HAZARD RANKING SYSTEM (HRS) DOCUMENTATION RECORD—REVIEW COVER SHEET

Name of Site: J. H. BAXTER

Date Prepared: September 2024

Site Investigation:
Stephen Nguyen (206) 553-1073
U.S. Environmental Protection Agency
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Region 10 START
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Documentation Record:
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Seattle, WA

Pathways, Components, or Threats Not Scored

The ground water, surface water, subsurface intrusion component, and air migration pathways were not scored, as their inclusion would not have impacted the overall site score.

HRS DOCUMENTATION RECORD

Name of Site: J. H. BAXTER

EPA ID#: ORD009032400

EPA Region: 10

Date Prepared: September 2024

Street Address of Site: 3494 Roosevelt Boulevard

City, County, State, Zip Code: Eugene, Lane County, Oregon 97402

Topographic Map: Eugene West, Oregon, U.S. Geological Survey (USGS) 7.5-Minute Quadrangle (Reference [Ref.] 3)

Latitude: 44° 3' 43.3872" North Longitude: 123° 9' 10.0584" West (Ref. 3; Ref. 4, p. 10)

Latitude/Longitude Reference Point: The latitude and longitude correspond to sample location JHB-S05 in the approximate center of the J. H. Baxter facility in the tank farm area (Ref. 4, pp. 269-270).

SCORES		
Ground Water[1] Pathway	=	Not scored
Surface Water Pathway	=	Not scored
Soil Exposure and Subsurface Intrusion Pathway	=	63.40
Air Pathway	=	Not scored
HRS SITE SCORE	**=**	31.70

*The street address, coordinates, and contaminant locations presented in this HRS documentation record identify the general area where the Site is located. They represent one or more locations the United States Environmental Protection Agency (EPA) considers to be part of the Site based on the screening information EPA used to evaluate the Site for National Priorities List (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 Comprehensive Environmental Response, Compensation, and Liability Act (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.

[1] "Ground water" and "groundwater" are synonymous; the spelling is different due to "ground water" being codified as part of the HRS, while "groundwater" is the modern spelling.

HRS SUMMARY SCORESHEETS

SITE NAME: J. H. BAXTER

CITY/COUNTY/STATE: Eugene, Lane County, Oregon

EPA ID#: ORD009032400

EVALUATOR: Christina Marquis **DATE:** September 2024

LATITUDE: 44° 3' 43.3872" N **LONGITUDE:** 123° 9' 10.0584" W

	S	S^2
Ground Water Migration Pathway Score (S_{gw})	Not scored	Not scored
Surface Water Migration Pathway Score (S_{sw})	Not scored	Not scored
Soil Exposure and Subsurface Intrusion Pathway Score (S_{sessi})	63.40	4,019.56
Air Migration Pathway Score (S_a)	Not scored	Not scored
$S_{gw}^2 + S_{sw}^2 + S_{sessi}^2 + S_a^2$	XXXXXXX	4,019.56
$(S_{gw}^2 + S_{sw}^2 + S_{sessi}^2 + S_a^2) / 4$	XXXXXXX	1,004.89
SQRT $((S_{gw}^2 + S_{sw}^2 + S_{sessi}^2 + S_a^2) / 4)$	XXXXXXX	31.70

HRS Table 5-1 Soil Exposure Component Scoresheet

Factor Categories and Factors	Maximum Value	Value Assigned
Resident Population Threat		
Likelihood of Exposure		
1. Likelihood of Exposure	550	550
Waste Characteristics:		
2. Toxicity	(a)	10,000
3. Hazardous Waste Quantity	(a)	10
4. Waste Characteristics	100	18
Targets:		
5. Resident Individual	50	50
6. Resident Population:		
6a. Level I Concentrations	(b)	405
6b. Level II Concentrations	(b)	68.35
6c. Resident Population (lines 6a + 6b)	(b)	473.35
7. Workers	15	5
8. Resources	5	
9. Terrestrial Sensitive Environments	(c)	
10. Targets (lines 5 + 6c + 7 + 8 + 9)	(b)	528.35
Resident Population Threat Score:		
11. Resident Population Threat (lines 1 x 4 x 10)	(b)	5,230,665
Nearby Population Threat		
Likelihood of Exposure:		
12. Attractiveness/Accessibility	100	NS
13. Area of Contamination	100	NS
14. Likelihood of Exposure	500	NS
Waste Characteristics:		
15. Toxicity	(a)	NS
16. Hazardous Waste Quantity	(a)	NS
17. Waste Characteristics	100	NS
Targets:		
18. Nearby Individual	1	NS
19. Population Within 1 Mile	(b)	NS
20. Targets (lines 18 + 19)	(b)	NS
Nearby Population Threat Score:		
21. Nearby Population Threat (lines 14 x 17 x 20)	(b)	NS
Soil Exposure Pathway Score		
22. Soil Exposure Pathway Score[d] (S_s), (lines [11 +21]/82,500, subject to a maximum of 100)	100	63.40

[a]Maximum value applies to waste characteristics category.
[b]Maximum value not applicable.
[c]No specific maximum value applies to factor. However, pathway score based solely on terrestrial-sensitive environments is limited to maximum of 60.
[d]Do not round to nearest integer.
NS: Not Scored

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ACRONYM LIST

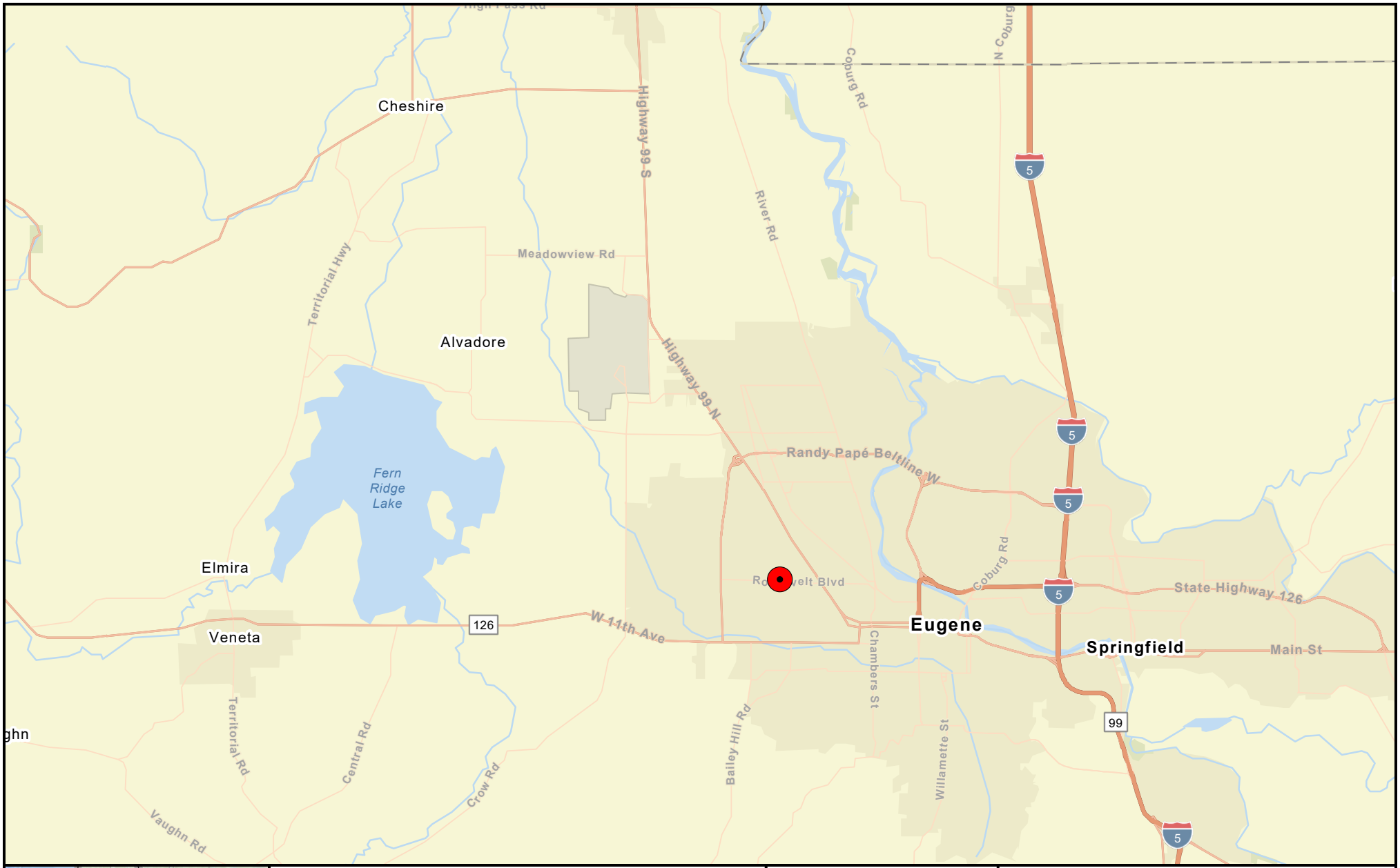
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
ACZA	ammoniacal copper zinc arsenate
AOC	Area of Observed Contamination
bgs	below ground surface
CEA	copper ethanolamine
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CLP	Contract Laboratory Program
CRQL	Contract Required Quantitation Limit
dioxin	dibenzo-p-dioxins
DU	Decision Unit
EPA	United States Environmental Protection Agency
ERT	Environmental Response Team
ESU	Evolutionary Significant Unit
FR	Federal Register
furans	dibenzofurans
HpCDD	heptachlorodibenzo-p-dioxin
HpCDF	heptachlorodibenzofuran
HRS	Hazard Ranking System
HxCDD	hexachlorodibenzo-p-dioxin
HxCDF	hexachlorodibenzofuran
IA	Integrated Assessment
ID	identification number
ISM	Incremental Sampling Methodology
Keystone	Keystone Environmental Resources Ltd.
LRAPA	Lane Regional Air Protection Agency
MDL	Method Detection Limit
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
ng/kg	nanograms per kilogram
No.	Number
NOV	Notice of Violation
NPL	National Priorities List
NS	Not Scored
NWI	National Wetlands Inventory
NWS	National Weather Service
OCDD	octachlorodibenzo-p-dioxin
OCDF	octachlorodibenzofuran
ODEQ	Oregon Department of Environmental Quality
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCP	pentachlorophenol
PeCDD	pentachlorodibenzo-p-dioxin

ACRONYM LIST (cont'd)

PeCDF	pentachlorodibenzofuran
PPE	Probable Point of Entry
ppt	parts per trillion
PRP	Potentially Responsible Party
RCRA	Resource Conservation and Recovery Act
REAC	Response Engineering and Analytical Contract
Ref.	Reference
RSE	Removal Site Evaluation
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SCDM	Superfund Chemical Data Matrix
SOW	Statement of Work
SQL	Sample Quantitation Limit
START	Superfund Technical Assessment and Response Team
SVOC	semivolatile organic compound
TAL	Target Analyte List
TDL	Target Distance Limit
TO	Task Order
TOC	total organic carbon
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compound
Weston	Weston Solutions, Inc.

NOTES TO THE READER

Page numbers have been added to the references in the lower right corner. For reference citations, please refer to the page numbers in this location.



Coordinate System:
WGS 1984 Web Mercator Auxiliary Sphere
Source:
Background: ESRI World Street Map*
Inset Background: ESRI Ocean Basemap*
Task Order No.:
68HE0722F0059

0 1.25 2.5 5 Miles

Legend:

Site Location

*The source of this map image is ESRI, used by the EPA with ESRI's permission. Ref. 4, pp. 269-270

EPA Region 10

Weston Solutions Inc.
START V

FIGURE 1
SITE LOCATION MAP
J. H. BAXTER
EUGENE, LANE COUNTY, OR

August 2024

Coordinate System:
WGS 1984 Web Mercator Auxiliary Sphere
Source:
Background: Nearmap 2022/07/10*
Task Order No.:
68HE0722F0059

0 125 250 500 Feet

Legend:
- Surface Water Outfall
- Site Drainage
- Underground Channel
- Wood Storage Area
- Facility Boundary

*The source of this map image is Nearmap, used by the EPA with Nearmap's permission. Site features are from Ref. 4, p. 75

EPA Region 10

Weston Solutions Inc.
START V

FIGURE 2
SITE FEATURES MAP
J. H. BAXTER
EUGENE, LANE COUNTY, OR

August 2024

Coordinate System:
WGS 1984 Web Mercator Auxiliary Sphere
Source:
Background: NearMap 2023/05/29*
Task Order No.:
68HE0722F0059

*The source of this map image is Nearmap, used by the EPA with Nearmap's permission. Site features are from Ref. 4, pp. 79, 113. Sample locations collected by Weston

Total Area of Observed Contamination in facility = 714,744 sq ft.
Estimated Permeable Surfaces Within Facility Area of Contamination = 595,515 sq ft.

0 75 150 300 Feet

Legend

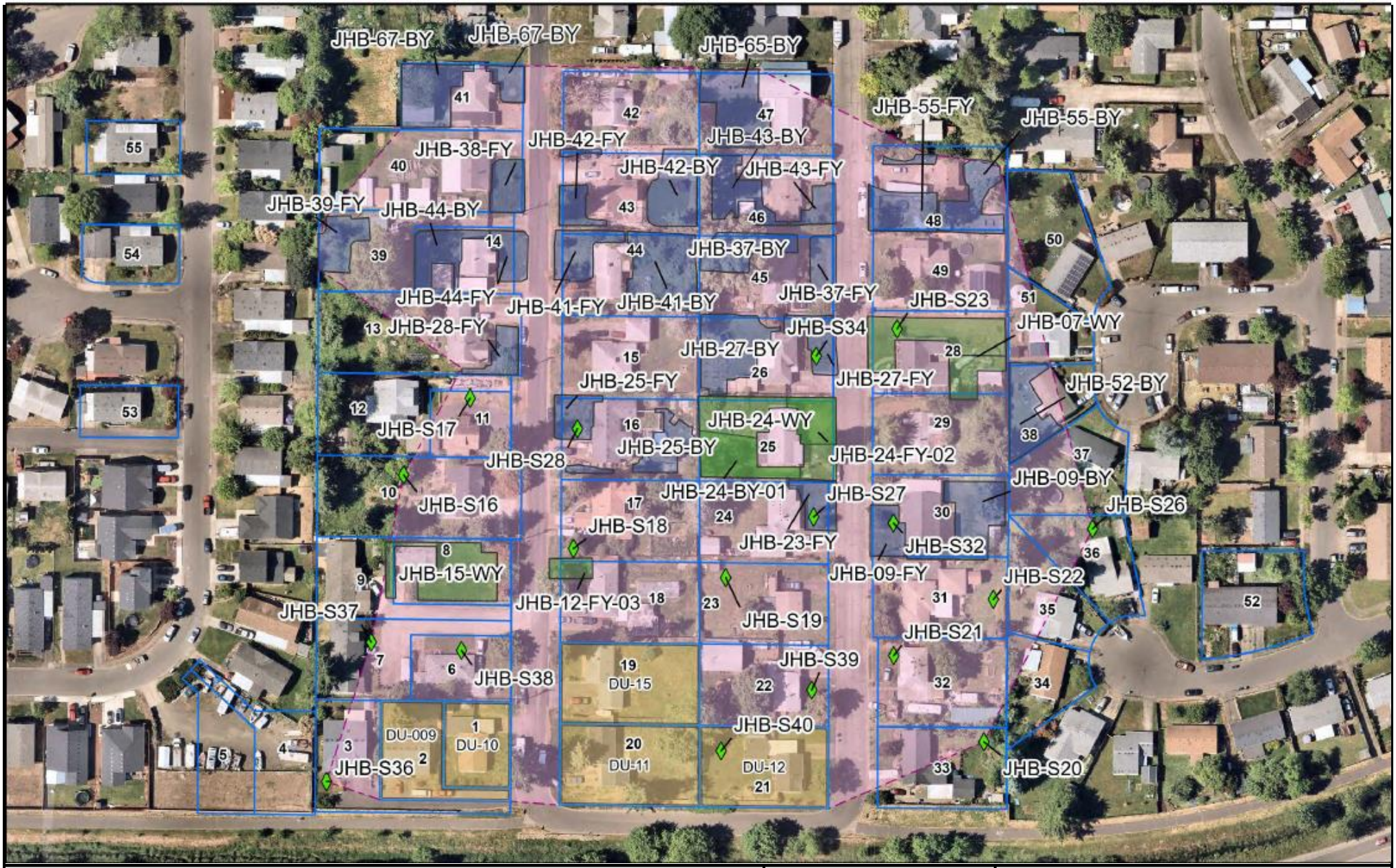
- EPA IA Surface Soil Sample Location
- Facility Boundary
- AOC A - Facility Contaminated Soil

EPA Region 10

Weston Solutions Inc.
START V

FIGURE 3A
FACILITY CONTAMINATED SOIL
J. H. BAXTER
EUGENE, LANE COUNTY, OR

August 2024



Coordinate System:
WGS 1984 Web Mercator Auxiliary Sphere
Source:
Background: NearMap 2022/07/10*
Task Order No.:
68HE0722F0059

*The source of this map image is Nearmap, used by the EPA with Nearmap's permission. Site features are from Ref. 4, pp. 30-32, 78, 81, 86, 113; Ref. 118, p. 32. Sample locations collected by Weston and GSI

Total Area of Observed Contamination in residential neighborhood = 454,604 sq ft.
Estimated Permeable Surfaces Within Residential Area of Contamination = 291,324 sq ft.

