/S2711	Copper	36 mg/kg	2.8 mg/kg	18, p. 145
SB1331/S2711	1,2,3,4,6,7,8-HpCDD	440,000 pg/g	1,500 pg/g	18, p. 145
SB1331/S2711	OCDD	2,800,000 J pg/g (280,000 pg/g)	4,800 pg/g	18, pp. 128, 140, 145; 45, pp. 1, 2, 3
SB1332/S2712	PCP	86,000 µg/kg	19,000 µg/kg	18, p. 146
SB1332/S2712	Arsenic	28 mg/kg	1.1 mg/kg	18, p. 146
SB1332/S2712	Chromium	50 mg/kg	1.1 mg/kg	18, p. 146
SB1332/S2712	Copper	19 mg/kg	2.2 mg/kg	18, p. 146
SB1332/S2712	1,2,3,4,6,7,8-HpCDD	190,000 pg/g	540 pg/g	18, p. 146
SB1332/S2712	OCDD	1,400,000 J pg/g (140,000 pg/g)	2,600 pg/g	18, pp. 128, 140, 146; 45, pp. 1, 2, 3
SB1333/S2713	PCP	170,000 µg/kg	19,000 µg/kg	18, p. 147
SB1333/S2713	Arsenic	120 mg/kg	1.1 mg/kg	18, p. 147
SB1333/S2713	Chromium	210 mg/kg	1.1 mg/kg	18, p. 147
SB1333/S2713	Copper	95 mg/kg	2.1 mg/kg	18, p. 147
SB1333/S2713	1,2,3,4,6,7,8-HpCDD	370,000 pg/g	2,700 pg/g	18, p. 147
SB1333/S2713	OCDD	2,800,000 J pg/g (280,000 pg/g)	6,100 pg/g	18, pp. 128, 140, 147; 45, pp. 1, 2, 3
SB1334/S2714	PCP	34,000 µg/kg	19,000 µg/kg	18, p. 148
SB1334/S2714	Arsenic	41 mg/kg	1.0 mg/kg	18, p. 148
SB1334/S2714	Chromium	66 mg/kg	1.0 mg/kg	18, p. 148
SB1334/S2714	Copper	28 mg/kg	2.1 mg/kg	18, p. 148
SB1334/S2714	1,2,3,4,6,7,8-HpCDD	210,000 J pg/g (21,000 pg/g)	530 pg/g	18, pp. 128, 140, 148; 45, pp. 1, 2, 3
SB1334/S2714	OCDD	1,700,000 J pg/g (170,000 pg/g)	3,400 pg/g	18, pp. 128, 140, 148; 45, pp. 1, 2, 3

Notes:

HpCDD	Heptachlorodibenzo-p-dioxin	OCDD	Octachlorodibenzodioxin
ID	Identification number	J	Estimated value, unknown bias
PCP	Pentachlorophenol	µg/kg	Micrograms per kilogram
pg/g	Picograms per gram	mg/kg	Milligrams per kilogram
SB	Soil boring		
( )	Concentration adjusted in accordance with References 34 and 45.		

2.2.3 HAZARDOUS SUBSTANCES AVAILABLE TO A PATHWAY

Subsurface soil samples collected from Source No. 1 contained arsenic, chromium, copper, PCP, 1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin (HpCDD), and octachlorodibenzodioxin (OCDD) (see Table 2 of this HRS documentation record). Source No. 1 is a pile that consists of contaminated soil and bottom sludge/sediments from the former surface impoundment that received process wastewater and rainwater runoff from the treatment process area during operations (Refs. 7, p. 49; 8, pp. 6, 46) (see Figures 2 and 3 of this HRS documentation record). A wetland area is located adjacent to the eastern side of Source No. 1 (Refs. 12, pp. 321, 322, 323; 18, pp. 15, 116; 47). Surface water runoff from Source No 1 flows into the adjacent wetlands (Ref. 47). These wetlands also received runoff from the former surface impoundment when Post & Lumber was in operation (Refs. 47). FDEP delineated the adjacent wetlands as wetland forested mixed (630) (Refs. 7, pp. 25, 39; 12, pp. 321, 322, 323; 21, p. 57). Wetland forested mixed (630) is equivalent to National Wetlands Inventory (NWI) palustrine forested wetlands (Refs. 21, p. 57; 22, pp. 6, 8, 16). There is no leachate collection system or functioning and maintained run-on control system or runoff management system present (Refs. 7, pp. 25, 30, 31, 39, 49; 47). Therefore, a containment factor value of 10, as noted in Table 3 of this HRS documentation record, was assigned for the surface water migration pathway (Ref. 1, Section 3.1.2.1, Table 3-2) (see Figure 3 of this HRS documentation record).

TABLE 3: Containment Factors for Source No. 1

Containment Description	Containment Factor Value	References
Gas release to air	NS	NA
Particulate release to air	NS	NA
Release to ground water: No liner	NS	NA
Release via overland migration and/or flood: no functioning and maintained run-on control system or runoff management system is present	10	7, pp. 25, 30, 31, 39, 49; 47

Notes:

NA Not applicable
NS Not scored

2.4.2 HAZARDOUS WASTE QUANTITY

Insufficient information exists to evaluate hazardous constituent quantity, hazardous wastestream quantity, and volume. Therefore, the Hazardous Waste Quantity (HWQ) value will be calculated using Tier C, for the volume of bottom sludge/sediments and contaminated soil contained in the pile located in the southern portion of the Post & Lumber property (Ref. 1, pp. 51590, 51591) (see Figure 2 of this HRS documentation record).

2.4.2.1.1 Hazardous Constituent Quantity (Tier A)

The hazardous constituent quantity for Source No. 1 could not be adequately determined according to the HRS requirements; that is, the total mass of all Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) hazardous substances in the source and releases from the source is not known and cannot be estimated with reasonable confidence (Ref. 1, pp. 51590, 51591 [Section 2.4.2.1.1]). Historical and current data (manifests, potentially responsible party [PRP] records, state records, permits, or waste concentration data) available are insufficient to adequately calculate the total or partial mass of all CERCLA hazardous substances in the source and the associated releases from the source. Therefore, there is insufficient information to evaluate the associated releases from the source to calculate the hazardous constituent quantity for Source No. 1 with reasonable confidence. Scoring proceeds to the evaluation of Tier B, Hazardous wastestream quantity (Ref. 1, p. 51591 [Section 2.4.2.1.1]).

Hazardous Constituent Quantity: Not Evaluated

2.4.2.1.2 Hazardous Wastestream Quantity (Tier B)

The hazardous wastestream quantity for Source No. 1 could not be adequately determined according to the HRS requirements; that is, the mass of the hazardous wastestreams plus the mass of any additional CERCLA pollutants and contaminants in the source and releases from the source is not known and cannot be estimated with reasonable confidence (Ref. 1, p. 51591 [Section 2.4.2.1.2]). There are insufficient historical and current data (manifests, PRP records, State records, permits, waste concentration data, etc.) available to adequately calculate the total or partial mass of the wastestream plus the mass of all CERCLA pollutants and contaminants in the source and the associated releases from the source. Therefore, there is insufficient information to evaluate the associated releases from the source to calculate the hazardous wastestream quantity for Source No. 1 with reasonable confidence. Scoring proceeds to the evaluation of Tier C, Volume (Ref. 1, p. 51591 [Section 2.4.2.1.2]).