0 75 150 300 Feet

Legend

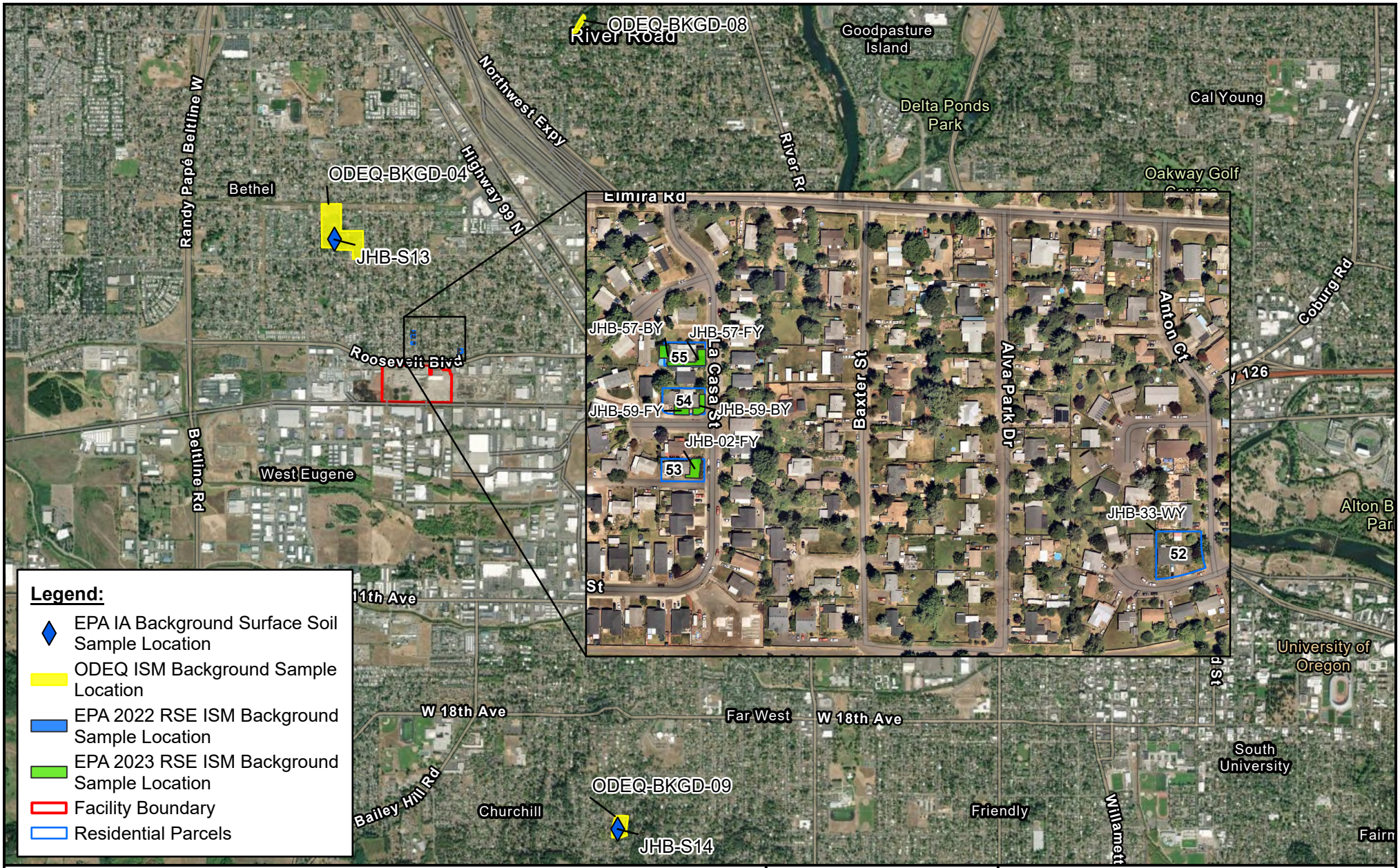
- EPA IA Surface Soil Sample Location
- EPA IA 2023 RSE ISM Sample Location
- EPA IA 2022 RSE ISM Sample Location
- ODEQ 2021 ISM Sample Location
- Residential Parcels
- AOC B - Residential Contaminate Soil

EPA Region 10

Weston Solutions Inc.
START V

FIGURE 3B
RESIDENTIAL CONTAMINATED SOIL
J. H. BAXTER
EUGENE, LANE COUNTY, OR

July 2024



Coordinate System:
WGS 1984 Web Mercator Auxiliary Sphere
Source:
Background: ESRI World Imagery*
Inset Background: NearMap 2022/07/10**
Task Order No.:
68HE0722F0059

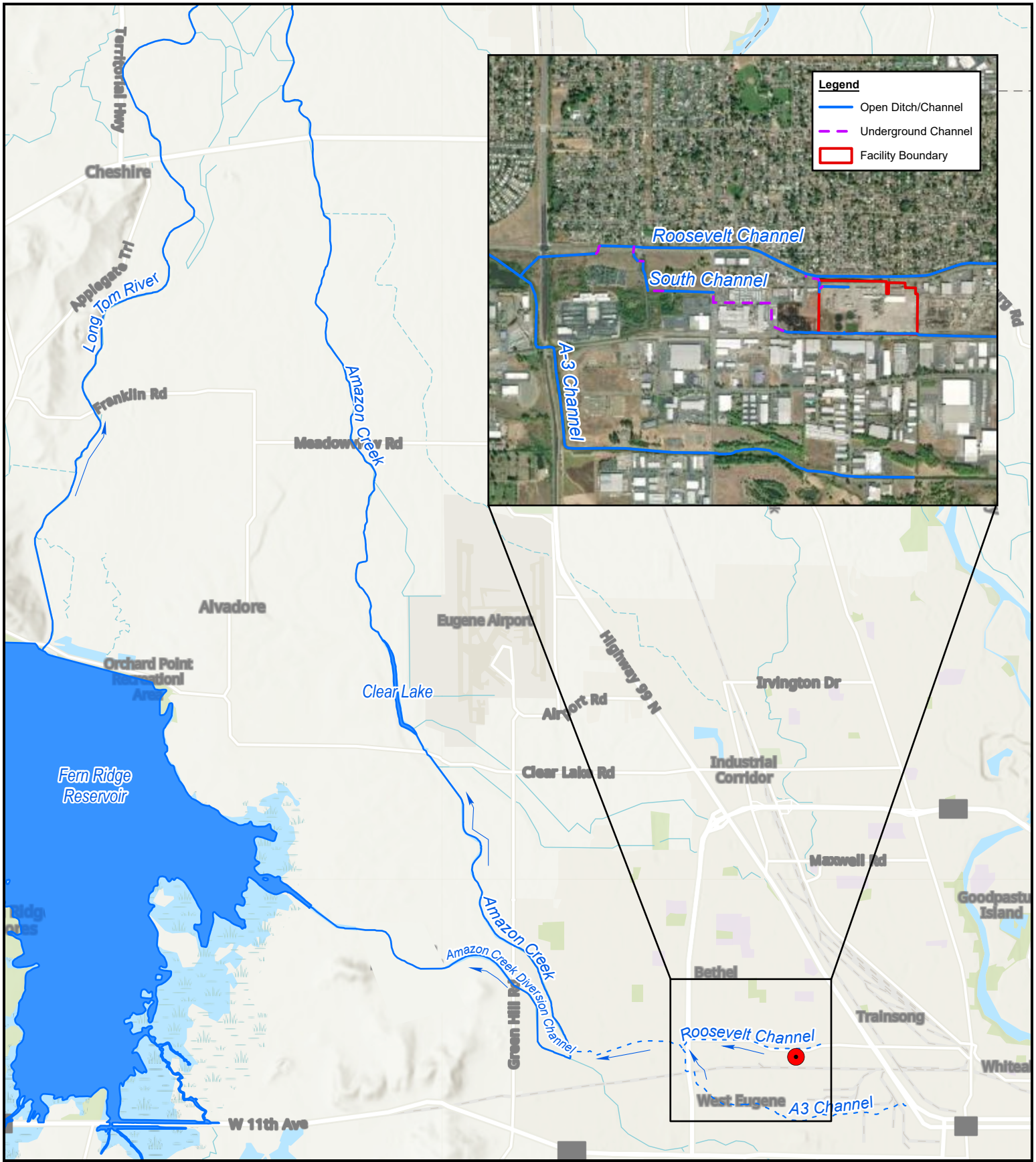
*The source of this map image is ESRI, used by the EPA with ESRI's permission.
**The source of this map image is Nearmap, used by the EPA with Nearmap's permission. Site features are from Ref. 4 p. 78, Ref. 4, pp. 30-32, 78, 80-81, 86, 113; Ref. 39, p. 34; Ref. 118, p. 32. Sample locations collected by Weston and GSI

EPA Region 10

Weston Solutions Inc.
START V

FIGURE 4
BACKGROUND SOIL SAMPLE LOCATIONS
J. H. BAXTER
EUGENE, LANE COUNTY, OR

August 2024



Coordinate System:
WGS 1984 Web Mercator Auxiliary Sphere
Source:
Background: ESRI World Topographic Map*
Inset Background: ESRI World Imagery*
Task Order No.:
68HE0722F0059

*The source of this map image is ESRI, used by the EPA with ESRI's permission. Site features are from Ref. 4 p. 78. Site flowpath features are from Ref. 4 p. 79, Ref. 4, pp. 76-77.

0 0.5 1 2 Miles

Legend:

- JH Baxter Facility
- Flow Direction
- Canal/Ditch
- Stream/River
- Lake/Pond

EPA Region 10

Weston Solutions Inc.
START V

FIGURE 5
SURFACE WATER FEATURES
J. H. BAXTER
EUGENE, LANE COUNTY, OR

August 2024

SITE DESCRIPTION

J. H. Baxter is a former wood-processing and treatment facility located at 3494 Roosevelt Boulevard, formerly 85 Baxter Street, in southwest Eugene, Lane County, Oregon (Figure 1 and Figure 2 of this HRS documentation record; Ref. 5, p. 10; Ref. 18, p. 6). For HRS scoring purposes, the Site consists of the release of hazardous substances from wood-processing operations to two areas of observed contamination (AOCs).

Hazardous substances associated with the AOCs include dibenzo-p-dioxin (dioxin) and dibenzofuran (furan) congeners, polycyclic aromatic hydrocarbons (PAHs), phenols, including pentachlorophenol (PCP), and metals, including cadmium, lead, and zinc (see Section 5.1 of this HRS documentation record, General Considerations). Two AOCs are documented, AOC A is a portion of the former facility property and AOC B is in the adjacent residential neighborhood immediately to the north, with approximately 109 residents within AOC B subject to Level I or Level II concentrations (see Sections 5.1 and 5.1.1.3 of this HRS documentation record).

The J. H. Baxter facility is bordered to the north by Roosevelt Boulevard, Roosevelt Channel, and a residential neighborhood (Figures 2 and 3B of this HRS documentation record; Ref. 5, p. 10). Residential properties are located immediately to the north of Roosevelt Boulevard and Roosevelt Channel (Ref. 12, p. 34). The neighborhood north of the facility was developed in the 1950s (Ref 12, p. 17). The southern border of the facility is formed by the Union Pacific Railroad right-of-way (Ref. 4, p. 10). Industrial businesses surround the facility, with a metal recycling facility on the eastern boundary and plating, aviation, and lumber mill facilities to the west (Ref. 4, p. 10; Ref. 5, p. 10; Ref. 16, p. 7; Ref. 93, pp. 1-3). The J. H. Baxter facility has been as large as 42.45 acres (Ref. 5, p. 10; Ref. 12, p. 17), but was reduced to 31.5 acres by 2019 (Ref. 6, p. 9).

Facility History

Before construction of the J. H. Baxter facility in 1943, the property was undeveloped farmland (Ref. 6, p. 10; Ref. 7, p. 18; Ref. 12, p. 17; Ref. 14, p. 11). Operations at the facility consisted of wood treating in retorts using a variety of preservative chemicals, including creosotes, PCP, metal-based solutions, and fire retardants (Ref. 5, pp. 13-18; Ref. 10, pp. 3-4; Ref. 14, p. 5; Ref. 15, p. 17; Ref. 15, p. 57; Ref. 16, p. 9). After raw wood products were treated in the retorts, they were transported via tram to concrete drip pads where the treated wood was allowed to dry until no further drippage occurred. Following drying on the drip pad, treated wood products were either stored on one of several treated wood-storage areas on facility property, or transported elsewhere by truck or rail (Ref. 7, p. 20; Ref. 15, p. 18). The facility began with one retort, ultimately expanding to five before the facility was “mothballed” in early 2022, ceasing wood-treatment operations and only performing essential maintenance and environmental compliance (Ref. 5, p. 13; Ref. 8, p. 1).

Historical records describe a burn pit, 40 square feet in area and 4 feet deep, in the southwest portion of the facility that was used for the disposal of waste between 1945 and 1955. Oil sludge was added to the pit via 55-gallon drums and a pipeline coming from the process area. The pit was excavated and filled in 1955, and a still-standing dry shed was constructed on the excavation footprint (Ref. 5, p. 19; Ref. 6, p. 11; Ref. 7, p. 18; Ref. 10, p. 4; Ref. 15, p. 16). There are no known records documenting whether the excavated fill was removed from the property (Ref. 5, p. 19; Ref. 7, p. 18, Ref. 15, p. 16). Later records indicate that hazardous waste was stored at the facility in the main treatment area. A designated hazardous waste storage shed was constructed in that area in 1982 and still stands today (Ref. 5, p. 20; Ref. 12, p. 18; Ref. 16, p. 10).