Hazardous Wastestream Quantity: Not Evaluated

2.4.2.1.3 Volume (Tier C)

Reportedly, about 12,000 to 15,000 cubic yards of bottom sludge/sediments and contaminated soil were disposed of in Source No. 1 (Ref. 8, p. 6). However, adequate documentation of this measurement is not available. The area of Source No. 1 was determined using Figure 3 of this HRS documentation record and the as-built drawing of Source No. 1 (Refs. 18, pp. 15, 116; 52) (see Figure 3 of this HRS documentation record). The approximate area covered by the footprint of Source No. 1 is 0.22 acre or 9,583.2 ft^2 (Ref. 52). During the 2012 AECOM RCRA Closure Unit Cover Installation, six samples were collected to an average depth of 7.63 feet below the surface of the Source No. 1; therefore, the volume of bottom sludge/sediment and contaminated soil present in Source No. 1 is about 73,119.81 cubic feet, or about 2,708.14 cubic yards (yd^3) (Refs. 1, Section 2.4.2.1.3; 18, pp. 10, 15, 116; 52).

Sum (yd^3): 2,708.14

Equation for Assigning Value (Ref. 1, Table 2-5): Volume (V)/2.5

Volume Assigned Value: 1,083.25

2.4.2.1.4 Area (Tier D)

The estimated area of Source No. 1 was determined using Figure 3 of this HRS documentation record and the as-built drawing of Source No. 1 (Refs. 18, pp. 15, 116; 52). The area covered by the footprint of Source No. 1 is about 9,583.2 ft^2.

Sum (ft^2): 9,583.2
Equation for Assigning Value (Ref. 1, Table 2-5): Area (A)/13

Area Assigned Value: 737.16

2.4.2.1.5 Source Hazardous Waste Quantity Value

The source hazardous waste quantity (HWQ) value for Source No. 1 is assigned a source HWQ value of 904.29 (Ref. 1, Section 2.4.2.1.5).

Source Hazardous Waste Quantity Value: 1,083.25

SUMMARY OF SOURCE DESCRIPTIONS

Table 4 summarizes the source descriptions.

TABLE 4: Summary of Source Descriptions

Source No.	Source Haz. Waste Quantity Value	Source Haz. Constituent Quantity Complete? (Yes/No)	Containment Factor Value by Pathway				Refs.
			Ground Water (Ref. 1, Table 3-2)	Surface Water Overland (Ref. 1, Table 4-2)	Air		
					Gas (Ref. 1, Table 6-3)	Particulate (Ref. 1, Table 6-9)	
1	1,083.25	No	NS	10	NS	NS	1, Section 2.4.2.1.5; 7, pp. 15, 25, 39, 49; 18, p. 116; 52

Notes:

NS Not scored
Ref. Reference

Description of Other Possible On-Site Sources

One other possible on-site source has been identified at the Post & Lumber property – Contaminated Soil throughout the Post & Lumber Property. An EPA-led removal action occurred at the Post & Lumber property in 1995. Soil was excavated to a depth of 2 feet below land surface in the former wood treatment area and up to 2 feet in all other areas at the property (Ref. 8, pp. 47). However, soil samples collected after the removal action indicate the presence of wood treating related contaminants throughout the Post & Lumber property (Ref. 12, pp. 119 to 136). In June 2013, soil samples collected throughout the Post & Lumber property were found to contain arsenic, copper, chromium, dioxins and furans and PCP (Ref. 12, pp. 106 to 136). Sufficient information such as disposal practices, sampling results, and/or field notes are not available to score this other possible source in this HRS documentation record.

Additional Areas of Concern

In addition, areas of possible concern are present at the facility. Currently, insufficient information is available to evaluate these areas as sources or other possible sources at the site, but they remain areas of possible concern. These include:

Sludge Pit
From about 1975 to 1981, Post & Lumber disposed of CCA sludge in a pit located in the northern portion of the property (Refs. 7, pp. 12, 20, 23; 9, p. 5). During operations, CCA and PCP wood treatment were conducted in the same cylinders; therefore, the sludge pits likely received PCP waste (Ref. 7, p. 23).

Former Surface Impoundment
During operations, the former surface impoundment received process wastewater and rainwater runoff from the treatment process area (Ref. 7, p. 49). The former surface impoundment managed listed K001

(bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or PCP) waste and D004 (arsenic) and D007 (chromium) characteristic waste (Refs. 7, p. 50; 13, pp. 1, 3). In 1985, after determination that hazardous wastes were being managed within the impoundment, Post & Lumber submitted a closure permit application, and Closure Permit No. HF20-103078 was issued on September 11, 1987. Disposal of the wastewater from within the impoundment (approximately 575,000 gallons) occurred at the City of Quincy's wastewater treatment plant (Ref. 7, p. 49). Bottom sludge/sediment and contaminated soil from the wood processing area, evaluated as Source No. 1, were placed in the in the southern portion of the former surface impoundment and closed as a RCRA CU (Ref. 8, p. 46). The remaining portion of the former surface impoundment was backfilled with soil and bark chips, and covered with a geomembrane, topsoil, and vegetation (Refs. 7, p. 50; 8, p. 6).

4.0 SURFACE WATER MIGRATION PATHWAY

4.1 OVERLAND/FLOOD MIGRATION COMPONENT

Overland/flood migration components are Wetlands, Intermittent Stream, and Little River.

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

The hazardous substance migration pathway includes both the overland segment and the in-water segment that hazardous substances would take as they migrate away from sources. The overland segment begins at the source and proceeds downgradient to the probable point of entry (PPE) to surface water. The in-water segment at the PPE continues in the direction of flow (Ref. 1, Section 4.1.1.1).

Surface water runoff from Source No. 1 (RCRA CU) flows overland in an easterly direction for about 15 to 30 feet into a wetland area located adjacent to the eastern side of Source No. 1 (Refs. 12, pp. 321, 322, 323; 18, pp. 15, 116). About 15 feet of rip-rap for erosion control was placed into the adjacent wetland at the base of Source No. 1 (Ref. 18, pp. 15, 116). The wetland area was delineated by FDEP as wetland forested mixed (630) (Refs. 12, pp. 321, 322, 323; 21, p. 57). Wetland forested mixed (630) is equivalent to National Wetlands Inventory (NWI) palustrine forested and palustrine scrub shrub wetlands, which are HRS-eligible wetlands (Refs. 21, p. 57; 22, pp, 6, 8, 16 through 18). HRS-eligible wetlands are located along the entire eastern edge of Source No. 1; therefore the PPE extends about 100 to 130 feet along the eastern edge of Source No. 1 (Ref. 18, pp. 15, 116) (see Figure 3 of this HRS documentation record). When the replacement cover on Source No. 1 was constructed in 2012, a permit was granted for the rip-rap at the base of the pile for erosion control to encroach on a portion of the wetlands located adjacent to the eastern side of Source No. 1 (Ref. 18, p. 116).

Once the geomembrane cover (also referred to as a liner) was installed and anchor trenches were backfilled and compacted, 8-inch d_{50} rip-rap was placed along the perimeter of the RCRA CU (Ref. 18, p. 8). The rip-rap slows storm water runoff as it flows off the RCRA CU cover, preventing erosion immediately beyond the limits of the RCRA CU (Refs. 18, p. 8; 47). A small portion of the work area on the eastern side of the RCRA CU lies within a delineated jurisdictional forested wetland (Ref. 18, pp. 6, 116). According to the Northwest Florida Water Management District, the RCRA CU cover installation activities were exempt from permit requirements under Chapter 62-346 Florida Administrative Code (Ref. 18, p. 6). A maintenance buffer was constructed between the RCRA CU and the adjacent wetland area (Ref. 18, pp. 8, 116).

From the PPE, surface water flows through palustrine forested and palustrine scrub shrub wetlands for about 0.15 mile on the Post & Lumber property, exits the Post & Lumber property at the northeastern corner and flows through continuous wetlands for about 1.25 miles along an unnamed tributary then into Little River (Ref. 20, pp. 1 through 5). Little River flows for about 13.6 miles before converging with Lake Talquin, completing the 15-mile surface water migration pathway target distance limit (TDL) (Ref. 3). In addition to the wetlands delineated on the Post & Lumber property, FDEP inspected and verified the presence of continuous wetlands from the northeastern corner of the Post & Lumber property along the unnamed tributary to a location within 1,200 feet of Little River (wetland points W1 to W100) (Ref. 20, pp. 1 through 44). FDEP also noted that, based on professional judgment, wetlands continue from the last inspected point (W100) to Little River (Ref. 20, pp. 2, 5). FDEP conducted the wetlands inspection and verification in accordance with Chapter 62-340 Florida Administrative Code (F.A.C) (Ref. 20, pp. 1, 10, 22, 35). The wetlands that FDEP delineated meet the definition of wetlands in accordance 40 *Code of Federal Regulations* 230.3 (Refs. 44, p. 2; 46, p. 2). Palustrine forested and palustrine scrub shrub wetlands are located along the entire 15-mile surface water migration pathway TDL (Ref. 3).

Flow rate data is not available for the palustrine forested wetlands located in the eastern portion of the Post & Lumber property (Ref. 42, p. 1). Flow rate data also is not available for the unnamed tributary

northeast of the Post & Lumber property and the continuous wetlands along the unnamed tributary. According to published flow rate data from the U. S. Geological Survey (USGS), the average annual flow rate (1951 to 2015) of the Little River is about 306 cubic feet per second (cfs) (Ref. 23). The gauging station for the Little River is just south of State Route 12/Havana Highway near Quincy, Florida, about 2.3 stream miles downstream of Post & Lumber (Refs. 3; 24). Little River, along the entire 15-mile surface water migration pathway TDL, is within a 100-year flood plain (Ref. 25). The flow rate for Lake Talquin is about 1,386 cfs, which is the sum of the flow rates for Little River near Midway, Florida and the Ochlockonee River near Havana, Florida (Refs. 29; 48).

Targets associated with the surface water bodies along the 15-mile TDL include fishing for human consumption on Little River and palustrine forested, palustrine scrub shrub, and palustrine emergent wetlands in the eastern portion of the Post & Lumber property, along both sides of the unnamed tributary, and along Little River (Refs. 3; 12, pp. 320, 322, 323; 21, p. 57; 22, pp. 6, 8, 16, 18; 20, pp. 1 through 44; 41; 53). According to Florida Fish and Wildlife Conservation Commission personnel, fishing for human consumption occurs along the Little River, beginning about 10.5 miles downstream of Post & Lumber at High Bridge Road until its confluence with Lake Talquin about 13.6 miles downstream, and in Lake Talquin (Refs. 3; 39; 53). High Bridge Road is a popular access point on Little River (Ref. 53). The types of fish caught and consumed include bluegill, bream, channel catfish, crappie, largemouth bass, redear sunfish, and white bass (Refs. 39; 53). Palustrine forested wetlands are adjacent to Source No. 1, extending to the northeastern property boundary, along the unnamed tributary, and Little River (Refs. 3; 12, p. 323; 20, pp. 1, 3; 21, p. 57; 22, p. 6, 8, 16). The length of the HRS-eligible wetland on the Post & Lumber property is about 0.31 mile (Ref. 12, p. 323) (see Figures 2 and 3 of this HRS documentation record). About 2.8 miles of wetlands are located along the unnamed tributary and 27.2 miles are located along Little River. Wetland frontage was measured on both sides of the unnamed tributary and Little River (Ref. 3). In addition to wetlands, the Joe Budd Wildlife Management Area is a sensitive environment that is located within the 15-mile surface water migration pathway TDL (Refs. 28, pp. 11, 43, 87).

4.1.2.1 LIKELIHOOD OF RELEASE

4.1.2.1.1 OBSERVED RELEASE

Direct Observation

- Basis for Possible Observed Release by Direct Observation

During Post & Lumber operations, the former surface impoundment received process wastewater and rainwater runoff from the treatment process area during operations (Ref. 7, p. 49) (see Figure 2 of this HRS documentation record). Between 1982 and 1989, Post & Lumber received several Warning Notices, Notices of Violations, and Notices of Deficiencies, including a Warning Notice on July 1, 1985, to correct inadequate and eroded dikes surrounding the former surface impoundment (Ref. 7, pp. 30, 31). During periods of heavy rainfall, the former surface impoundment overflowed into the eastern runoff drainage ditch, which becomes an intermittent stream northeast of Post & Lumber and flows into the Little River (Ref. 7, pp. 25, 39). The eastern drainage ditch is located in an area that FDEP delineated as wetland forested mixed (630), which is equivalent to palustrine forested wetlands (Refs. 7, pp. 25, 39; 12, pp. 321, 322, 323; 21, p. 57; 22, pp. 6, 8, 16). Continuous wetlands are located along the unnamed tributary referred in the RCRA Facility Assessment as an intermittent stream (Ref. 20, pp. 1, 2, 5). Also, surface water runoff from Source No. 1 enters palustrine forested wetlands located adjacent to Source No. 1 (Refs. 12, pp. 321, 322, 323; 18, pp. 15, 116; 22, pp. 6, 8, 16). Analytical data to document an observed release by direction observation are not available.

- Hazardous Substances in Release

Chemical Analysis

June 2013 CB&I Supplemental Soil Assessment

Background Samples

In July 2008, Lotspeich and Associates, Inc. (LAI) conducted a wetland delineation on the property north of the Post & Lumber (Ref. 30, p. 3). LAI identified wetland forested mixed (630) wetlands north of the Post & Lumber property (Ref. 30, p. 10). Wetland forested mixed (630) is equivalent to NWI palustrine forested wetlands, which are HRS-eligible wetlands (Refs. 21, p. 57; 22, pp. 6, 8, 16). The same wetlands (wetland forested mixed) were delineated within the Post & Lumber site, along the eastern side of Source No. 1 and extending to the northeastern of the Post & Lumber site; therefore, samples collected from the delineated wetlands north of Post & Lumber site were used to represent background conditions for wetland samples collected from the delineated wetlands within the Post & Lumber site (Refs. 12, p. 323; 30, p. 10). Because the background and release soil samples were collected from HRS-eligible wetlands, they will be referred to as wetland samples in this HRS documentation record.

In June 2013, CB&I collected seven (including one duplicate) samples (0.5 to 2 feet bgs) from delineated palustrine forested wetlands north of the Post & Lumber site. Wetland samples were collected in accordance with FDEP standard operating procedure (SOP) FS 3000 (DEP-SOP-001/01) (Refs. 12, p. 21; 31). Based on the wetland type, physical characteristics, sample collection methods, time frame, and depths, the background and contaminated wetland samples are similar (Refs. 12, pp. 17 through 21, 323; 21, p. 57; 22, pp. 6, 8, 16; 30, p. 10) (also see Tables 4, 5, 6, 7, and 8 of this HRS documentation record).