The retorts were situated on pavement and diked (Ref. 5, p. 13; Ref. 6, p. 11; Ref. 7, p. 19; Ref. 12, p. 19). However, approximately 80% of the rest of the facility is unpaved (Ref. 6, p. 11; Ref. 7, p. 19; Ref. 12, p. 19). Before 1976, most of the stormwater runoff from the facility went into the ground, with some runoff going into drainage ditches to the north and south (Ref. 7, p. 20; Ref. 15, p. 18). Subsequently, most of the surface runoff on the facility was routed to and stored in a retention pond in the southwest corner of the property, which, after some aeration and skimming, was transferred to a drainage ditch, ultimately connecting to the A-3 drainage channel in the Amazon Creek watershed (Ref. 5, p. 22). A stormwater treatment system began operations in 1997 (Ref. 15, p. 30; Ref. 18, p. 12). The Oregon Department of Environmental Quality (ODEQ) and J. H. Baxter entered into a consent order in 1989 after groundwater contamination from facility operations was found (Ref. 10, p. 6). A groundwater treatment system was installed in 1993 to extract and remove contaminants, preventing continuing migration of contaminated water off of the facility (Ref. 15, p. 29).

Since 1981, the J. H. Baxter facility has been subject to numerous regulatory investigations and actions during its operation and after its closure (Ref. 5, p. 26; Ref. 6, pp. 13-14; Ref. 7, pp. 27-28, 37-39; Ref. 15, op. 21, 24; Ref. 16, p. 12). In 2007, a 10-acre interim remedial action measure soil cap was installed throughout the eastern third of the property, to mitigate airborne transport of contaminated soil away from the facility (Ref. 6, p. 11; Ref. 7 pp. 19, 44; Ref. 15, p. 32; Ref. 18, pp. 6, 11). Since 1977, when the first air quality complaint was recorded, residents of the neighborhoods to the north and northeast of the facility reported numerous complaints to the Lane Regional Air Protection Agency (LRAPA) concerning odor and symptoms of illness (Ref. 59, p. 14; Ref. 88, p. 5, 7, 10). The number of air quality complaints peaked in 2004, with 762 complaints recorded (Ref. 88, p. 7).

A notice of violation (NOV) was issued to J. H. Baxter in 2017 by EPA, after an investigation found Resource Conservation and Recovery Act (RCRA) violations at the facility (Ref. 13). These violations included lack of curbs or berms surrounding the retorts; failure to minimize tracking of product off of the drip pad; failure to hold wood on the drip pad until drippage is complete; failure to conduct weekly inspections of the drip pad; failure to properly label containers; disposal of hazardous waste without a permit; failure to comply with land disposal restriction treatment standards; and treatment and storage of hazardous wastes without a permit (Ref. 13, pp. 1-5). The 2017 NOV indicates that J. H. Baxter is a significant non-complier (Ref. 13, p. 6). In 2020 and 2021, a consultant hired by J. H. Baxter collected soil samples near the facility and in residential properties. Results identified elevated levels of dioxins above ODEQ residential soil risk-based concentration (4.7 parts per trillion [ppt]) in six residential yards out of seven sampled, with three yards exceeding 40 ppt of dioxins (Ref. 17, pp. 1-2).

In 2019, DEQ issued a Record of Decision (ROD) that required cleanup at the facility as well as off-facility soil sampling. In January 2022, ODEQ issued the facility a scope of work including the residential soil remedial elements prescribed by the 2019 ROD. A week later, the company president indicated that the facility would not be able to complete the required actions due to financial limitations. The state was notified by the company president of their decision to ‘mothball’ the facility, suspending all wood treatment operations, while maintaining a skeleton crew to oversee the groundwater, stormwater, and process water treatment systems (Ref. 17, p. 2). ODEQ issued a subsequent Orphan Site declaration for J. H. Baxter & Co., making the company eligible for remediation funding through the state and federal government (Ref. 17, pp. 1-2).
ODEQ has completed soil removals at seven residential properties located to the north of the facility. The properties with removals were not included in population counts or hazardous waste quantity values for AOC B (Ref. 41, pp. 10, 30; section 5.1.0 AOC B of this HRS documentation record).

4.0 SURFACE WATER MIGRATION PATHWAY

The Surface Water Migration Pathway was not scored, as its inclusion does not affect the listing decision. The Surface Water Migration Pathway is, however, a concern to EPA.

The J. H. Baxter facility is located within the Amazon Creek watershed. The Amazon Creek watershed has been modified extensively over the years through a series of manmade ditches and channels (Ref. 4, p. 62-63; Ref. 5, pp. 21-22). Stormwater treatment system and groundwater treatment system outflow from the J. H. Baxter facility discharge to Roosevelt Channel and its tributaries, located adjacent to the north of the facility (Ref. 4, pp. 60-61). Roosevelt Channel flows to the A3 channel, approximately 1 mile downstream of the facility. The A3 channel flows 1.24 miles to Amazon Creek. From Amazon Creek, it is a further 12.32 miles to the confluence with Clear Lake, and an additional 1.05 miles to the confluence with the Long Tom River. An additional diversion channel exists on Amazon Creek, 330 feet south of the A3 channel confluence. During a high water event, it is possible that surface water entering Amazon Creek from the A3 channel may backflow into the diversion channel. The Amazon Creek diversion channel flows for 3.81 miles until it reaches the Fern Ridge Reservoir, which continues for 3.4 miles to the confluence with the Long Tom River (Ref. 4, p. 62-63).

From 1955 to 1981, the annual mean flow rate for Amazon Creek ranged from 17.4 cubic feet per second (cfs) to 54 cfs. More recent gaging data was not available (Ref. 81). USGS gaging data was not available for Roosevelt Channel A3 Channel, and Amazon Creek Diversion Channel. From 2014 to 2024, annual mean flow rate to Long Tom River at the outfall from Fern Ridge Lake ranged from 299.4 cfs to 751.9 cfs (Ref. 80).

2023 EPA IA Sampling

EPA tasked Weston, under START Contract No. 68HE0720D005 and TO 68HE0722F0059, to conduct an IA at the J. H. Baxter site (Ref. 4, p. 9). Sampling was conducted under an EPA-approved site-specific SAP (Ref. 4, p. 19; Ref. 9). As part of the IA, sediment samples were collected in May 2023. Sediment samples were collected from Amazon Creek and its unnamed tributaries, Roosevelt Channel, South Channel, and Amazon Creek Diversion Channel (Ref. 4, pp. 20, 44). Samples were submitted for off-site fixed laboratory analysis for TAL VOCs, TAL SVOCs, TAL Pesticides, TAL Aroclors, and TAL Inorganics, using CLP SOW SFAM01.1 methodology for all analyses (Ref. 4, p. 19-20, 25). Some predetermined locations were also analyzed for dioxins and furans using CLP SOW HRSM02.1, Total Organic Carbon using PSEP-TOC-M, and grain size (Ref. 4, pp. 20, 25). Dioxin/furan congeners and metals were detected in sediments collected from downstream of the J. H. Baxter facility (Ref. 4, pp. 82-84, 571-585).

Surface Water Targets

No drinking water intakes are located within 15 miles downstream of the J. H. Baxter facility (Ref. 4, p. 63). During the 2023 IA sampling event, a resident informed EPA that crawfish caught in Amazon Creek had been fished and consumed “regularly” during the summer months (Ref. 4, p. 399). Online message boards also indicate that fishing occurs in Amazon Creek, Amazon Creek Diversion Channel, Fern Ridge Reservoir, and Clear Lake. Rainbow trout (*Oncorhynchus mykiss*), largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), crappie (*Pomoxis sp.*), common carp (*Cyprinus carpio*) and yellow bullhead (*Ameiurus natalis*) are species reportedly

caught from these water bodies (Ref. 52, pp. 2-4; Ref. 53, pp. 1-2; Ref. 54, pp. 1-2, 8-16; Ref. 84, pp. 1-2, 7-17).

Wetlands are located along Roosevelt Channel, A3 Channel, Amazon Creek, and Amazon Creek Diversion Channel within 15 miles downstream of the J. H. Baxter facility (Ref. 4, p. 64; Ref. 56). Long Tom River provides habitat known to be used by the Federal-listed threatened Upper Willamette River Evolutionarily Significant Unit (ESU) Chinook salmon (*Oncorhynchus tshawytscha*) (Ref. 4, p. 64).

5.0 SOIL EXPOSURE AND SUBSURFACE INTRUSION PATHWAY

5.1 SOIL EXPOSURE COMPONENT

Two areas of observed contamination (AOCs) attributable to the J. H. Baxter site were evaluated for scoring. Descriptions of the individual areas, with reference citations, are provided in the sections below.

AOC A is the Facility Contaminated Soil, measuring approximately 714,744 square feet on the facility. AOC B is the Residential Contaminated Soil, measuring approximately 454,604 square feet within the neighborhood to the north of the facility. Hazardous substances associated with these AOCs include dioxin and furan congeners, metals, pesticides, and SVOCs. Detailed information about hazardous substances and hazardous waste quantities in each source, with reference citations, is available in Section 5.1.0 of this HRS documentation record.

Approximately 109 residents occupy residential properties within AOC B (Tables 21 and 22 of this HRS documentation record).

Table 1 J. H. Baxter Areas of Observed Contamination

AOC	AOC Name	AOC Type
A	Facility Contaminated Soil	Contaminated Soil
B	Residential Contaminated Soil	Contaminated Soil

5.1.0 GENERAL CONSIDERATIONS

Letter by which this AOC is to be identified: A

Name of AOC: Facility Contaminated Soil

AOC Type: Contaminated Soil

Location and description of area (see Figure 3A of this HRS documentation record):
AOC A consists of contaminated soil within the J. H. Baxter facility property (Tables 2 through 4 and Figure 3A of this HRS documentation record). Soil contamination was a result of historical operations as a wood-treatment facility. Operations at the facility included high-pressure wood treating in retorts using a variety of preservative chemicals, including PCP, ACZA, 50/50 Heavy Oil Blends of Creosote and Bunker C Oil (50/50), Creosote, and Alkaline Copper Quaternary-Type B (ACQ) (Ref. 5, pp. 13-18; Ref. 10, pp. 3-4; Ref. 14, p. 5; Ref. 15, pp. 17, 57; Ref. 16, p. 9; Ref. 87, pp. 9). After raw wood products were treated in the retorts, they were transported via tram to concrete drip pads where the treated wood was allowed to dry until no further drippage occurred. After drying on the drip pad, treated wood products were either stored on one of several on-property treated wood-storage areas or transported off-property by truck or rail (Ref. 7, pp. 20, 40; Ref. 15, p. 18; Ref. 87, p. 11).

In 2017, EPA issued J.H. Baxter & Co. a NOV detailing eight RCRA violations found during an inspection in 2014. Several of the violations were related to hazardous materials interacting with soil due to inadequate drip pad infrastructure and maintenance associated with the retorts, which are located within AOC A. The EPA inspector observed several such instances, noting that "[i]n some areas, the oily substance, waste wood preservative (EPA hazardous wastes numbers F032 and F034), had stained and soaked into the soil, and in other areas the hazardous waste (waste wood preservative) was pooled on the soil surface." In two other instances, the inspector noted PCP leakage from a pump hose and a pipe connected to a PCP storage tank. The releases were deemed "disposals," and the facility was cited for disposal of hazardous waste without a permit and for failure to comply with Land Disposal Restrictions treatment standards. Based on the severity of these violations, the NOV classified the J. H. Baxter facility as a "significant non-complier" (Figure 2 and Figure 3A of this HRS documentation record; Ref. 13, pp. 1-6).

Based on the soil sampling described below, AOC A was measured based on samples with concentrations significantly above background. AOC A measures approximately 714,744 square feet (see Figure 3A of this HRS documentation record).

AOC A is documented below based on the 2023 EPA IA soil sampling event. Contaminated samples are compared to background samples collected during the same sampling event using the same field and analytical methods (Table 2, Table 3, and Table 4 of this HRS documentation record; Ref. 4, pp. 17-18). Background locations are shown on Figure 4 of this HRS documentation record. Contaminated samples used to document AOC A are shown on Figure 3A of his HRS documentation record. Grab surface soil sampling for the IA was conducted by START on the J. H. Baxter facility and on residential properties in 2023 (Ref. 4, pp. 17, 19).

EPA IA 2023 Site Assessment Surface Soil Samples

EPA tasked Weston Solutions, Inc. (Weston), under START Contract Number (No.) 68HE0720D005 and Task Order (TO) 68HE0722F0059, to conduct an IA of the J. H. Baxter site (Ref. 4, p. 9). Sampling was conducted under an EPA-approved site-specific Sampling and Analysis Plan (SAP) (Ref. 4, p. 19; Ref. 9). AOC A sampling was conducted in May 2023 (Ref. 4, pp. 17, 19).

Sample locations are presented on Figure 3A and Figure 4 of this HRS documentation record. In May 2023, twelve surface soil field samples were collected at the J. H. Baxter facility from 0 to 6 inches bgs. Two background soil samples were collected for comparison to the contaminated soils (Ref. 4, p. 20). Background locations included two public parks in Eugene, Oregon, located ¾-mile northwest and 2 ¼-miles south of the facility (Figure 4 of this HRS documentation record; Ref. 4, p. 19). Samples were collected as grab samples from 0 to 6 inches bgs using a non-dedicated hand auger, which was decontaminated after each use (Ref. 4, p. 17-18).

Samples were submitted for off-site fixed laboratory analysis for TAL VOCs (SFAM01.1), TAL SVOCs (SFAM01.1), TAL Pesticides (SFAM01.1), TAL Aroclors (SFAM 01.1), TAL Inorganics (SFAM 01.1), and dioxins/furans (HRSM02.1). All samples were analyzed under EPA CLP Statement of Work (SOW) SFAM01.1, with the exceptions of dioxins and furans which were analyzed under CLP SOW HRSM02.1 (Ref. 4, pp. 19-21, 25-26). All sample analyses were validated following EPA's Stage 4 Data Validation Electronic/Manual Process. A START chemist performed a Stage 1 verification of each CLP data package. (Ref. 4, p. 26).

- Background Surface Soil

During the IA, background surface soils were collected from two locations not expected to be affected by historical site operations. Sample JHB-S13 was collected from a public park ¾-mile northwest believed to be outside the influence of emissions sources at the J. H. Baxter facility. Sample JHB-S14 was collected from a public park 2 ¼-miles south of the facility and believed to be outside the influence of migrant dust emissions from the J. H. Baxter facility (Ref. 4, p. 43).