Field sample collection sheets for the background wetland samples are provided in Reference 12, pages 258, 260, 263, 265, 267, and 272. Chain-of-custody records are provided in Reference 12, pages 920, 922, 923, 924, 926, and 975.

TABLE 5: Background Wetland Samples[1]					
Sample ID	**Lab ID**	**Sample Location**	**Depth (feet bgs)**	**Date Sampled**	**References**
SB1418	FA5994-33	Delineated HRS-eligible wetland north of the Post & Lumber site	0.5 to 2	6/25/2013	12, pp. 117, 258, 922; 30, pp. 10, 11
SB1420 QC104	FA5994-49 FA5994-50	Delineated HRS-eligible wetland north of the Post & Lumber site	0.5 to 2	6/26/2013	12, pp. 117, 260, 924; 30, pp. 10, 11
SB1423	FA5994-9	Delineated HRS-eligible wetland north of the Post & Lumber site	0.5 to 2	6/25/2013	12, pp. 117, 263, 920; 30, pp. 10, 11
SB1425	FA5994-38	Delineated HRS-eligible wetland north of the Post & Lumber site	0.5 to 2	6/26/2013	12, pp. 117, 265, 923; 30, pp. 10, 11
SB1427	FA5994-72	Delineated HRS-eligible wetland north of the Post & Lumber site	0.5 to 2	6/25/2013	12, pp. 117, 267, 926; 30, pp. 10, 11
SB1432	1310719-07	Delineated HRS-eligible wetland north of the Post & Lumber site	0.5 to 2	6/25/2013	12, pp. 117, 272, 975; 30, pp. 10, 11

Notes:

[1] Distance from the PPE is not provided because the background samples were collected from a similar wetland north of the Post & Lumber property (see Figure 3 of HRS documentation record).

bgs Below ground surface ID Identification number SB Soil boring
HRS Hazard Ranking System PPE Probable point of entry

Background Concentrations

Six wetland samples (SB1418, SB1420, SB1423, SB1425, SB1427, SB1432) collected from HRS-eligible wetlands north of Post & Lumber were evaluated to establish background arsenic and dioxin concentration levels for comparison to arsenic and dioxin concentrations detected in palustrine forested wetlands at Post & Lumber (Refs. 12, pp. 117, 323; 21, p. 57; 22, pp. 6, 8, 16; 30, pp. 10, 11) (see also Figure 3 of this HRS documentation record).

The background wetland samples listed in Table 6 were collected by CB&I during the June 2013 sampling event (Ref. 12, pp. 19, 20, 107, 108). Accutest Laboratories Southeast (Accutest) analyzed the background wetland samples for arsenic using EPA Method 6010C (Ref. 12, pp. 881, 896, 899, 906, 918). Accutest's subcontractor Summit Environmental Technologies, Inc. (Summit) analyzed selected background wetland samples for dioxins and furans using EPA Method 8290 (Ref. 12, p. 994). Tetra Tech conducted data validation on results from the samples analyzed by Accutest and Summit. Comparison of data elements in the data package to EPA CLP NFGs for Inorganic Data Review and Chlorinated Dioxin/Furan Data Review indicated acceptability of overall data quality (Refs. 32, p. 1; 33, p. 1). PQLs or reporting limits (RL) are listed on the analytical data sheets in Reference 12, pages 881, 896, 899, 906, 907, 918, and 994. The PQLs and RLs are sample-specific, are the lowest concentrations of each substance that can be reasonably quantified, and were adjusted for sample characteristics that may have affected quantitation, such as concentration, dilutions, and percent moisture (Ref. 43). The PQLs and RLs are equivalent to SQLs as defined in HRS Section 1.1, Definitions (Refs. 1, p. 51586; 43).

TABLE 6: Analytical Results from Background Wetland Samples

Sample ID	Lab ID	Hazardous Substance	Concentration	PQL/RL	References
SB1418	FA5994-33	Arsenic	0.15J (0.15) mg/kg	0.48 mg/kg	12, p. 896; 32, pp. 1, 4, 5, 10; 34, pp. 8, 18
SB1420	FA5994-49	Arsenic	0.15J (0.15) mg/kg	0.46 mg/kg	12, p. 906; 32, pp. 1, 4, 5, 17; 34, pp. 8, 18
QC104*	FA5994-50	Arsenic	0.088J (0.088) mg/kg	0.49 mg/kg	12, p. 907; 32, pp. 1, 4, 5, 18; 34, pp. 8, 18
SB1423	FA5994-9	Arsenic	1.3 mg/kg	0.48 mg/kg	12, p. 881; 32, pp. 1, 7
SB1425	FA5994-38	Arsenic	0.087J (0.087) mg/kg	0.44 mg/kg	12, p. 899; 32, pp. 1, 12; 34, pp. 8, 18
SB1427	FA5994-72	Arsenic	0.24J (0.24) mg/kg	0.52 mg/kg	12, p. 918; 32, pp. 1, 4, 5, 21; 34, pp. 8, 18
SB1432	1310719-07	1,2,3,4,6,7,8-HpCDD	12.18 ng/kg	2.5 ng/kg	12, pp. 975, 994; 33, pp. 1, 12
SB1432	1310719-07	OCDD	73.86 ng/kg	10 ng/kg	12, pp. 975, 994; 33, pp. 1, 12

Notes:

*	Sample QC104 is a duplicate of sample SB1420.
HpCDD	Heptachlorodibenzo-p-dioxin
ID	Identification number
mg/kg	Milligram per kilogram
ng/kg	Nanograms per kilogram
OCDD	Octachlorodibenzodioxin
PQL	Practical quantitation limit
RL	Reporting limit
SB	Soil boring
J	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample. Results are below the PQL, but greater than the method detection limit. Sample result should be considered estimated with no bias (Ref. 32, pp. 1, 4, 5). The value presented parenthetically is the concentration obtained by applying the EPA fact sheet *Using Qualified Data to Document an Observed Release and Observed Contamination* (November 1996) (Ref. 34, pp. 8, 18).

Contaminated Samples

The wetland samples listed in Table 7 were collected by CB&I during the June 2013 sampling event (Ref. 12, pp. 16, 106, 107). The samples (0 to 2 feet bgs) were collected from palustrine forested wetlands within the Post & Lumber site (Refs. 3; 12, pp. 16, 117, 323; 21, p. 57; 22, pp. 6, 8, 16) (see Figure 3 of this HRS documentation record).

The background and contaminated wetland samples were collected during the same sampling event; from palustrine forested wetlands; using the same sampling procedures; at similar depths; and are similar in characteristics (Refs. 3; 12, pp. 16, 21, 117, 323; 21, p. 57; 22, pp. 6, 8, 16; 30, pp. 10, 11; 31). The contaminated samples were collected from soils that typically were a brown to tan sandy to silty sand to 5 feet bgs, with occasional silty clay (Ref. 12, p. 16). Based on the wetland type, physical characteristics, sample collection methods, time frame, and depths, the background and contaminated wetland samples are similar (Refs. 3; 12, pp. 16, 21, 117, 323; 21, p. 57; 22, pp. 6, 8, 16; 30, pp. 10, 11; 31; also see Tables 4, 5, 6, 7, and 8 of this HRS documentation record).

Field sample collection sheets for the contaminated wetland samples are in Reference 12, pages 223, 231, 232, 238, 240, and 241. Chain-of-custody records are in Reference 12, pp. 698, 787, 700, and 858.

TABLE 7: Contaminated Wetland Samples – June 2013

Sample ID	Lab ID	Sample Location	Distance from PPE (feet)	Depth (feet bgs)	Date Sampled	References
SB1383	1310354-03	Delineated HRS-eligible wetland within the Post & Lumber property	260	0 to 2	6/21/2013	12, pp. 118, 223, 323, 858
SB1391	FA5589-1	Delineated HRS-eligible wetland within the Post & Lumber property	450	0 to 2	6/19/2013	12, pp. 118, 231, 323, 698
SB1392	1310248-01	Delineated HRS-eligible wetland within the Post & Lumber property	440	0 to 2	6/19/2013	12, pp. 118, 232, 323, 787
SB1398	1310354-02	Delineated HRS-eligible wetland within the Post & Lumber property	545	0 to 2	6/20/2013	12, pp. 118, 238, 323, 787
SB1400	1310248-04	Delineated HRS-eligible wetland within the Post & Lumber property	530	0 to 2	6/19/2013	12, pp. 118, 240, 323, 787
SB1401	FA5789-29	Delineated HRS-eligible wetland within the Post & Lumber property	630	0 to 2	6/20/2013	12, pp. 118, 241, 323, 700

Notes:

bgs Below ground surface
HRS Hazard Ranking System
ID Identification number
PPE Probable point of entry
SB Soil boring

Contaminated Concentrations

The contaminated wetland samples listed in Table 8 were collected by CB&I during the June 2013 sampling event (Ref. 12, pp. 16, 106, 107). Accutest analyzed the contaminated wetland samples for arsenic using EPA Method 6010C (Ref. 12, pp. 662, 688). Accutest's subcontractor Summit analyzed selected contaminated wetland samples for dioxins and furans using EPA Method 8290 (Refs. 12, pp. 760, 766, 770, 846; 35, p. 1; 37, p. 1). Tetra Tech conducted data validation on results from the samples analyzed by Accutest and Summit. Comparisons of data elements in the data package to EPA CLP NFGs for Inorganic Data Review and Chlorinated Dioxin/Furan Data Review indicated overall acceptability of data quality (Refs. 35, p. 1; 36, p. 1; 37, p. 1). PQLs or RLs are listed on the analytical data sheets in Reference 12, pages 662, 688, 760, 766, 770, and 846. The PQLs and RLs are sample-specific, are the lowest concentrations of each substance that can be reasonably quantified, and were adjusted for sample characteristics that may have affected quantitation, such as concentration, dilutions, and percent moisture (Ref. 43). The PQLs and RLs are equivalent to SQLs as defined in HRS Section 1.1, Definitions (Refs. 1, p. 51586; 43). All samples listed in Table 8 meet observed release criteria in accordance with Reference 1, Table 2-3.

TABLE 8: Analytical Results for Contaminated Wetland Samples

Sample ID	Lab ID	Hazardous Substance	Concentration	PQL/RL	References
SB1383	1310354-03	1,2,3,4,6,7,8-HpCDD	2,626.01 ng/kg	2.5 ng/kg	12, pp. 840, 846; 35, pp. 1, 6
SB1383	1310354-03	OCDD	17,112.41 ng/kg	10 ng/kg	12, pp. 840, 846; 35, pp. 1, 6
SB1391	FA5589-1	Arsenic	16.3 mg/kg	0.50 mg/kg	12, p. 662; 36, pp. 1, 6
SB1392	1310248-01	1,2,3,4,6,7,8-HpCDD	1,358.55 ng/kg	2.5 ng/kg	12, pp. 760, 787; 37, pp. 1, 6
SB1392	1310248-01	OCDD	10,000 ng/kg	10 ng/kg	12, pp. 760, 787; 37, pp. 1, 6
SB1398	1310354-02	1,2,3,4,6,7,8-HpCDD	89,000 ng/kg	33.5 ng/kg	12, pp. 770, 787; 37, pp. 1, 10
SB1398	1310354-02	OCDD	800,000 ng/kg	67.0 ng/kg	12, pp. 770, 787; 37, pp. 1, 10
SB1400	1310248-04	1,2,3,4,6,7,8-HpCDD	35,000 ng/kg	2.5 ng/kg	12, pp. 766, 787; 37, pp. 1, 8
SB1400	1310248-04	OCDD	200,000 ng/kg	10 ng/kg	12, pp. 766, 787; 37, pp. 1, 8
SB1401	FA5789-29	Arsenic	36.3 mg/kg	0.65 mg/kg	12, p. 688; 36, pp. 1, 14

Notes:

HpCDD	Heptachlorodibenzo-p-dioxin
ID	Identification number
mg/kg	Milligram per kilogram
ng/kg	Nanograms per kilogram
OCDD	Octachlorodibenzodioxin
PQL	Practical quantitation limit
RL	Reporting limit
SB	Soil boring

Attribution

Post & Lumber began operations in 1948 pressure treating posts, poles, and beams using PCP (mixed with diesel fuel from 1954 to 1980 or water from 1980 to 1986), CZC in the 1960s, FCAP mixture in the 1970s, and CCA—an aqueous solution of Wolman salts, fluoride, hexavalent chromium, arsenic, dimethyl phenol, and copper—from 1975 to 1990 (Refs. 7, pp. 19, 21; 9, p. 2; 10).

The PCP and chromated wood treating processes at Post & Lumber generated K001 (bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol), D004 (arsenic), and D007 (chromium) sludges, as well as steam condensates contaminated with entrained oils, organic compounds, and wood carbohydrates (Refs. 7, p. 23; 13, pp. 1, 5). According to facility management, no wastewater discharges reportedly occurred prior to 1960, when the facility constructed the former surface impoundment to receive wood treating wastewaters and recycle process waters (Ref. 7, p. 23). During periods of heavy rainfall, the surface impoundment overflowed into the eastern runoff drainage ditch, which becomes an intermittent stream (unnamed tributary) northeast of Post & Lumber and flows to the Little River (Ref. 7, pp. 25, 39). The intermittent stream received effluent from the facility since approximately 1948, when operations began. The effluent may have contained hazardous constituents from treatment of lumber with PCP, CCA, FCAP, and CZC, along with diesel fuel formerly used in the PCP treatment (Ref. 7, p. 74).

FDEP delineated the eastern drainage ditch and the unnamed tributary as wetland forested mixed (630) (Refs. 12, pp. 321, 322, 323; 21, p. 57; 22, pp. 6, 8, 16; 20, pp. 1 through 44). Wetland forested mixed (630) is equivalent to NWI palustrine forested wetlands, which are HRS-eligible wetlands (Refs. 21, p. 57; 22, p. 2-4; 20, pp. 1, 2). Continuous palustrine forested wetlands are located along this unnamed tributary all the way to Little River (Refs; 12, pp. 321, 322, 323; 21, p. 57; 20, pp. 1 through 44; 22, p. 6, 8, 16). FDEP conducted the wetlands inspection and verification in accordance with Chapter 62-340 F.A.C (Refs. 44, p. 2; 46, p. 2).