Table 2 EPA IA Site Assessment Background Surface Soil Concentrations							
Sample ID	**Sampling Date**	**Units**	**Hazardous Substance**	**Result**	**Sample Adjusted CRQL***	**Soil Description**	**References**
JHB-S13	5/2/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	95	5.0	Medium-dark brown, mostly silt with few clay & gravel, moist, cohesive	Ref. 4, pp. 43, 80, 309, 397, 562, 1845-1847, 3211, 3240, 3298, 3314, 3316; Ref. 60, pp. 438, 619; Ref. 123, pp. 43, 181, 589
		ng/kg	1,2,3,4,6,7,8-HpCDF	27	5.0		
		ng/kg	1,2,3,4,7,8,9-HpCDF	1.6 JQ	5.0		
		ng/kg	1,2,3,4,7,8-HxCDD	1.3 JQ	5.0		
		ng/kg	1,2,3,4,7,8-HxCDF	2.2 JQ	5.0		
		ng/kg	1,2,3,6,7,8-HxCDD	3.9 JQ	5.0		
		ng/kg	1,2,3,6,7,8-HxCDF	1.5 JQ	5.0		
		ng/kg	1,2,3,7,8,9-HxCDD	2.3 JQ	5.0		
		ng/kg	1,2,3,7,8,9-HxCDF	0.9 JQ	5.0		
		ng/kg	1,2,3,7,8-PeCDD	1 JQ	5.0		
		ng/kg	1,2,3,7,8-PeCDF	0.84 JQ	5.0		
		ng/kg	2,3,4,6,7,8-HxCDF	2 JQ	5.0		
		ng/kg	2,3,4,7,8-PeCDF	1.2 JQ	5.0		
		ng/kg	2,3,7,8-TCDD	0.35 JQ	1.0		
		ng/kg	OCDF	44	10		
		mg/kg	Antimony	7.6 U	7.6		
		mg/kg	Arsenic	5.7	1.3		
		mg/kg	Cadmium	0.63 U	0.63		
		mg/kg	Chromium	22	1.3		
		mg/kg	Copper	21	3.2		
		mg/kg	Lead	23	1.3		
		mg/kg	Selenium	4.4 U	4.4		
		mg/kg	Silver	1.3 U	1.3		
		mg/kg	Zinc	80	7.6		
		µg/kg	Anthracene	190 U	190		
		µg/kg	Benzo(a)anthracene	190 U	190		
		µg/kg	Benzo(a)pyrene	190 U	190		
		µg/kg	Benzo(g,h,i)perylene	190 U	190		
		µg/kg	Benzo(k)fluoranthene	190 U	190		
		µg/kg	Bis(2-ethylhexyl)phthalate	190 U	190		
		µg/kg	Chrysene	190 U	190		
		µg/kg	Fluoranthene	190 U	190		
		µg/kg	Indeno(1,2,3-cd)pyrene	190 U	190		
		µg/kg	Pentachlorophenol	370 U	370		
		µg/kg	Phenanthrene	190 U	190		
		µg/kg	Pyrene	190 U	190		

Table 2 EPA IA Site Assessment Background Surface Soil Concentrations							
Sample ID	**Sampling Date**	**Units**	**Hazardous Substance**	**Result**	**Sample Adjusted CRQL***	**Soil Description**	**References**
JHB-S14	5/2/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	15	5.0	medium-dark brown, mostly silt to clay with some large, angular gravel	Ref. 4, pp. 43, 80, 311-312, 397, 562, 1851-1853, 2389, 3211, 3240, 3298, 3300-3301, 3303, 3314, 3316; Ref. 60, p. 440; Ref. 121, p. 19; Ref. 123, pp. 46-47, 182, 641
		ng/kg	1,2,3,4,6,7,8-HpCDF	1.6 JQ	5.0		
		ng/kg	1,2,3,4,7,8,9-HpCDF	0.43 UJ	5.0		
		ng/kg	1,2,3,4,7,8-HxCDD	0.25 UJ	5.0		
		ng/kg	1,2,3,4,7,8-HxCDF	0.36 UJ	5.0		
		ng/kg	1,2,3,6,7,8-HxCDD	0.69 J	5.0		
		ng/kg	1,2,3,6,7,8-HxCDF	0.31 UJ	5.0		
		ng/kg	1,2,3,7,8,9-HxCDD	0.48 JQ	5.0		
		ng/kg	1,2,3,7,8,9-HxCDF	0.31 UJ	5.0		
		ng/kg	1,2,3,7,8-PeCDD	0.26 UJ	5.0		
		ng/kg	1,2,3,7,8-PeCDF	0.27 UJ	5.0		
		ng/kg	2,3,4,6,7,8-HxCDF	0.26 UJ	5.0		
		ng/kg	2,3,4,7,8-PeCDF	0.35 UJ	5.0		
		ng/kg	2,3,7,8-TCDD	0.15 UJ	1.0		
		ng/kg	OCDF	4.1 UJ	10		
		mg/kg	Antimony	6.8 U	6.8		
		mg/kg	Arsenic	42	1.1		
		mg/kg	Cadmium	0.32 JQ	0.56		
		mg/kg	Chromium	41	1.1		
		mg/kg	Copper	65	2.9		
		mg/kg	Lead	7.7	1.1		
		mg/kg	Selenium	4 U	4.0		
		mg/kg	Silver	1.1 U	1.1		
		mg/kg	Zinc	52	6.8		
		µg/kg	Anthracene	240 U	240		
		µg/kg	Benzo(a)anthracene	240 U	240		
		µg/kg	Benzo(a)pyrene	240 U	240		
		µg/kg	Benzo(g,h,i)perylene	240 U	240		
		µg/kg	Benzo(k)fluoranthene	240 U	240		
		µg/kg	Bis(2-ethylhexyl)phthalate	240 U	240		
		µg/kg	Chrysene	240 U	240		
		µg/kg	Fluoranthene	240 U	240		
		µg/kg	Indeno(1,2,3-cd)pyrene	240 U	240		
		µg/kg	Pentachlorophenol	470 U	470		
		µg/kg	Phenanthrene	240 U	240		
		µg/kg	Pyrene	240 U	240		

Notes:
CRQL: EPA Contract Laboratory Program Contract Required Quantitation Limit
EPA: United States Environmental Protection Agency
HpCDD Heptachlorodibenzo-p-dioxin
HpCDF Heptachlorodibenzofuran
HxCDD Hexachlorodibenzo-p-dioxin
HxCDF Hexachlorodibenzofuran
IA Integrated Assessment
mg/kg: milligrams per kilogram
ng/kg: nanograms per kilogram
µg/kg: micrograms per kilogram

OCDF Octachlorodibenzofuran
PeCDD Pentachlorodibenzo-p-dioxin
PeCDF Pentachlorodibenzofuran
TCDD Tetrachlorodibenzo-p-dioxin
U: The material was analyzed for but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. (Ref. 60, p. 421)
J: The associated value is an estimated quantity (Ref. 60, p. 421)
Q: Concentration is below the CRQL but is above the method detection limit (Ref. 60, p. 421)
*: Since the samples were analyzed through the CLP, the CRQLs presented above are equivalent to the CRQL as defined by the HRS (Ref. 1, Sections 1.1 and 2.3).

The minimum standard to establish observed contamination by chemical analysis is analytical evidence of a hazardous substance significantly above the background level, and some portion of the significant increase above the background level is attributable to the Site. In accordance with HRS Table 2-3, if the background concentration is not detected, a significant increase is established when the sample measurement equals or exceeds the SQL. If the SQL cannot be established, if the sample analysis was performed under the EPA CLP, use the EPA CRQL in place of the SQL. If the sample analysis is not performed under the EPA CLP, use the detection limit (DL) in place of the SQL. If the background concentration equals or exceeds the detection limit, a significant increase is established when the sample measurement is three times or more above the background concentration (Ref. 1, Section 2.3).

Table 3 Background Levels to Establish Surface Soil AOC A			
Sample Type	**Hazardous Substance**	**Maximum Background Concentration 2023 IA Sampling Results**	**HRS Table 2-3 Minimum Concentration to Document Observed Contamination by Chemical Analysis**
Surface Soil	1,2,3,4,6,7,8-HpCDD	95	285
	1,2,3,4,6,7,8-HpCDF	27	81
	1,2,3,4,7,8,9-HpCDF	1.6 JQ	4.8
	1,2,3,4,7,8-HxCDD	1.3 JQ	3.9
	1,2,3,4,7,8-HxCDF	2.2 JQ	6.6
	1,2,3,6,7,8-HxCDD	3.9 JQ	11.7
	1,2,3,6,7,8-HxCDF	1.5 JQ	4.5
	1,2,3,7,8,9-HxCDD	2.3 JQ	6.9
	1,2,3,7,8,9-HxCDF	0.9 JQ	2.7
	1,2,3,7,8-PeCDD	1 JQ	3
	1,2,3,7,8-PeCDF	0.84 JQ	2.52
	2,3,4,6,7,8-HxCDF	2 JQ	6
	2,3,4,7,8-PeCDF	1.2 JQ	3.6
	2,3,7,8-TCDD	0.35 JQ	1.05
	OCDF	44	132
	Antimony	7.6 U	The sample measurement equals or exceeds the sample quantitation limit or CRQL
	Arsenic	42	126
	Cadmium	0.32 JQ	0.96
	Chromium	41	123
	Copper	65	195
	Lead	23	69
	Selenium	4.4 U	The sample measurement equals or exceeds the sample quantitation limit or CRQL
	Silver	1.3 U	The sample measurement equals or exceeds the sample quantitation limit or CRQL
	Zinc	80	240
	Anthracene	240 U	The sample measurement equals or exceeds the sample quantitation limit or CRQL
	Benzo(a)anthracene	240 U	The sample measurement equals or exceeds the sample quantitation limit or CRQL
	Benzo(a)pyrene	240 U	The sample measurement equals or exceeds the sample quantitation limit or CRQL
	Benzo(g,h,i)perylene	240 U	The sample measurement equals or exceeds the sample quantitation limit or CRQL
	Benzo(k)fluoranthene	240 U	The sample measurement equals or exceeds the sample quantitation limit or CRQL
	Bis(2-ethylhexyl)phthalate	240 U	The sample measurement equals or exceeds the sample quantitation limit or CRQL
	Chrysene	240 U	The sample measurement equals or exceeds the sample quantitation limit or CRQL
	Fluoranthene	240 U	The sample measurement equals or exceeds the sample quantitation limit or CRQL
	Indeno(1,2,3-cd)pyrene	240 U	The sample measurement equals or exceeds the sample quantitation limit or CRQL
	Pentachlorophenol	470 U	The sample measurement equals or exceeds the sample quantitation limit or CRQL

Table 3 Background Levels to Establish Surface Soil AOC A			
Sample Type	**Hazardous Substance**	**Maximum Background Concentration 2023 IA Sampling Results**	**HRS Table 2-3 Minimum Concentration to Document Observed Contamination by Chemical Analysis**
	Phenanthrene	240 U	The sample measurement equals or exceeds the sample quantitation limit or CRQL
	Pyrene	240 U	The sample measurement equals or exceeds the sample quantitation limit or CRQL

Notes:

CRQL: EPA Contract Laboratory Program Contract Required Quantitation Limit
EPA: United States Environmental Protection Agency
HpCDD Heptachlorodibenzo-p-dioxin
HpCDF Heptachlorodibenzofuran
HxCDD Hexachlorodibenzo-p-dioxin
HxCDF Hexachlorodibenzofuran
IA Integrated Assessment
mg/kg: milligrams per kilogram
ng/kg: nanograms per kilogram
µg/kg: micrograms per kilogram
OCDF Octachlorodibenzofuran
PeCDD Pentachlorodibenzo-p-dioxin
PeCDF Pentachlorodibenzofuran
TCDD Tetrachlorodibenzo-p-dioxin
U: The material was analyzed for but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. (Ref. 60, p. 421)
J: The associated value is an estimated quantity (Ref. 60, p. 421)
Q: Concentration is below the CRQL but is above the method detection limit (Ref. 60, p. 421). Results that are qualified due to detection at or above the detection limit but below the quantitation limit are not considered biased. The concentration is used without applying an adjustment factor (Ref. 50, pp. 6, 8).

- Contaminated Soil Samples

Table 4 EPA IA Site Assessment AOC A Contaminated Soil Concentrations							
Sample ID	**Sample Date**	**Units**	**Hazardous Substance**	**Concentration**	**Sample Adjusted CRQL***	**Soil Description**	**References**
JHB-S01	5/4/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	16,000	100	Compacted layer of gravel in first 2-3 inches of soil, with clay that was very cohesive on lower 3-4 inches. Larger pieces of gravel removed & clods crumbled before homogenizing. Soil a medium-dark brown color.	Ref. 4, pp. 46, 79, 284-285, 296, 400, 559, 3197-3198, 3254, 3293, 3313, 3315; Ref. 60, p. 606; Ref. 123, pp. 541
		ng/kg	1,2,3,4,6,7,8-HpCDF	3,100	100		
		ng/kg	1,2,3,4,7,8,9-HpCDF	240	100		
		ng/kg	1,2,3,4,7,8-HxCDD	120	100		
		ng/kg	1,2,3,4,7,8-HxCDF	110	100		
		ng/kg	1,2,3,6,7,8-HxCDD	540	100		
		ng/kg	1,2,3,7,8,9-HxCDD	230	100		
		ng/kg	2,3,4,6,7,8-HxCDF	100	100		
		mg/kg	OCDF	14,000	200		

Table 4 EPA IA Site Assessment AOC A Contaminated Soil Concentrations							
Sample ID	**Sample Date**	**Units**	**Hazardous Substance**	**Concentration**	**Sample Adjusted CRQL***	**Soil Description**	**References**
JHB-S02	5/4/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	37,000	100	Collected in path of storm drain. Soil was sandy with some silt, somewhat compacted, light-medium brown with some gravel (20-30% of sample), which was removed prior to homogenization.	Ref. 4, pp. 46, 55, 79, 286-287, 400, 559, 3213, 3252, 3293, 3313, 3315; Ref. 60, pp. 336, 607; Ref. 123, pp. 215, 545
		ng/kg	1,2,3,4,6,7,8-HpCDF	5,800	100		
		ng/kg	1,2,3,4,7,8,9-HpCDF	440	100		
		ng/kg	1,2,3,4,7,8-HxCDD	560	100		
		ng/kg	1,2,3,4,7,8-HxCDF	290	100		
		ng/kg	1,2,3,6,7,8-HxCDD	2,000	100		
		ng/kg	1,2,3,6,7,8-HxCDF	280	100		
		ng/kg	1,2,3,7,8,9-HxCDD	1,000	100		
		ng/kg	1,2,3,7,8,9-HxCDF	120	100		
		ng/kg	1,2,3,7,8-PeCDD	340	100		
		ng/kg	2,3,4,6,7,8-HxCDF	370	100		
		ng/kg	2,3,7,8-TCDD	33	20		
		ng/kg	OCDF	14,000	200		
		mg/kg	Copper	230	2.4		
		mg/kg	Lead	70	0.96		
JHB-S03	5/5/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	60,000	250	Soil very compacted, grey-brown in top 2 inches, medium dark brown beneath. Mostly gravel, sand, trace silt.	Ref. 4, pp. 46-47, 57, 288-289, 401, 559, 642-644, 3201, 3270, 3293, 3317, 3319; Ref. 60, p. 641; Ref. 123, pp. 99-100, 458, 462
		ng/kg	1,2,3,4,6,7,8-HpCDF	9,000	250		
		ng/kg	1,2,3,4,7,8,9-HpCDF	620	5.0		
		ng/kg	1,2,3,4,7,8-HxCDD	340	5.0		
		ng/kg	1,2,3,4,7,8-HxCDF	320	5.0		
		ng/kg	1,2,3,6,7,8-HxCDD	1,900	5.0		
		ng/kg	1,2,3,6,7,8-HxCDF	180	5.0		
		ng/kg	1,2,3,7,8,9-HxCDD	870	5.0		
		ng/kg	1,2,3,7,8,9-HxCDF	140	5.0		
		ng/kg	1,2,3,7,8-PeCDD	200	5.0		
		ng/kg	1,2,3,7,8-PeCDF	57	5.0		
		ng/kg	2,3,4,6,7,8-HxCDF	320	5.0		
		ng/kg	2,3,4,7,8-PeCDF	54	5.0		
		ng/kg	2,3,7,8-TCDD	13	1.0		
		ng/kg	OCDF	93,000	500		
		µg/kg	Benzo(a)pyrene	250	190		
		µg/kg	Bis(2-ethylhexyl)phthalate	7,100	970		
		µg/kg	Chrysene	320	190		
		µg/kg	Fluoranthene	330	190		
		µg/kg	PCP	610	380		
		µg/kg	Pyrene	320	190		