Between 1982 and 1989, Post & Lumber received several Warning Notices, Notices of Violations, and Notices of Deficiencies related to the former surface impoundment (Ref. 7, pp. 30, 31). On February 24, 1984, FDER (now FDEP) issued a Temporary Operating Permit to the facility to store hazardous wastes in containers and in the surface impoundment (Ref. 7, p. 29). On July 13, 1984, FDER issued a Warning Notice for failure to recontainerize a leaking drum, to monitor ground water, to perform daily inspections of the surface impoundment, to submit a closure plan and financial assurance for closure, and to submit evidence of liability coverage (Ref. 7, pp. 31). On December 7, 1984, FDER filed a Petition for Enforcement against Post & Lumber, and on September 28, 1984, a federal complaint was also filed. Additional Warning Notices were issued in 1985 and 1986 for failures to correct inadequate and eroded dikes surrounding the surface impoundment, and personnel training regulation violations (Ref. 7, pp. 31). These actions ended with a Consent Decree, signed on September 29, 1987, to perform ground water monitoring, as well as closure and post-closure care of the surface impoundment (Source No. 1) (Ref. 7, p. 30).

In 1985, after determination that hazardous wastes were being managed within the impoundment, Post & Lumber submitted a closure permit application, and Closure Permit No. HF20-103078 was issued on September 11, 1987 Ref. 7, p. 49). Bottom sludge/sediments and contaminated soil from the treatment process area, and from the former catchment basin and sump were excavated and enclosed as a pile in a clay liner to one side of the former impoundment, and were capped in place with an 8.5-millimeter geomembrane and clay cap. After the wastes had been capped, the rest of the impoundment was backfilled with clean soil. Sand and topsoil were placed over the top of the geomembrane cover to allow vegetation to grow. On October 2, 1989, EPA and FDER accepted the closure, and because the pile (Source No. 1) was closed with waste left in place, management of the pile as a RCRA CU was required (Refs. 7, pp. 49, 50; 18, p. 1). EPA estimated the volume of contaminated soil and sediment contained within the Source No. 1 waste pile is between 12,000 and 15,000 cubic yards (Ref. 18, p. 4). Since completion of the cap in 1987, no records of any additional maintenance are known to have occurred until 2010 (Ref. 18, p. 4).

In February 2012, prior to installation of a new cover, AECOM collected six soil samples (SB1329 through SB1334) at depths between 2 and 9 feet below Source No. 1. These samples were analyzed for PCP, arsenic, chromium, copper, and dioxins/furans (Ref. 18, p. 10). PCP concentrations ranged from 0.55 to 830 mg/kg, arsenic concentrations ranged from 28 to 380 mg/kg, chromium concentrations ranged from 50 to 470 mg/kg, copper concentrations ranged from 19 to 230 mg/kg, and dioxin TEQ ranged from 4,300 to 22,000 ng/kg (Ref. 18, pp. 10, 27).

Currently, surface water runoff from Source No. 1 enters palustrine forested wetlands that originate adjacent to the eastern side of Source No. 1 (Refs. 12, p. 323; 21, p. 57; 22, p. 2-4). During the June 2013 CB&I sampling event, wetland samples (0 to 2 feet bgs) were collected from palustrine forested wetlands within the Post & Lumber property (Refs. 3; 12, pp. 16, 117, 323; 21, p. 57; 22, p. 2-4) (see Figure 4 of this HRS documentation record). The samples contained arsenic at concentrations ranging from 16.3 to 36.3 mg/kg, 1,2,3,4,6,7,8-HpCDD at concentrations ranging from 1,358.55 to 89,000 ng/kg, and OCDD at concentrations ranging from 10,000 to 800,000 ng/kg (Refs. 3; 12, pp. 16, 117, 323, 662, 688, 760, 766, 770, 846; 21, p. 57; 22, p. 2-4). From the palustrine forested wetlands downstream of the PPE and within the Post & Lumber site surface water runoff continues into an unnamed tributary at the northeastern corner of the Post & Lumber site, which joins Little River about 1.25 miles downstream (Refs. 3; 42, pp, 1 through 8; 20, pp. 1, 2). Continuous palustrine forested wetlands are located along the unnamed tributary from the northeast corner of the Post & Lumber property to Little River (Refs; 3; 20, pp. 1, 2, 5).

No known facilities within 5 miles of the Post & Lumber site handle the hazardous substances associated with operations and process wastes at Post & Lumber: PCP, arsenic, chromium, copper, and dioxins and furans (Refs. 7, pp. 19, 21; 10; 38). Contaminants detected at Post & Lumber that are contaminants commonly found at wood treater sites include: arsenic, chromium, copper, pentachlorophenol, and dioxins (Ref. 54, p. 5). Therefore, there are no other possible non-site sources in the vicinity of the site.

The hazardous substances listed below have been detected in Source No. 1, as well as in wetland samples collected at the Post & Lumber site, indicating that a release has occurred or is occurring from the Post & Lumber site (see also Tables 6 and 8 in Section 4.1.2.1.1, Observed Release, of this HRS documentation record).

Hazardous Substances in the Release

Arsenic
1,2,3,4,6,7,8-HpCDD
OCDD

Surface Water Observed Release Factor Value: 550.00

4.1.2 DRINKING WATER THREAT

The drinking water threat was not scored because it is not expected to contribute significantly to the overall score. Surface water intakes as a primary drinking water sources are not listed on the EPA Safe Drinking Water Report for Gadsden County, Florida (Ref. 49). Lake Talquin is a major water recreational area (Refs. 28, p. 82).

4.1.3.2 HUMAN FOOD CHAIN THREAT WASTE CHARACTERISTICS

4.1.3.2.1 Toxicity/Persistence/Bioaccumulation

Table 9 summarizes toxicity, persistence, and bioaccumulation factor values for contaminants detected in Source No. 1 with containment factor values exceeding 0. The combined toxicity, persistence, and bioaccumulation factor values are assigned in accordance with Reference 1, Section 4.1.3.2.1. The persistence values presented in Table 9 are for rivers (Ref. 2, pp. 1 through 6). The 15-mile surface water migration pathway TDL is within wetlands along an unnamed tributary and Little River, and Lake Talquin (Ref. 3). The unnamed tributary, Little River, Lake Talquin are freshwater surface water bodies; therefore, freshwater bioaccumulation values are presented (Refs. 2, pp. 1 through 6; 3).

TABLE 9: Toxicity/Persistence/Bioaccumulation

Hazardous Substance	Source No.	Toxicity Factor Value	Persistence Factor Value[1]	Human Food Chain Bioaccumulation Value[2]	Toxicity/ Persistence/ Bioaccumulation Factor Value (Ref. 1, Table 4-16)	Reference
Arsenic	1	10,000	1	5	5×10^4	2, p. 1
Chromium	1	10,000	1	5	5×10^4	2, p. 2
Copper	1	100	1	50,000	5×10^6	2, p. 3
1,2,3,4,6,7,8-HpCDD	1	10,000	1	50,000	5×10^8	2, p. 4
OCDD	1	10,000	1	5,000	5×10^7	2, p. 5
PCP	1	100	1	50,000	5×10^6	2, p. 6

Notes:

[1] Persistence factor value for rivers
[2] Bioaccumulation factor value for freshwater

HpCDD Heptachlorodibenzo-p-dioxin
OCDD Octachlorodibenzodioxin
PCP Pentachlorophenol

For the human food chain threat, 1,2,3,4,6,7,8-HpCDD has the highest toxicity, persistence, and bioaccumulation factor value of 5×10^8 (Ref. 2, p. 4).

Toxicity/Persistence/Bioaccumulation Factor Value: 500,000,000.00
(Ref. 1, Section 4.1.3.2.1.4)

4.1.3.2.2 HAZARDOUS WASTE QUANTITY

TABLE 10: Hazardous Waste Quantity		
Source No.	**Source Type**	**Source Hazardous Waste Quantity**
1	Pile	1,083.25

Total Source Hazardous Waste Quantity: 904.29

The area covered by the footprint of Source No. 1 is approximately 9,583.2 square feet (Ref. 18, p. 15; 52). During the 2012 AECOM RCRA Closure Unit Cover Installation, six samples were collected at average depth of 7.63 feet below the surface of the pile, Source No. 1; therefore, estimated volume of contaminated soil and bottom sludge/sediment contained in Source No. 1 is about 73,119.81 cubic feet, or about 2,708.14 cubic yards (Refs. 1, Section 2.4.2.1.3; 18, p. 10; 52). In addition, the HWQ receives a minimum factor value of 100 for the surface water migration pathway because actual contamination at Level II concentrations is present in HRS-eligible palustrine forested wetlands (Ref. 1, Section 2.4.2.2).

Hazardous Waste Quantity Factor Value: 100
(Ref. 1, Table 2-6)

4.1.3.2.3 CALCULATION OF HUMAN FOOD CHAIN THREAT WASTE CHARACTERISTICS FACTOR CATEGORY VALUE

For the human food chain threat, 1,2,3,4,6,7,8-HpCDD is evaluated for the waste characteristics. The waste characteristics factor category was obtained by multiplying the toxicity, persistence, and Hazardous Waste Quantity factor values, subject to a maximum product of 1×10^8. Then, this product was multiplied by the human food chain bioaccumulation potential factor value, subject to a maximum product of 1×10^{12}. Based on this product, a value was assigned in accordance with Reference 1, Table 2-7.

Toxicity/Persistence Factor Value: 10,000.00
Hazardous Waste Quantity Factor Value: 100

Toxicity/Persistence Factor Value ×
Hazardous Waste Quantity Factor Value: 1×10^6

(Toxicity/Persistence Factor Value × Hazardous Waste Quantity Factor Value) × Bioaccumulation Factor Value: 5×10^{10}

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

4.1.3.3 HUMAN FOOD CHAIN THREAT TARGETS

4.1.3.3.1 Food Chain Individual

As noted in Section 4.1.2.1.1, an observed release of hazardous substances having a bioaccumulation factor value of 500 or greater is documented in palustrine forested wetlands with a fishery downstream (Little River and Lake Talquin). Specifically, an observed release of 1,2,3,4,6,7,8-HpCDD and OCDD has been documented in down gradient palustrine forested wetlands (Refs. 12, p. 323; 21, p. 57; 22, pp. 6, 8, 16) (see Tables 7 and 8 and Figure 3 of this HRS documentation record). According to Florida Fish and Wildlife Conservation Commission personnel, Little River and Lake Talquin are fished for human consumption (Refs. 39; 53). Fish caught from Little River and Lake Talquin for human consumption include bluegill, bream, channel catfish, crappie, largemouth bass, redear sunfish, and white bass (Refs. 39; 53).

Sample ID: SB1383, SB1392, SB1398, SB1400,
Hazardous Substance: 1,2,3,4,6,7,8-HpCDD, OCDD
Bioaccumulation Potential: 50,000, 5,000

TABLE 11: Identity of Fishery

Identity of Fishery	Type of Surface Water Body	Dilution Weight (Ref. 1 Table 4-13)	References
Little River	Moderate to large stream	0.01	1, Table 4-13; 3; 23
Lake Talquin	Lake	0.001	1, Table 4-13; 3

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

4.1.3.3.2 Population

4.1.3.3.2.1 Level I Concentrations

No Level I concentrations have been documented.

4.1.3.3.2.2 Level II Concentrations

No Level II concentrations have been documented.

4.1.3.3.2.3 Potential Human Food Chain Contamination

According to Florida Fish and Wildlife Conservation Commission personnel, fishing for human consumption occurs in Little River and Lake Talquin within the 15-mile surface water migration pathway TDL (Refs. 3; 39; 53). The type of fish caught and consumed along Little River and from Lake Talquin include bluegill, bream, channel catfish, crappie, largemouth bass, redear sunfish, and white bass (Refs. 39; 53). Other fish found in Lake Talquin include black bass, black crappie, and striped bass (Ref. 41, p. 1). Florida freshwater regulations are established for Lake Talquin. The regulations include a black bass bag limit of 5, only one of which may be 22 inches in total length or longer. Black bass less than 18 inches in total length and crappie less than 10 inches in total length must be released immediately (Ref. 40, p. 2). Total annual production of fish caught in Little River and Lake Talquin is unknown, but greater than zero.

TABLE 12: Potential Population Targets							
Identity of Fishery	**Annual Production (pounds)**	**Type of Surface Water Body**	**Average Annual Flow (cfs)**	**Population Value (P_i) (Ref. 1, Table 4-18)**	**Dilution Weight (D_i) (Ref. 1, Table 4-13)**	**$P_i \times D_i$**	**References**
Little River	>0	Moderate to large stream	306	0.03	0.01	0.0003	1, Tables 4-13 and 4-18; 3; 23
Lake Talquin	>0	Lake	~1,386[a]	0.03	0.001	0.00003	1, Tables 4-13 and 4-18; 3; 29; 48
					Total	**0.00033**	

Notes:

[a] The flow rate for Lake Talquin is represented as the sum of the flow rates for Little River near Midway, Florida and the Ochlockonee River near Havana, Florida (References 29; 48)
cfs Cubic feet per second
NA Not applicable

Sum of P_i xD_i: 0.00033
(Sum of P_i x D_i)/10: 0.000033

For the potential human food chain contamination factor value, the sum of $P_i \times D_i$ is divided by 10.

Potential Human Food Chain Factor Value: 0.000033
(Ref. 1, Section 4.1.3.3.2.3)

4.1.4.2 ENVIRONMENTAL THREAT WASTE CHARACTERISTICS

4.1.4.2.1 Ecosystem Toxicity/Persistence/Bioaccumulation

Ecosystem toxicity, persistence, and bioaccumulation factor values for contaminants detected in Source No. 1, with a containment factor value of greater than 0, are summarized in Table 13. The combined ecosystem toxicity, persistence, and bioaccumulation factor values are assigned in accordance with Reference 1, Section 4.1.4.2.1.

TABLE 13: Ecosystem Toxicity/Persistence/Bioaccumulation

Hazardous Substances	Source No.	Ecosystem Toxicity Factor Value[1]	Persistence Factor Value[2]	Environmental Bioaccumulation Value[3]	Ecosystem Toxicity/ Bioaccumulation Factor Value (Ref. 1, Table 4-21)	Reference
Arsenic	1	10	1	50,000	5×10^5	2, p. 1
Chromium	1	10,000	1	500	5×10^6	2, p. 2
Copper	1	1,000	1	50,000	5×10^7	2, p. 3
1,2,3,4,6,7,8-HpCDD	1	0	1	50,000	0	2, p. 4
OCDD	1	0	1	50,000	0	2, p. 5
PCP	1	100	1	50,000	5×10^6	2, p. 6

Notes:

[1] Ecotoxicity for fresh water
[2] Persistence value for rivers
[3] Bioaccumulation factor value for freshwater, environmental threat

HpCDD Heptachlorodibenzo-p-dioxin
OCDD Octachlorodibenzodioxin
PCP Pentachlorophenol

For the environmental threat, copper has the highest ecosystem toxicity, persistence, and ecosystem bioaccumulation factor value of 5×10^7 (Ref. 2, p. 3).