Table 4 EPA IA Site Assessment AOC A Contaminated Soil Concentrations							
Sample ID	**Sample Date**	**Units**	**Hazardous Substance**	**Concentration**	**Sample Adjusted CRQL***	**Soil Description**	**References**
JHB-S04	5/5/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	44,000	100	Moderately to very compact, grey in top 1 inch, then dark brown. Soil was mostly gravel and sand.	Ref. 4, pp. 47, 55-57, 79, 290-291, 401, 559, 648-650, 3201, 3270, 3293, 3313, 3315; Ref. 60, pp. 342, 608; Ref. 123, pp. 107, 218, 549
		ng/kg	1,2,3,4,6,7,8-HpCDF	10,000	100		
		ng/kg	1,2,3,4,7,8,9-HpCDF	700	100		
		ng/kg	1,2,3,4,7,8-HxCDD	510	100		
		ng/kg	1,2,3,4,7,8-HxCDF	440	100		
		ng/kg	1,2,3,6,7,8-HxCDD	1,900	100		
		ng/kg	1,2,3,6,7,8-HxCDF	270	100		
		ng/kg	1,2,3,7,8,9-HxCDD	940	100		
		ng/kg	1,2,3,7,8,9-HxCDF	160	100		
		ng/kg	1,2,3,7,8-PeCDD	280	100		
		ng/kg	1,2,3,7,8-PeCDF	100	100		
		ng/kg	2,3,4,6,7,8-HxCDF	460	100		
		ng/kg	2,3,7,8-TCDD	20	20		
		ng/kg	OCDF	41,000	200		
		mg/kg	Cadmium	1.3	0.37		
		mg/kg	Zinc	280	4.5		
		µg/kg	PCP	800	380		
JHB-S05	5/5/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	860,000	3,400	On edge of asphalt near northern edge of tank farm. Soil was moderately to very compact mix of sand and smaller gravel. Soil had green sheening (likely copper). Located near sample site is a pipe labeled “ACZA receiving line.” Soil otherwise a light to medium brown.	Ref. 4, p. 47, 55, 57, 79, 292, 401, 559, 679, 680, 3201, 3270, 3307, 3325; Ref. 60, pp. 520, 680; Ref. 123, pp. 128, 131, 137, 338
		ng/kg	1,2,3,4,6,7,8-HpCDF	130,000	3,400		
		ng/kg	1,2,3,4,7,8,9-HpCDF	9,900	3,400		
		ng/kg	1,2,3,4,7,8-HxCDD	3,900	3,400		
		ng/kg	1,2,3,4,7,8-HxCDF	9,700	3,400		
		ng/kg	1,2,3,6,7,8-HxCDD	29,000	3,400		
		ng/kg	1,2,3,7,8,9-HxCDD	9,300	3,400		
		ng/kg	2,3,4,6,7,8-HxCDF	5,300	3,400		
		mg/kg	Antimony	260	5.9		
		mg/kg	Arsenic	16,000	25		
		mg/kg	Cadmium	270	0.49		
		mg/kg	Chromium	3,500	25		
		mg/kg	Copper	32,000	62		
		mg/kg	Lead	490	0.99		
		mg/kg	Selenium	11	3.5		
		mg/kg	Silver	1.6	0.99		
		mg/kg	Zinc	9,400	150		
		µg/kg	Anthracene	490	240		
		µg/kg	Benzo(a)anthracene	390	240		
		µg/kg	Benzo(a)pyrene	350	240		
		µg/kg	Benzo(g,h,i)perylene	590	240		
		µg/kg	Benzo(k)fluoranthene	390	240		
		µg/kg	Bis(2-ethylhexyl)phthalate	1,900	240		
		µg/kg	Chrysene	860	240		
		µg/kg	Fluoranthene	1,000	240		
		µg/kg	Indeno(1,2,3-cd)pyrene	520	240		
		µg/kg	PCP	6,400	930		
		µg/kg	Phenanthrene	550	240		
		µg/kg	Pyrene	840	240		

Table 4 EPA IA Site Assessment AOC A Contaminated Soil Concentrations							
Sample ID	**Sample Date**	**Units**	**Hazardous Substance**	**Concentration**	**Sample Adjusted CRQL***	**Soil Description**	**References**
JHB-S06	5/4/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	59,000	200	Located in area of heavy staining with an oily substance, which had strong petroleum-like odor. Up to 4 inches bgs was collected due to impenetrable layer of cobbles beyond this. Sample was sandy with some gravel mixed in.	Ref. 4, pp. 48, 55, 57, 79, 294-295, 400, 559, 1888, 3214, 3243, 3294, 3305, 3325; Ref. 60, p. 501, 677 Ref. 123, pp. 70, 169, 314, 318
		ng/kg	1,2,3,4,6,7,8-HpCDF	5,600	50		
		ng/kg	1,2,3,4,7,8,9-HpCDF	390	50		
		ng/kg	1,2,3,4,7,8-HxCDD	210	50		
		ng/kg	1,2,3,4,7,8-HxCDF	400	50		
		ng/kg	1,2,3,6,7,8-HxCDD	3,000	50		
		ng/kg	1,2,3,6,7,8-HxCDF	210	50		
		ng/kg	1,2,3,7,8,9-HxCDD	460	50		
		ng/kg	1,2,3,7,8,9-HxCDF	230	50		
		ng/kg	1,2,3,7,8-PeCDD	110	50		
		ng/kg	1,2,3,7,8-PeCDF	110	50		
		ng/kg	2,3,4,6,7,8-HxCDF	430	50		
		ng/kg	2,3,4,7,8-PeCDF	110	50		
		ng/kg	OCDF	28,000	100		
		mg/kg	Cadmium	0.97	0.39		
		µg/kg	Pentachlorophenol	1,000	350		
JHB-S07	5/4/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	38,000	50	Collected near historical burn pit. Sample was heavy gravel in first 3 inches, becoming clay in lower 3 inches. Very compact and dry. Upper layer was light brown-gray, lower layer dark brown.	Ref. 4, p. 48, 79, 400, 559, 3197, 3254, 3293, 3317, 3319; Ref. 60, p. 642; Ref. 123, pp., 470, 474
		ng/kg	1,2,3,4,6,7,8-HpCDF	4,700	50		
		ng/kg	1,2,3,4,7,8,9-HpCDF	280	5.0		
		ng/kg	1,2,3,4,7,8-HxCDD	190	5.0		
		ng/kg	1,2,3,4,7,8-HxCDF	130	5.0		
		ng/kg	1,2,3,6,7,8-HxCDD	620	5.0		
		ng/kg	1,2,3,6,7,8-HxCDF	54	5.0		
		ng/kg	1,2,3,7,8,9-HxCDD	280	5.0		
		ng/kg	1,2,3,7,8,9-HxCDF	19	5.0		
		ng/kg	1,2,3,7,8-PeCDD	130	5.0		
		ng/kg	1,2,3,7,8-PeCDF	16	5.0		
		ng/kg	2,3,4,6,7,8-HxCDF	77	5.0		
		ng/kg	2,3,7,8-TCDD	10	0.99		
		ng/kg	2,3,4,7,8-PeCDF	24	5.0		
		ng/kg	OCDF	32,000	99		
JHB-S08	5/4/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	21,000	100	Soil medium-dark brown, mix of sand and silt with about 10% small pebbles.	Ref. 4, pp. 49, 55, 79, 400, 559, 3213, 3252, 3293, 3313, 3315; Ref. 60, pp. 346, 609; Ref. 123, pp. 220, 553
		ng/kg	1,2,3,4,6,7,8-HpCDF	4,700	100		
		ng/kg	1,2,3,4,7,8,9-HpCDF	270	100		
		ng/kg	1,2,3,4,7,8-HxCDD	100	100		
		ng/kg	1,2,3,4,7,8-HxCDF	180	100		
		ng/kg	1,2,3,6,7,8-HxCDD	900	100		
		ng/kg	1,2,3,7,8,9-HxCDD	250	100		
		ng/kg	2,3,4,6,7,8-HxCDF	110	100		
		ng/kg	OCDF	24,000	200		
		mg/kg	Zinc	280	5.3		

Table 4 EPA IA Site Assessment AOC A Contaminated Soil Concentrations							
Sample ID	**Sample Date**	**Units**	**Hazardous Substance**	**Concentration**	**Sample Adjusted CRQL***	**Soil Description**	**References**
JHB-S09	5/4/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	29,000	50	Soil heavily compacted with 60% gravel, removed prior to homogenizing. Non-gravel was sandy, medium brown.	Ref. 4, pp. 49, 57, 79, 301-302, 400, 559, 1636, 1637, 3213, 3252, 3293, 3317, 3319; Ref. 60, p. 643; Ref. 123, pp. 11, 474, 478
		ng/kg	1,2,3,4,6,7,8-HpCDF	5,300	50		
		ng/kg	1,2,3,4,7,8,9-HpCDF	310	5.0		
		ng/kg	1,2,3,4,7,8-HxCDD	270	5.0		
		ng/kg	1,2,3,4,7,8-HxCDF	220	5.0		
		ng/kg	1,2,3,6,7,8-HxCDD	1,000	5.0		
		ng/kg	1,2,3,6,7,8-HxCDF	180	5.0		
		ng/kg	1,2,3,7,8,9-HxCDD	500	5.0		
		ng/kg	1,2,3,7,8,9-HxCDF	89	5.0		
		ng/kg	1,2,3,7,8-PeCDD	170	5.0		
		ng/kg	1,2,3,7,8-PeCDF	56	5.0		
		ng/kg	2,3,4,6,7,8-HxCDF	250	5.0		
		ng/kg	2,3,4,7,8-PeCDF	47	5.0		
		ng/kg	2,3,7,8-TCDD	17	1.0		
		ng/kg	OCDF	21,000	100		
		µg/kg	Benzo(g,h,i)perylene	260	180		
		µg/kg	Fluoranthene	190	180		
JHB-S10	5/4/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	43,000	50	Located near stained area, likely water staining. Sample was compacted with mix of gravel and sand, going from grey-light brown at surface to medium brown about 1 inch below.	Ref. 4, pp. 50, 57, 79, 303-304, 400, 559, 661, 662, 2560, 3197, 3254, 3295, 3306, 3313, 3315; Ref. 60, p. 611; Ref. 123, pp. 116, 561
		ng/kg	1,2,3,4,6,7,8-HpCDF	11,000	50		
		ng/kg	1,2,3,4,7,8,9-HpCDF	710	50		
		ng/kg	1,2,3,4,7,8-HxCDD	420	50		
		ng/kg	1,2,3,4,7,8-HxCDF	440	50		
		ng/kg	1,2,3,6,7,8-HxCDD	1,800	50		
		ng/kg	1,2,3,6,7,8-HxCDF	300	50		
		ng/kg	1,2,3,7,8,9-HxCDD	840	50		
		ng/kg	1,2,3,7,8,9-HxCDF	160	50		
		ng/kg	1,2,3,7,8-PeCDD	250	50		
		ng/kg	1,2,3,7,8-PeCDF	97	50		
		ng/kg	2,3,4,6,7,8-HxCDF	500	50		
		ng/kg	2,3,4,7,8-PeCDF	83	50		
		ng/kg	2,3,7,8-TCDD	13	10		
		ng/kg	OCDF	36,000	100		
		µg/kg	Benzo(g,h,i)perylene	260	180		
		µg/kg	Fluoranthene	200	180		

Table 4 EPA IA Site Assessment AOC A Contaminated Soil Concentrations							
Sample ID	**Sample Date**	**Units**	**Hazardous Substance**	**Concentration**	**Sample Adjusted CRQL***	**Soil Description**	**References**
JHB-S11	5/4/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	63000	250	Soil was very compact, mix of sand and gravel. Grey-light brown at surface, medium brown about 1 inch below.	Ref. 4, pp. 50, 55, 58, 79, 305-306, 400, 559, 667, 668, 3197, 3254, 3295, 3306, 3319; Ref. 60, pp. 356, 645; Ref. 123, pp. 119-120, 225, 490, 494
		ng/kg	1,2,3,4,6,7,8-HpCDF	9400	250		
		ng/kg	1,2,3,4,7,8,9-HpCDF	690	5.0		
		ng/kg	1,2,3,4,7,8-HxCDD	420	5.0		
		ng/kg	1,2,3,4,7,8-HxCDF	420	5.0		
		ng/kg	1,2,3,6,7,8-HxCDD	2300	50		
		ng/kg	1,2,3,6,7,8-HxCDF	280	5.0		
		ng/kg	1,2,3,7,8,9-HxCDD	850	5.0		
		ng/kg	1,2,3,7,8,9-HxCDF	230	5.0		
		ng/kg	1,2,3,7,8-PeCDD	180	5.0		
		ng/kg	1,2,3,7,8-PeCDF	100	5.0		
		ng/kg	2,3,4,6,7,8-HxCDF	480	5.0		
		ng/kg	2,3,4,7,8-PeCDF	78	5.0		
		ng/kg	2,3,7,8-TCDD	11	1.0		
		ng/kg	OCDF	39,000	500		
		mg/kg	Arsenic	150	0.83		
		mg/kg	Cadmium	1.6	0.42		
		µg/kg	Benzo(a)pyrene	280	180		
		µg/kg	Benzo(g,h,i)perylene	420	180		
		µg/kg	Benzo(k)fluoranthene	250	180		
		µg/kg	Chrysene	400	180		
		µg/kg	Indeno(1,2,3-cd)pyrene	390	180		
		µg/kg	PCP	840	350		
JHB-S12	5/4/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	14,000	50	Near abandoned stormwater conveyance line. Mix of gravel and sand, grey-brown on surface and medium brown below.	Ref. 4, pp. 51, 79, 307-308, 559, 400, 3197, 3214, 3243, 3254, 3294, 3295, 3305, 3306, 3313, 3315, 3325; Ref. 60, p. 612; Ref. 123, p. 565
		ng/kg	1,2,3,4,7,8-HxCDD	180	50		
		ng/kg	1,2,3,4,7,8-HxCDF	110	50		
		ng/kg	1,2,3,6,7,8-HxCDD	710	50		
		ng/kg	1,2,3,6,7,8-HxCDF	89	50		
		ng/kg	1,2,3,7,8,9-HxCDD	330	50		
		ng/kg	1,2,3,7,8-PeCDD	110	50		
		ng/kg	2,3,4,6,7,8-HxCDF	120	50		

Notes:

CRQL: EPA Contract Laboratory Program Contract Required Quantitation Limit
EPA: United States Environmental Protection Agency
HpCDD Heptachlorodibenzo-p-dioxin
HpCDF Heptachlorodibenzofuran
HxCDD Hexachlorodibenzo-p-dioxin
HxCDF Hexachlorodibenzofuran
IA Integrated Assessment
mg/kg: milligrams per kilogram
ng/kg: nanograms per kilogram
µg/kg: micrograms per kilogram
OCDF Octachlorodibenzofuran
PeCDD Pentachlorodibenzo-p-dioxin
PeCDF Pentachlorodibenzofuran
TCDD Tetrachlorodibenzo-p-dioxin
*: Since the samples were analyzed through the CLP, the CRQLs presented above are equivalent to the CRQL as defined by the HRS (Ref. 1, Sections 1.1 and 2.3).

AOC A Hazardous Waste Quantity

Hazardous Constituent Quantity (Tier A)

The hazardous constituent quantity for AOC A could not be adequately determined according to the HRS requirements; that is, the total mass of all CERCLA hazardous substances in the source and releases from the source is not known and cannot be estimated with reasonable confidence (Ref. 1, Section 2.4.2.1.1). There are insufficient historical and current data (manifests, potentially responsible party [PRP] records, state records, permits, waste concentration data, etc.) available 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 calculate the hazardous constituent quantity for AOC A with reasonable confidence. Scoring proceeds to the evaluation of Tier B, hazardous wastestream quantity (Ref. 1, Section 2.4.2.1.1).

Hazardous Constituent Quantity Value: Not Scored (NS)

Hazardous Wastestream Quantity (Tier B)

The total Hazardous Wastestream Quantity for AOC A could not be adequately determined according to the HRS requirements; that is, the total mass, or a partial estimate, of all hazardous wastestreams and CERCLA pollutants and contaminants for the source and releases from the source is not known and cannot be estimated with reasonable confidence (Ref. 1, Section 2.4.2.1.2). Insufficient historical and current data (permits, waste concentration data, annual reports, etc.) are available to adequately calculate the total mass, or a partial estimate, of all hazardous wastestreams and CERCLA pollutants and contaminants for the source and the associated releases from the source. Therefore, there is insufficient information to adequately calculate or extrapolate a total or partial Hazardous Wastestream Quantity for AOC A with reasonable confidence. Scoring proceeds to the evaluation of Tier C, volume (Ref. 1, Section 2.4.2.1.3).

Hazardous Wastestream Quantity Value: NS

Volume (Tier C)

Tier C, volume is not applicable to source type contaminated soil for the soil exposure component (Ref. 1, Section 5.1.1.2.2).

Volume Assigned Value: 0

Area (Tier D)

The area of AOC A is estimated to be approximately 714,744 square feet, based on surface soil samples collected by EPA in 2023 during the IA with concentrations of hazardous substances that were significantly above background (see Figure 3A and Tables 2 through 4 of this HRS documentation record). However, the area of AOC A is not considered to be adequately determined as the sampling was limited and not comprehensive across the full facility; due to the likely varying modes of deposition of hazardous substances at the facility, soil contamination is not inferred throughout AOC A. In addition, an undetermined portion of AOC A is beneath buildings, roads, or other impervious covers. Therefore, the area of AOC A is greater than 0 but unknown.

Area Assigned Value: >0

5.1.0 GENERAL CONSIDERATIONS

Letter by which this AOC is to be identified: B

Name of AOC: Residential Contaminated Soil

AOC Type: Contaminated Soil

Location and description of area:
AOC B consists of contaminated soil within the residential neighborhood north of the J. H. Baxter facility (Figure 3B of this HRS documentation record). Soil contamination was a result of historical operations of J. H. Baxter as a wood-treatment facility. Operations at the facility included high-pressure wood treating in retorts using a variety of preservative chemicals, including PCP, ACZA, 50/50 Heavy Oil Blends of Creosote and Bunker C Oil (50/50), Creosote, and ACQ (Ref. 5, pp. 13-18; Ref. 10, pp. 3-4; Ref. 14, p. 5; Ref. 15, pp. 17, 57; Ref. 16, p. 9; Ref. 87, pp. 9). After raw wood products were treated in the retorts, they were transported via tram to concrete drip pads where the treated wood was allowed to dry until no further drippage occurred. After drying on the drip pad, treated wood products were either stored on one of several on-property treated wood-storage areas or transported off-property by truck or rail (Ref. 7, pp. 20, 40; Ref. 15, p. 18; Ref. 87, p. 11).

Seasonal downwind direction from the facility is northward toward the residential neighborhood (Ref. 39, p. 33; Ref. 59, pp. 3, 14, 16, 35; Ref. 92, p. 1). In 2007, LRAPA completed an air sampling study in response to community concerns regarding emissions from J. H. Baxter. The study was designed to measure maximum downwind exposures in the neighborhoods nearest to the J. H. Baxter facility adjacent to the north, northeast and northwest. The process at the J. H. Baxter facility that generated the majority of the off-property emissions used mixtures of creosote, oil and PCP to treat wood products for preservation. The various stages of treatment operations were performed in drying kilns and large retorts using pressure and vacuum. Emissions occurred from many points, including vacuum pumps, tank vents, retort door openings, and treated product storage (Ref. 59, pp. 1, 3).

Detections of hazardous substances related to plant processes correlated well with downwind exposure. None of the facility-related hazardous substances were ever detected in samples that had no downwind exposure (Ref. 59, pp. 6, 9). LRAPA staff documented operations-related odors on the facility and in the neighborhood to the north during many of the air sampling events as part of the 2005-2006 study. Resident complaints were received during these times and confirmed by LRAPA staff (Ref. 59, pp. 25-27, 29-34).

Based on the soil sampling described below, AOC B was measured based on samples with concentrations significantly above background. The area of contaminated soil measures approximately 454,604 square feet (see Figure 3B of this HRS documentation record).

AOC B is documented below based on four soil sampling events conducted by J. H. Baxter, ODEQ, and EPA in 2021, 2022, and 2023. Contaminated samples are compared to background samples collected during the same sampling events using the same field and analytical methods. Background locations are shown on Figure 4 of this HRS documentation record. Contaminated samples used to document AOC B are shown on Figure 3B of this HRS documentation record. ISM soil sampling was conducted at residential properties by J. H. Baxter and ODEQ in 2021 and 2022 (Ref. 39, p. 7; Ref. 92, pp. 1-2; Ref. 118, pp. 9, 11-12, 14). As part of the EPA IA, ISM soil sampling was conducted by the EPA START on residential properties in 2022 (Ref. 4, p. 17). ISM soil sampling was conducted by START at additional residential properties in 2023 (Ref. 4, p. 17). Grab surface soil sampling for the IA was conducted by START on the J. H. Baxter facility and on residential properties in 2023 (Ref. 4, pp. 9, 17, 19).

J. H. Baxter and ODEQ 2021-2022 ISM Surface Soil Sampling

In 2021, J. H. Baxter conducted characterization of dioxin and furan concentrations in surface soils at eight properties suspected to be affected by air emissions deposition from the J. H. Baxter facility (Ref. 39, p. 7; Ref. 92, pp. 1-2; Ref. 118, pp. 9, 11-12, 14). Elevated dioxin and furan concentrations were identified in soil samples collected from residential yards immediately north of the facility (Ref. 118, p. 12). Concentrations were highest in yards within areas where air deposition modeling completed by LRAPA predicted predominant summer wind direction and deposition areas from the facility (Ref. 92, pp. 1-2; Ref. 118, p. 12).

In January 2022, J. H. Baxter notified ODEQ it would not be able to implement cleanup at the residential yards in a timely manner, and suspended wood treatment activities at its facility. ODEQ subsequently declared the facility an Orphan Site to enable utilization of the Industrial Orphan Site Account to complete Removal Assessments at the residential yards (Ref. 118, pp. 9, 12). In June 2022, ODEQ implemented investigation of five additional residential properties (Ref. 118, pp. 1, 9, 13).

Samples were collected in background and residential DUs using ISM (Ref. 4, pp. 79-81; Ref. 39, pp. 9-10; Ref. 117; Ref. 118, pp. 11-13, 15-17, 22). ISM samples were analyzed for metals, PAHs/PCP, and/or dioxins/furans (Ref. 39. pp. 10, 15-16, 33-34; Ref. 118, pp. 11-13, 22). Sampling locations are shown on Figure 3B.

- Background ISM Surface Soil

During the 2021 J. H. Baxter sampling event, background ISM samples were collected from undeveloped areas of public parks located to the north and south of the J. H. Baxter facility (BKGD-04, BKGD-08, and BKGD-09) (Ref. 39, pp. 11, 34; Ref. 118, p. 11; Figure 4 of this HRS documentation record).

Table 5 J. H. Baxter and ODEQ 2021-2022 ISM Surface Soil Background Concentrations

Sample ID	Sampling Date	Hazardous Substance	Concentration (ng/kg)	PQL* (ng/kg)	References
ISM-BKGD-04	9/21/2021	1,2,3,4,6,7,8-HpCDD	40.3	4.48	Ref. 40, p. 24; Ref. 45, p. 16; Ref. 89, pp. 26, 30-31
		1,2,3,4,6,7,8-HpCDF	8.62	4.48	
		1,2,3,4,7,8,9-HpCDF	0.509 JQ	4.48	
		1,2,3,4,7,8-HxCDD	0.971 JQ	4.48	
		1,2,3,4,7,8-HxCDF	4.48 U	4.48	
		1,2,3,6,7,8-HxCDD	1.81 JQ	4.48	
		1,2,3,6,7,8-HxCDF	4.48 U	4.48	
		1,2,3,7,8,9-HxCDD	0.998 JQ	4.48	
		1,2,3,7,8,9-HxCDF	0.333 JQ	4.48	
		1,2,3,7,8-PeCDD	0.419 JQ	4.48	
		1,2,3,7,8-PeCDF	4.48 U	4.48	
		2,3,4,6,7,8-HxCDF	4.48 U	4.48	
		2,3,4,7,8-PeCDF	4.48 U	4.48	
		2,3,7,8-TCDD	0.134 JQ	0.895	
		2,3,7,8-TCDF	0.179 JQ	0.895	
		OCDD	341	8.95	
		OCDF	17.8	8.95	
ISM-BKGD-08	9/21/2021	1,2,3,4,6,7,8-HpCDD	24.7	4.67	Ref. 40, p. 24; Ref. 45, p. 18; Ref. 89, pp. 27, 30-31
		1,2,3,4,6,7,8-HpCDF	5.46	4.67	
		1,2,3,4,7,8,9-HpCDF	4.67 U	4.67	
		1,2,3,4,7,8-HxCDD	0.411 JQ	4.67	
		1,2,3,4,7,8-HxCDF	4.67 U	4.67	
		1,2,3,6,7,8-HxCDD	0.967 JQ	4.67	
		1,2,3,6,7,8-HxCDF	4.67 U	4.67	
		1,2,3,7,8,9-HxCDD	0.712 JQ	4.67	
		1,2,3,7,8,9-HxCDF	4.67 U	4.67	
		1,2,3,7,8-PeCDD	0.368 JQ	4.67	
		1,2,3,7,8-PeCDF	4.67 U	4.67	
		2,3,4,6,7,8-HxCDF	4.67 U	4.67	
		2,3,4,7,8-PeCDF	4.67 U	4.67	
		2,3,7,8-TCDD	0.934 U	0.934	
		2,3,7,8-TCDF	0.934 U	0.934	
		OCDD	250	9.34	
		OCDF	13.9	9.34	

Table 5 J. H. Baxter and ODEQ 2021-2022 ISM Surface Soil Background Concentrations					
Sample ID	**Sampling Date**	**Hazardous Substance**	**Concentration (ng/kg)**	**PQL* (ng/kg)**	**References**
ISM-BKGD-09	9/20/2021	1,2,3,4,6,7,8-HpCDD	4.51 JQ	4.62	Ref. 40, p. 24; Ref. 45, p. 12; Ref. 89, pp. 24, 30-31
		1,2,3,4,6,7,8-HpCDF	4.62 U	4.62	
		1,2,3,4,7,8,9-HpCDF	4.62 U	4.62	
		1,2,3,4,7,8-HxCDD	0.153 JQ	4.62	
		1,2,3,4,7,8-HxCDF	4.62 U	4.62	
		1,2,3,6,7,8-HxCDD	0.277 JQ	4.62	
		1,2,3,6,7,8-HxCDF	4.62 U	4.62	
		1,2,3,7,8,9-HxCDD	0.238 JQ	4.62	
		1,2,3,7,8,9-HxCDF	4.62 U	4.62	
		1,2,3,7,8-PeCDD	0.227 JQ	4.62	
		1,2,3,7,8-PeCDF	4.62 U	4.62	
		2,3,4,6,7,8-HxCDF	4.62 U	4.62	
		2,3,4,7,8-PeCDF	4.62 U	4.62	
		2,3,7,8-TCDD	0.923 U	0.923	
		2,3,7,8-TCDF	0.164 JQ	0.923	
		OCDD	31.5	9.23	
		OCDF	9.23 U	9.23	

Notes:
BKGD: background
CRQL: Contract Required Quantitation Limit
HpCDD: Heptachlorodibenzo-p-dioxin
HpCDF: Heptachlorodibenzofuran
HxCDD: Hexachlorodibenzo-p-dioxin
HxCDF: Hexachlorodibenzofuran
ID: Identification Number
ISM: Incremental Sampling Methodology
JQ: The analyte was positively identified, and the associated value is an estimated quantity. The result is estimated because the concentration is below the sample quantitation limit (Ref. 89, p. 4).
ng/kg: nanograms per kilogram
OCDD: Octachlorodibenzodioxin
OCDF: Octachlorodibenzofuran
ODEQ: Oregon Department of Environmental Quality
PeCDD: Pentachlorodibenzo-p-dioxin
PeCDF Pentachlorodibenzofuran
PQL: Practical Quantitation Limit
TCDD: Tetrachlorodibenzo-p-dioxin
TCDF: Tetrachlorodibenzofuran
U: The material was analyzed for but was not detected above the level of the associated value. The associated value is either the Sample Quantitation Limit or the Sample Detection Limit (Ref. 89, p. 4; Ref. 116, pp. 36-38).
*: According to the laboratory, the PQLs presented above are most closely related to the SQL as defined by the HRS (Ref. 1, Sections 1.1 and 2.3; Ref. 115)

The minimum standard to establish observed contamination by chemical analysis is analytical evidence of a hazardous substance significantly above the background level, and some portion of the significant increase above the background level is attributable to the Site. In accordance with HRS Table 2-3, if the background concentration is not detected, a significant increase is established when the sample measurement equals or exceeds the Sample Quantitation Limit (SQL). If the SQL cannot be established, if the sample analysis was performed under the EPA CLP, use the EPA CRQL in place of the SQL. If the sample analysis is not performed under the EPA CLP, use the detection limit (DL) in place of the SQL if the background concentration equals or exceeds the detection limit, a significant increase is established when the sample measurement is three times or more above the background concentration (Ref. 1, Section 2.3).

Table 6 J. H. Baxter and ODEQ 2021-2022 ISM Background Levels to Establish the Surface Soil Area of Observed Contamination

Sample Type	Hazardous Substance	Maximum Background Concentration (ng/kg)	HRS Table 2-3 Minimum Concentration to Document Observed Contamination by Chemical Analysis (ng/kg)
ISM Surface Soil	1,2,3,4,6,7,8-HpCDD	40.3	120.9
	1,2,3,4,6,7,8-HpCDF	8.62	25.86
	1,2,3,4,7,8,9-HpCDF	0.509 JQ	1.527
	1,2,3,4,7,8-HxCDD	0.971 JQ	2.913
	1,2,3,4,7,8-HxCDF	4.67 U	The sample measurement equals or exceeds the sample quantitation limit
	1,2,3,6,7,8-HxCDD	1.81 JQ	5.43
	1,2,3,6,7,8-HxCDF	4.67 U	The sample measurement equals or exceeds the sample quantitation limit
	1,2,3,7,8,9-HxCDD	0.998 JQ	2.994
	1,2,3,7,8,9-HxCDF	0.333 JQ	0.999
	1,2,3,7,8-PeCDD	0.419 JQ	1.257
	1,2,3,7,8-PeCDF	4.67 U	The sample measurement equals or exceeds the sample quantitation limit
	2,3,4,6,7,8-HxCDF	4.67 U	The sample measurement equals or exceeds the sample quantitation limit
	2,3,4,7,8-PeCDF	4.67 U	The sample measurement equals or exceeds the sample quantitation limit
	2,3,7,8-TCDD	0.134 JQ	0.402
	2,3,7,8-TCDF	0.179 JQ	0.537
	OCDD	341	1,023
	OCDF	17.8	53.4

Notes:
BKGD: background
CRQL: Contract Required Quantitation Limit
HpCDD: Heptachlorodibenzo-p-dioxin
HpCDF: Heptachlorodibenzofuran
HxCDD: Hexachlorodibenzo-p-dioxin
HxCDF: Hexachlorodibenzofuran
ID: Identification Number
ISM: Incremental Sampling Methodology
JQ: The analyte was positively identified, and the associated value is an estimated quantity. The result is estimated because the concentration is below the sample quantitation limit (Ref. 89, p. 4). Results that are qualified due to

detection at or above the detection limit but below the quantitation limit are not considered biased. The concentration is used without applying an adjustment factor (Ref. 50, pp. 6, 8).

ng/kg: nanograms per kilogram
OCDD: Octachlorodibenzodioxin
OCDF: Octachlorodibenzofuran
ODEQ: Oregon Department of Environmental Quality
PeCDD: Pentachlorodibenzo-p-dioxin
PeCDF Pentachlorodibenzofuran
TCDD: Tetrachlorodibenzo-p-dioxin
TCDF: Tetrachlorodibenzofuran
U: The material was analyzed for but was not detected above the level of the associated value. The associated value is either the Sample Quantitation Limit or the Sample Detection Limit (Ref. 89, p. 4; Ref. 116, pp. 36-38).