Ecosystem Toxicity/Persistence/Bioaccumulation Factor Value: 5×10^7
(Ref. 1, Section 4.1.4.2.1.4)

4.1.4.2.2 HAZARDOUS WASTE QUANTITY

TABLE 14: Hazardous Waste Quantity		
Source No.	**Source Type**	**Source Hazardous Waste Quantity**
1	Pile	1,083.25

Total Source Hazardous Waste Quantity: 1,083.25

The area underlying Source No. 1 is approximately 9,583.2 square feet. The estimated area covered by the footprint of Source No. 1 was estimated by connecting the sampling locations and calculating the area inside the polygon (Refs. 18, p. 15; 52). During the 2012 AECOM RCRA Closure Unit Cover Installation, six samples were collected at average depth of 7.63 feet below the surface of the impoundment. The estimated volume of contaminated soil and sediment contained in the former surface impoundment is about 73,119.81 cubic feet, or about 2,708.14 cubic yards (Refs. 1, Section 2.4.2.1.3; 18, p. 10; 52). In addition, the HWQ receives a minimum factor value of 100 for the surface water migration pathway because actual contamination at Level II concentrations is present in HRS-eligible palustrine forested wetlands (Ref. 1, Section 2.4.2.2).

Hazardous Waste Quantity Factor Value: 100
(Ref. 1, Table 2-6)

4.1.4.2.3 CALCULATION OF ENVIRONMENTAL CHAIN THREAT WASTE CHARACTERISTICS FACTOR CATEGORY VALUE

For the environment threat, copper is evaluated for the waste characteristics. The waste characteristics factor category was obtained by multiplying the ecosystem toxicity, persistence, and Hazardous Waste Quantity factor values, subject to a maximum product of 1×10^8. Then, this product was multiplied by the environmental bioaccumulation potential factor value, subject to a maximum product of 1×10^{12}. Based on this product, a value was assigned in accordance with Reference 1, Table 2-7.

Ecosystem Toxicity/Persistence Factor Value: 1,000.00
Hazardous Waste Quantity Factor Value: 100

Ecosystem Toxicity/Persistence Factor Value ×
Hazardous Waste Quantity Factor Value: 1×10^5

(Ecosystem Toxicity/Persistence Factor Value × Hazardous Waste Quantity Factor Value) ×
Bioaccumulation Factor Value: 5×10^9

Waste Characteristics Factor Category Value: 180
(Ref. 1, Table 2-7)

4.1.4.3 Environmental Threat Targets

Level I Concentrations

No Level I concentrations have been documented.

Level II Concentrations

Actual contamination has been documented in wetlands within the Post & Lumber site in Section 4.1.2.1.1 of this HRS documentation record. The sampling locations are depicted on Figure 3 of this HRS documentation record. The wetland areas evaluated are palustrine forested (Ref. 12, p. 323; 21, p. 57; 22, p. 2-4).

Most Distant Level II Sample

Investigation:	June 2013 CB&I Supplemental Soil Assessment
Sample ID:	SB1401
Sample Medium:	Wetland (Soil)
Hazardous Substance:	Arsenic
Location:	Palustrine forested wetlands within the Post & Lumber property
Distance from the PPE:	675 feet
References:	12, pp. 16, 118, 241, 323, 688; 21, p. 57; 22, p. 6, 8, 16 (see also Tables 7 and 8 of this HRS documentation record)

4.1.4.3.1 Sensitive Environments

4.1.4.3.1.1 Level I Concentrations

Sensitive Environments

Sensitive environments have not been documented as subject to Level I concentrations within 15-mile surface water migration pathway TDL.

Wetlands

Level I wetlands were not scored in this HRS documentation record.

4.1.4.3.1.2 Level II Concentrations

Sensitive Environments

Sensitive environments have not been documented as subject to Level II concentrations within 15-mile surface water migration pathway TDL.

Wetlands

In 2013, FDEP delineated wetlands located adjacent to Source No. 1 in the eastern portion of the Post & Lumber site (Ref. 12, p. 323). The delineated wetland is composed of a hardwood conifer mixed wetland community. The dominant species include sweetgum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), slash pine *(Pinus elliottii*), ironwood (*Carpinus carolinia*), red maple (*Acer rubrum*), cinnamon fern (*Osmunda cinnamomea*), Virginia chain fern (*Woodwardia virginiana*), and Virginia creeper (*Parthenocissus quinquefolia)* (Refs. 12, pp. 321, 322, 323; 20, pp. 10, 12, 18, 18, 21, 25, 28, 32). The following species are listed in the FDEP vegetative plant list or the Atlas of Florida Plants and their wetland status is provided below (Refs. 20, pp. 10, 12, 18, 18, 21, 25, 26, 28, 32; 27, pp. 1, 2, 3). Wetlands in Florida are governed by under Chapter 62-340 F.A.C., which is specific to the State of Florida (Ref. 41)

- *Acer rubrum*, Wetland Status – Facultative wet plants (FACW)
- *Carpinus carolinia*, Wetland Status – FACW
- *Liquidambar styraciflua*, Wetland Status – FACW
- *Osmunda cinnamomea*, Wetland Status – FACW
- *Quercus nigra*, Wetland Status – FACW
- *Woodwardia virginiana*, Wetland Status – FACW
- *Pinus elliottii*, Wetland Status – FACW
- *Parthenocissus quinquefolia*, Wetland Status – Facultative upland plants (FACU)

The wetland area evaluated is palustrine forested (Ref. 12, p. 323; 21, p. 57; 22, pp. 6, 8, 16). Wetland samples (SB1383, SB1391, SB1392, SB1398, SB1400, SB1401) evaluated at Level II concentrations were collected within palustrine forested wetlands adjacent to Source No. 1 and extending to the northeastern corner of the Post & Lumber property (see Figure 3 of this HRS documentation record). Surface water runoff flows through the wetlands within the Post & Lumber site and exits to the northeast into an unnamed tributary (Refs. 3; 12, p. 322; 42, pp. 1 through 5, 8, 10). The wetland frontage from the PPE to the sample SB1401, counting both sides of the flow path through the wetland, is about 1,600 feet or 0.31 mile. The estimated wetland frontage was calculated using Figure 3 of this HRS documentation record; Reference 12, page 323; and the measuring tool in Adobe Acrobat.

TABLE 15: Level II Wetland Frontage			
Wetland	**Water Body**	**Wetland Frontage**	**References**
Palustrine forested	Wetland on the Post & Lumber	0.31 mile	12, p. 323; 21, p. 57; 22, p. 2-4
	Total Wetland Frontage	0.31 mile	

Total Wetland Frontage: 0.31 mile

The wetland ratings value for 0.31 mile is obtained from Reference 1, Table 4-24 and is 25.

Wetland Value: 25
(Ref. 1, Table 4-24)

For wetlands subject to Level II concentrations, the wetland value (25) is multiplied by 1 (Ref. 1, Section 4.1.4.3.1.1).

Wetland Value: 25 × 1

Sum of Level II Sensitive Environments Value + Wetlands Value: 0 + 25 = 25

Level II Concentrations Factor Value: 25
(Ref. 1, Section 4.1.4.3.1.1)

4.1.4.3.1.3 Potential Contamination

Sensitive Environments

The Joe Budd Wildlife Management Area is a sensitive environment located within the 15-mile surface water migration pathway TDL (Refs. 28, pp. 11, 43, 87). This target was not scored because it is not expected to significantly affect the overall site score.

Wetlands

Potential contamination of wetlands was not scored because potential contamination does not contribute significantly to the site score.