- Contaminated ISM Soil Samples

Table 7 J. H. Baxter and ODEQ 2021-2022 ISM AOC B Contaminated Soil Concentrations

Sample ID	Sample Date	Hazardous Substance	Concentration (ng/kg)	PQL* (ng/kg)	References
ISM-DU-009***	6/20/2022	1,2,3,4,6,7,8-HpCDD	644	0.0712**	Ref. 61, p. 5; Ref. 89, pp. 21, 2901-2902; Ref. 117, p. 1; Ref. 119, p. 8
		1,2,3,4,6,7,8-HpCDF	222	0.0350**	
		1,2,3,4,7,8,9-HpCDF	10.8	0.0421**	
		1,2,3,4,7,8-HxCDD	8.97	0.0555**	
		1,2,3,4,7,8-HxCDF	11.2	0.0339**	
		1,2,3,6,7,8-HxCDD	25.2	0.0558**	
		1,2,3,6,7,8-HxCDF	8.02	0.0340**	
		1,2,3,7,8,9-HxCDD	16.9	0.0528**	
		1,2,3,7,8-PeCDD	5.21	0.0515**	
		2,3,4,6,7,8-HxCDF	9.00	0.0353**	
		2,3,7,8-TCDD	6.23	0.0286**	
		OCDD	4,930	0.195**	
		OCDF	907	0.0820**	
ISM-DU-10***	9/22/2021	1,2,3,4,6,7,8-HpCDD	1,110	4.58	Ref. 40, p. 24; Ref. 45, p. 22; Ref. 89, pp. 6, 30-31
		1,2,3,4,6,7,8-HpCDF	313	4.58	
		1,2,3,4,7,8,9-HpCDF	20.1	4.58	
		1,2,3,4,7,8-HxCDD	14.0	4.58	
		1,2,3,4,7,8-HxCDF	25.3	4.58	
		1,2,3,6,7,8-HxCDD	41	4.58	
		1,2,3,6,7,8-HxCDF	9.87	4.58	
		1,2,3,7,8,9-HxCDD	24	4.58	
		1,2,3,7,8,9-HxCDF	4.93	4.58	
		1,2,3,7,8-PeCDD	7.43	4.58	
		2,3,4,6,7,8-HxCDF	12.2	4.58	
		2,3,4,7,8-PeCDF	6.39	4.58	
		2,3,7,8-TCDD	22.0	0.916	
		2,3,7,8-TCDF	1.35	0.916	
		OCDF	1,100	9.16	

Table 7 J. H. Baxter and ODEQ 2021-2022 ISM AOC B Contaminated Soil Concentrations					
Sample ID	**Sample Date**	**Hazardous Substance**	**Concentration (ng/kg)**	**PQL* (ng/kg)**	**References**
ISM-DU-11***	9/23/2021	1,2,3,4,6,7,8-HpCDD	947	4.98	Ref. 42, p. 38; Ref. 46, p. 15; Ref. 89, pp. 11, 700-701; Ref. 117, pp. 3, 4
		1,2,3,4,6,7,8-HpCDF	132	4.98	
		1,2,3,4,7,8,9-HpCDF	8.11	4.98	
		1,2,3,4,7,8-HxCDD	10.3	4.98	
		1,2,3,4,7,8-HxCDF	8.1	4.98	
		1,2,3,6,7,8-HxCDD	29.6	4.98	
		1,2,3,7,8,9-HxCDD	16.2	4.98	
		2,3,4,6,7,8-HxCDF	5.8	4.98	
		2,3,7,8-TCDD	89.6	0.996	
		2,3,7,8-TCDF	1.94	0.996	
		OCDF	356	9.96	
ISM-DU-12	9/22/2021	1,2,3,4,6,7,8-HpCDD	483	4.64	Ref. 40, p. 24; Ref. 45, p. 25; Ref. 89, pp. 7, 30-31
		1,2,3,4,6,7,8-HpCDF	78	4.64	
		1,2,3,4,7,8,9-HpCDF	5.1	4.64	
		1,2,3,4,7,8-HxCDD	5.59	4.64	
		1,2,3,4,7,8-HxCDF	5.46	4.64	
		1,2,3,6,7,8-HxCDD	16.9	4.64	
		1,2,3,7,8,9-HxCDD	10.2	4.64	
		2,3,4,6,7,8-HxCDF	5.69	4.64	
		2,3,7,8-TCDD	1.52	0.929	
		2,3,7,8-TCDF	1.29	0.929	
		OCDF	179	9.29	
ISM-DU-15***	10/4/2021	1,2,3,4,6,7,8-HpCDD	1,260	5.02	Ref. 44, p. 25; Ref. 48, p. 11; Ref. 89, pp. 17, 1674; Ref. 117, p. 3
		1,2,3,4,6,7,8-HpCDF	267	5.02	
		1,2,3,4,7,8,9-HpCDF	23.8	5.02	
		1,2,3,4,7,8-HxCDD	13	5.02	
		1,2,3,4,7,8-HxCDF	75.6	5.02	
		1,2,3,6,7,8-HxCDD	47.9	5.02	
		1,2,3,6,7,8-HxCDF	18.4	5.02	
		1,2,3,7,8,9-HxCDD	21.8	5.02	
		1,2,3,7,8,9-HxCDF	14	5.02	
		1,2,3,7,8-PeCDD	6.82	5.02	
		1,2,3,7,8-PeCDF	5.28	5.02	
		2,3,4,6,7,8-HxCDF	23.7	5.02	
		2,3,4,7,8-PeCDF	18.1	5.02	
		2,3,7,8-TCDD	14.9	1.0	
		2,3,7,8-TCDF	2.38	1.0	
		OCDF	392	10	

Notes:
CRQL: EPA Contract Laboratory Program Contract Required Quantitation Limit

DU: Decision Unit
HpCDD: Heptachlorodibenzo-p-dioxin
HpCDF: Heptachlorodibenzofuran
HxCDD: Hexachlorodibenzo-p-dioxin
HxCDF: Hexachlorodibenzofuran
ID: Identification number
ISM: Incremental Sampling Methodology
ng/kg: nanograms per kilogram
OCDD: Octachlorodibenzodioxin
OCDF: Octachlorodibenzofuran
ODEQ: Oregon Department of Environmental Quality
PeCDD: Pentachlorodibenzo-p-dioxin
PeCDF: Pentachlorodibenzofuran
SQL: Sample Quantitation Limit
TCDD: Tetrachlorodibenzo-p-dioxin
TCDF: Tetrachlorodibenzofuran
*: According to the laboratory, the PQLs presented above are most closely related to the SQL as defined by the HRS (Ref. 1, Sections 1.1 and 2.3; Ref. 115)
**: For sample ISM-DU-09, the laboratory provided Method Detection Limits, which are equivalent to Detection Limits as defined by the HRS (Ref. 1, Sections 1.1 and 2.3; Ref. 115)
***: This property has undergone soil removal/cleanup actions and as such is not considered in the HRS scoring of this site (Hazardous Waste Quantity or Targets) based on currently available information.

2022 and 2023 EPA Integrated Assessment (IA) Sampling

EPA tasked Weston Solutions, Inc. (Weston), under START Contract Number (No.) 68HE0720D005 and Task Order (TO) 68HE0722F0059, to conduct an IA at the J. H. Baxter site (Ref. 4, p. 9). Sampling was conducted under an EPA-approved site-specific Sampling and Analysis Plan (SAP) (Ref. 4, p. 19; Ref. 9). AOC B sampling was conducted in May 2022, March 2023, and May 2023 (Ref. 4, pp. 17, 19).

EPA IA 2023 Site Assessment Surface Soil Samples

EPA tasked Weston Solutions, Inc. (Weston), under START Contract Number (No.) 68HE0720D005 and Task Order (TO) 68HE0722F0059, to conduct an IA of the J. H. Baxter site (Ref. 4, p. 9). Sampling was conducted under an EPA-approved site-specific Sampling and Analysis Plan (SAP) (Ref. 4, p. 19; Ref. 9). AOC A sampling was conducted in May 2023 (Ref. 4, pp. 17, 19).

Sample locations are presented on Figure 3B and Figure 4 of this HRS documentation record. In May 2023, 26 surface soil field samples were collected from 0 to 6 inches bgs at residential properties north of the J. H. Baxter facility across Roosevelt Boulevard. Two background soil samples were collected for comparison to the contaminated soils (Ref. 4, p. 20). Background locations included two public parks in Eugene, Oregon, located ¾-mile northwest and 2 ¼-miles south of the facility (Figure 4 of this HRS documentation record; Ref. 4, p. 19). Samples were collected as grab samples from 0 to 6 inches bgs using a non-dedicated hand auger, which was decontaminated after each use (Ref. 4, p. 17-18).

Samples were submitted for off-site fixed laboratory analysis for TAL VOCs (SFAM01.1), TAL SVOCs (SFAM01.1), TAL Pesticides (SFAM01.1), TAL Aroclors (SFAM 01.1), TAL Inorganics (SFAM 01.1), and dioxins/furans (HRSM02.1). All samples were analyzed under EPA CLP Statement of Work (SOW) SFAM01.1, with the exceptions of dioxins and furans which were analyzed under CLP SOW HRSM02.1 (Ref. 4, pp. 19-21, 25-26). All sample analyses were validated following EPA's Stage 4 Data Validation

Electronic/Manual Process. A START chemist performed a Stage 1 verification of each CLP data package. (Ref. 4, p. 26).

- Background Surface Soil

During the IA, background surface soils were collected from two locations not expected to be affected by historical site operations. Sample JHB-S13 was collected from a public park ¾-mile northwest believed to be outside the influence of emissions sources at the J. H. Baxter facility. Sample JHB-S14 was collected from a public park 2 ¼-miles south of the facility and believed to be outside the influence of migrant dust emissions from the J. H. Baxter facility (Ref. 4, p. 43). Background soils were medium-dark brown, mostly silt and clay with some gravel (Ref. 4, p. 397).

Table 8 EPA IA Site Assessment Background Surface Soil Concentrations

Sample ID	Sampling Date	Units	Hazardous Substance	Result	Sample Adjusted CRQL*	References
JHB-S13	5/2/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	95	5.0	Ref. 4, pp. 43, 80, 309, 397, 562, 1845-1847, 3211, 3240, 3298, 3314, 3316; Ref. 60, pp. 438, 619; Ref. 123, pp. 43, 181, 589
		ng/kg	1,2,3,4,6,7,8-HpCDF	27	5.0	
		ng/kg	1,2,3,4,7,8,9-HpCDF	1.6 JQ	5.0	
		ng/kg	1,2,3,4,7,8-HxCDD	1.3 JQ	5.0	
		ng/kg	1,2,3,4,7,8-HxCDF	2.2 JQ	5.0	
		ng/kg	1,2,3,6,7,8-HxCDD	3.9 JQ	5.0	
		ng/kg	1,2,3,6,7,8-HxCDF	1.5 JQ	5.0	
		ng/kg	1,2,3,7,8,9-HxCDD	2.3 JQ	5.0	
		ng/kg	1,2,3,7,8-PeCDD	1 JQ	5.0	
		ng/kg	2,3,4,6,7,8-HxCDF	2 JQ	5.0	
		ng/kg	2,3,7,8-TCDD	0.35 JQ	1.0	
		ng/kg	OCDD	570	10	
		ng/kg	OCDF	44	10	
		mg/kg	Lead	23	1.3	
		µg/kg	Bis(2-ethylhexyl)phthalate	190 U	190	
JHB-S14	5/2/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	15	5.0	Ref. 4, pp. 43, 80, 311-312, 397, 562, 1851-1853, 2389, 3211, 3240, 3298, 3300-3301, 3303, 3314, 3316; Ref. 60, p. 440; Ref. 121, pp. 19; Ref. 123, pp. 46-47, 182, 641
		ng/kg	1,2,3,4,6,7,8-HpCDF	1.6 JQ	5.0	
		ng/kg	1,2,3,4,7,8,9-HpCDF	0.43 UJ	5.0	
		ng/kg	1,2,3,4,7,8-HxCDD	0.25 UJ	5.0	
		ng/kg	1,2,3,4,7,8-HxCDF	0.36 UJ	5.0	
		ng/kg	1,2,3,6,7,8-HxCDD	0.69 J	5.0	
		ng/kg	1,2,3,6,7,8-HxCDF	0.31 UJ	5.0	
		ng/kg	1,2,3,7,8,9-HxCDD	0.48 JQ	5.0	
		ng/kg	1,2,3,7,8-PeCDD	0.26 UJ	5.0	
		ng/kg	2,3,4,6,7,8-HxCDF	0.26 UJ	5.0	
		ng/kg	2,3,7,8-TCDD	0.15 UJ	1.0	
		ng/kg	OCDD	65	10	
		ng/kg	OCDF	4.1 UJ	10	
		mg/kg	Lead	7.7	1.1	
		µg/kg	Bis(2-ethylhexyl)phthalate	240 U	240	

Notes:
CRQL: EPA Contract Laboratory Program Contract Required Quantitation Limit
EPA: United States Environmental Protection Agency
HpCDD Heptachlorodibenzo-p-dioxin
HpCDF Heptachlorodibenzofuran

HxCDD Hexachlorodibenzo-p-dioxin
HxCDF Hexachlorodibenzofuran
IA Integrated Assessment
mg/kg: milligrams per kilogram
ng/kg: nanograms per kilogram
µg/kg: micrograms per kilogram
OCDF Octachlorodibenzofuran
PeCDD Pentachlorodibenzo-p-dioxin
PeCDF Pentachlorodibenzofuran
TCDD Tetrachlorodibenzo-p-dioxin
U: The material was analyzed for but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. (Ref. 60, p. 421)
J: The associated value is an estimated quantity (Ref. 60, p. 421)
Q: Concentration is below the CRQL but is above the method detection limit (Ref. 60, p. 421)
*: Since the samples were analyzed through the CLP, the CRQLs presented above are equivalent to the CRQL as defined by the HRS (Ref. 1, Sections 1.1 and 2.3).

Table 9 Background Levels to Establish the Surface Soil Area of Observed Contamination

Sample Type	Hazardous Substance	Maximum Background Concentration 2023 IA Sampling Results	HRS Table 2-3 Minimum Concentration to Document Observed Contamination by Chemical Analysis
Surface Soil	1,2,3,4,6,7,8-HpCDD	95	285
	1,2,3,4,6,7,8-HpCDF	27	81
	1,2,3,4,7,8,9-HpCDF	1.6 JQ	4.8
	1,2,3,4,7,8-HxCDD	1.3 JQ	3.9
	1,2,3,4,7,8-HxCDF	2.2 JQ	6.6
	1,2,3,6,7,8-HxCDD	3.9 JQ	11.7
	1,2,3,6,7,8-HxCDF	1.5 JQ	4.5
	1,2,3,7,8,9-HxCDD	2.3 JQ	6.9
	1,2,3,7,8-PeCDD	1 JQ	3
	2,3,4,6,7,8-HxCDF	2 JQ	6
	2,3,7,8-TCDD	0.35 JQ	1.05
	OCDD	570	1710
	OCDF	44	132
	Lead	23	69
	Bis(2-ethylhexyl)phthalate	240 U	The sample measurement equals or exceeds the sample quantitation limit or CRQL

Notes:
CRQL: EPA Contract Laboratory Program Contract Required Quantitation Limit
EPA: United States Environmental Protection Agency
HpCDD Heptachlorodibenzo-p-dioxin
HpCDF Heptachlorodibenzofuran
HxCDD Hexachlorodibenzo-p-dioxin
HxCDF Hexachlorodibenzofuran
IA Integrated Assessment
mg/kg: milligrams per kilogram
ng/kg: nanograms per kilogram
µg/kg: micrograms per kilogram
OCDD Octachlorodibenzodioxin
OCDF Octachlorodibenzofuran
PeCDD Pentachlorodibenzo-p-dioxin

TCDD Tetrachlorodibenzo-p-dioxin

U: The material was analyzed for but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. (Ref. 60, p. 421)

J: The associated value is an estimated quantity (Ref. 60, p. 421)

Q: Concentration is below the CRQL but is above the method detection limit (Ref. 60, p. 421). Results that are qualified due to detection at or above the detection limit but below the quantitation limit are not considered biased. The concentration is used without applying an adjustment factor (Ref. 50, pp. 6, 8).

- Contaminated Soil Samples

Where descriptions were provided, AOC B soil samples were described as medium brown, mostly silt, with a trace of gravel (Ref. 4, p. 397).

Table 10 EPA IA Site Assessment AOC B Contaminated Soil Concentrations

Sample ID	Sample Date	Units	Hazardous Substance	Concentration	Sample Adjusted CRQL*	References
JHB-S16	5/2/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	340	5.0	Ref. 4, pp. 51, 56, 58, 81, 315-316, 397, 562, 1660-1661, 1819-1821, 3207, 3210, 3239, 319; Ref. 60, p. 646; Ref. 123, pp. 31, 498
		ng/kg	1,2,3,6,7,8-HxCDD	15	5.0	
		ng/kg	1,2,3,7,8,9-HxCDD	10	5.0	
		ng/kg	OCDD	2,900	10	
		ng/kg	OCDF	210	10	
		µg/kg	Bis(2-ethylhexyl)phthalate	54,000	220	
JHB-S17	5/1/2023	ng/kg	2,3,7,8-TCDD	1.2	1.00	Ref. 4, pp. 51, 81, 317-318, 397, 562, 2563, 3313, 3315; Ref. 60, p. 614; Ref. 123, pp. 573
JHB-S18	5/1/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	490	5.0	Ref. 4, pp. 51, 81, 319-320, 397, 562, 3300, 3302, 3328; Ref. 121, p. 17; Ref. 123, pp. 633
		ng/kg	1,2,3,6,7,8-HxCDD	16	5.0	
		ng/kg	1,2,3,7,8,9-HxCDD	8.9	5.0	
		ng/kg	OCDD	3,500	10	
		ng/kg	OCDF	190	10	
JHB-S19	5/1/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	370	5.0	Ref. 4, pp. 52, 55, 81, 321-322, 397, 562, 3295, 3331; Ref. 60, pp. 379; Ref. 120, p. 23; Ref. 123, pp. 194, 302
		ng/kg	1,2,3,4,7,8-HxCDD	6.1	5.0	
		ng/kg	1,2,3,6,7,8-HxCDD	18	5.0	
		ng/kg	1,2,3,7,8,9-HxCDD	12	5.0	
		ng/kg	1,2,3,7,8-PeCDD	6.6	5.0	
		ng/kg	2,3,7,8-TCDD	2.0	1.0	
		ng/kg	OCDD	2,600	10	
		mg/kg	Lead	90	0.95	
JHB-S20	5/1/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	460	5.0	Ref. 4, pp. 52, 56, 86, 323-324, 397, 562, 2588, 3317, 3319; Ref. 60, p. 639 Ref. 123, pp. 446
		ng/kg	1,2,3,4,6,7,8-HpCDF	120	5.0	
		ng/kg	1,2,3,6,7,8-HxCDD	17	5.0	
		ng/kg	1,2,3,7,8,9-HxCDD	10	5.0	
		ng/kg	2,3,4,6,7,8-HxCDF	7.5	5.0	
		ng/kg	OCDD	3,800	10	
		ng/kg	OCDF	270	10	

Table 10 EPA IA Site Assessment AOC B Contaminated Soil Concentrations						
Sample ID	**Sample Date**	**Units**	**Hazardous Substance**	**Concentration**	**Sample Adjusted CRQL***	**References**
JHB-S21	5/1/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	390	5.0	Ref. 4, pp. 52, 81, 325-326, 397, 562, 2596, 3317, 3319; Ref. 60, p. 647; Ref. 123, pp. 502
		ng/kg	1,2,3,6,7,8-HxCDD	14	5.0	
		ng/kg	1,2,3,7,8,9-HxCDD	8.7	5.0	
		ng/kg	OCDD	2,900	9.9	
		ng/kg	OCDF	140	9.9	
JHB-S22	5/1/2023	ng/kg	2,3,7,8-TCDD	4.6	5.0	Ref. 4, pp. 52, 81, 327-328, 397, 562, 2597, 3317, 3319; Ref. 60, p. 648; Ref. 123, pp. 506
JHB-S23	5/1/2023	ng/kg	2,3,7,8-TCDD	13	5.0	Ref. 4, pp. 52, 81, 329-330, 397, 562, 2602, 3318, 3320; Ref. 60, p. 653; Ref. 123, pp. 526
		ng/kg	OCDD	1,800	10	
JHB-S26	5/1/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	1,500	5.0	Ref. 4, pp. 53, 81, 335-336, 397, 565, 2604, 3318, 3320; Ref. 60, p. 655; Ref. 123, pp. 534
		ng/kg	1,2,3,4,6,7,8-HpCDF	86	5.0	
		ng/kg	1,2,3,4,7,8-HxCDD	12	5.0	
		ng/kg	1,2,3,6,7,8-HxCDD	27	5.0	
		ng/kg	1,2,3,7,8,9-HxCDD	18	5.0	
		ng/kg	1,2,3,7,8-PeCDD	8.6	5.0	
		ng/kg	2,3,7,8-TCDD	1.6	1.0	
		ng/kg	OCDD	19,000	10	
		ng/kg	OCDF	360	10	
JHB-S27	5/1/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	290	5.0	Ref. 4, pp. 53, 81, 337-338, 397, 565, 2605, 3318, 3320; Ref. 60, p. 656; Ref. 123, pp. 538
		ng/kg	1,2,3,7,8,9-HxCDD	7.3	5.0	
		ng/kg	2,3,7,8-TCDD	7.4	1.0	
		ng/kg	OCDD	2,100	10	
JHB-S28	5/1/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	360	5.0	Ref. 4, pp. 53, 81, 339-340, 397, 565, 2567, 3314, 3316; Ref. 60, p. 618; Ref. 123, pp. 585
		ng/kg	1,2,3,6,7,8-HxCDD	12	5.0	
		ng/kg	1,2,3,7,8,9-HxCDD	7	5.0	
		ng/kg	2,3,7,8-TCDD	1.6	1.0	
		ng/kg	OCDD	2,400	10	
		ng/kg	OCDF	140	10	
JHB-S32	5/1/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	460	5.0	Ref. 4, pp. 53, 81, 347-348, 397, 565, 3318, 3320; Ref. 60, p. 651; Ref. 123, pp. 518
		ng/kg	1,2,3,4,7,8-HxCDD	6.3	5.0	
		ng/kg	1,2,3,6,7,8-HxCDD	18	5.0	
		ng/kg	1,2,3,7,8,9-HxCDD	12	5.0	
		ng/kg	2,3,7,8-TCDD	2.1	1.0	
		ng/kg	OCDD	3,300	10	
JHB-S34	5/1/2023	ng/kg	2,3,7,8-TCDD	1.5	1.0	Ref. 4, pp. 53, 81, 351-352, 397, 565, 3300, 3302, 3328; Ref. 121, p. 16; Ref. 123, pp. 629

Table 10 EPA IA Site Assessment AOC B Contaminated Soil Concentrations						
Sample ID	**Sample Date**	**Units**	**Hazardous Substance**	**Concentration**	**Sample Adjusted CRQL***	**References**
JHB-S36	5/2/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	540	5.0	Ref. 4, pp. 54, 56, 81, 355-356, 397, 568, 3300, 3302, 3328; Ref. 121, p. 14; Ref. 123, pp. 621
		ng/kg	1,2,3,4,6,7,8-HpCDF	120	5.0	
		ng/kg	1,2,3,4,7,8,9-HpCDF	7.7	5.0	
		ng/kg	1,2,3,4,7,8-HxCDD	6.9	5.0	
		ng/kg	1,2,3,6,7,8-HxCDD	18	5.0	
		ng/kg	1,2,3,7,8,9-HxCDD	13	5.0	
		ng/kg	1,2,3,7,8-PeCDD	6.6	5.0	
		ng/kg	2,3,7,8-TCDD	62	1.0	
		ng/kg	OCDF	370	10	
JHB-S37	5/2/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	1,300	5.0	Ref. 4, pp. 54, 56, 81, 357-358, 397, 568, 3313, 3315; Ref. 60, p. 613; Ref. 123, pp. 569
		ng/kg	1,2,3,4,6,7,8-HpCDF	260	5.0	
		ng/kg	1,2,3,4,7,8,9-HpCDF	14	5.0	
		ng/kg	1,2,3,4,7,8-HxCDD	22	5.0	
		ng/kg	1,2,3,4,7,8-HxCDF	12	5.0	
		ng/kg	1,2,3,6,7,8-HxCDD	49	5.0	
		ng/kg	1,2,3,6,7,8-HxCDF	10	5.0	
		ng/kg	1,2,3,7,8,9-HxCDD	35	5.0	
		ng/kg	1,2,3,7,8-PeCDD	17	5.0	
		ng/kg	2,3,4,6,7,8-HxCDF	14	5.0	
		ng/kg	2,3,7,8-TCDD	2.7	1.0	
		ng/kg	OCDF	710	10	
JHB-S38	5/2/2023	ng/kg	2,3,7,8-TCDD	2.2	1.0	Ref. 4, pp. 54, 81, 359-360, 397, 568, 3299, 3300, 3302, 3328; Ref. 121, p. 21; Ref. 123, pp. 649
		ng/kg	OCDD	1,800	10	
JHB-S39	5/1/2023	ng/kg	1,2,3,4,6,7,8-HpCDD	330	5.0	Ref. 4, pp. 54, 81, 361-362, 397, 568, 3318, 3320; Ref. 60, p. 649; Ref. 123, pp. 510
		ng/kg	1,2,3,6,7,8-HxCDD	12	5.0	
		ng/kg	1,2,3,7,8,9-HxCDD	7.8	5.0	
		ng/kg	OCDD	2,600	9.9	
JHB-S40	5/4/2023	ng/kg	1,2,3,7,8,9-HxCDD	7.1	5.0	Ref. 4, pp. 54, 56, 81, 363-364, 401, 568, 3321, 3324; Ref. 122, p. 26; Ref. 123, pp. 430
		ng/kg	OCDD	2,500	10	

Notes:

CRQL: EPA Contract Laboratory Program Contract Required Quantitation Limit
EPA: United States Environmental Protection Agency
HpCDD Heptachlorodibenzo-p-dioxin
HpCDF Heptachlorodibenzofuran
HxCDD Hexachlorodibenzo-p-dioxin
HxCDF Hexachlorodibenzofuran
IA Integrated Assessment
mg/kg: milligrams per kilogram
ng/kg: nanograms per kilogram
µg/kg: micrograms per kilogram
OCDF Octachlorodibenzofuran
PeCDD Pentachlorodibenzo-p-dioxin

PeCDF Pentachlorodibenzofuran
TCDD Tetrachlorodibenzo-p-dioxin
*: Since the samples were analyzed through the CLP, the CRQLs presented above are equivalent to the CRQL as defined by the HRS (Ref. 1, Sections 1.1 and 2.3).

EPA IA 2022 Removal Site Evaluation (RSE) ISM Surface Soil Samples

In April 2022, EPA initially tasked START with evaluating 30 properties by collecting soil samples to be analyzed for dioxins and furans, as part of a Removal Site Evaluation (RSE). The scope of the RSE included collecting soil samples from residential properties in the neighborhood north of the facility, analyzing those samples, then reporting the results to EPA and ODEQ. EPA worked with ODEQ to identify the properties to evaluate. After agreeing on the initial 30 properties, EPA and START conducted RSE field activities from May 23, 2022, through May 27, 2022 (Ref. 4, p. 17).

START collected samples following the ISM. START collected increments of soil to a depth of six inches below ground surface (bgs) and from 30-75 increments within each Decision Unit (DU). The exact number of increments was determined by the EPA on site. For the May 2022 sampling, each property was divided into DUs based upon features of the property, and each sample was identified as either a Front Yard, Backyard, Side Yard, or Garden Area. Soil samples were collected from each of these DUs and submitted to the laboratory for analysis (Ref. 4, p. 17). During the May 2022 sampling effort, an ISM Whole Yard sample was collected from 0-6 inches bgs. Additionally, one 5-point composite sample was collected from each DU from 0-3 inches bgs (Ref. 4, p. 18).

At the end of the project, samples were shipped to an analytical laboratory for ISM processing and chemical analysis (Ref. 4, p. 18). The subcontracted analytical laboratory dried, sieved, and processed each sample according to ISM. After processing, the samples were analyzed for dioxins and furans using EPA Method 1613B (Ref. 4, p. 18).

- 2022 Background Surface Soil

Background location JHB-33-WY was collected from Residence ID 52 (Ref. 51; Figure 4 of this HRS documentation record). This location was selected to represent background concentrations for the 2022 ISM sampling as it was the residence located furthest to the east and was not directly north of the facility, so was less likely to have received airborne contaminated soil or emissions from the J. H. Baxter facility (Ref. 39, p. 33; Ref. 59, pp. 3, 16, 35; Ref. 92, p. 12).

Table 11 EPA IA 2022 ISM Background Surface Soil Concentrations

Sample ID	Sampling Date	Hazardous Substance	Concentration (ng/kg)	MRL* (ng/kg)	References
JHB-33-WY-00-06-01	5/26/2022	1,2,3,4,7,8-HxCDF	2.57 U	2.57	Ref. 4, p. 81, 2933, 2947, 3171; Ref. 25, pp. 9, 59-63; Ref. 49, p. 15; Ref. 82, p. 6
		1,2,3,7,8,9-HxCDD	2.57 U	2.57	
		2,3,7,8-TCDD	0.513 U	0.513	

Notes:
EPA: United States Environmental Protection Agency
HxCDD Hexachlorodibenzo-p-dioxin
HxCDF Hexachlorodibenzofuran
IA Integrated Assessment
MRL: Method Reporting Limit
ng/kg: nanograms per kilogram

SQL: Sample Quantitation Limit
TCDD Tetrachlorodibenzo-p-dioxin
U: The material was analyzed for but was not detected. The associated numerical value is the sample quantitation or detection limit, which has been adjusted for sample weight/sample volume, extraction volume, percent solids, sample dilution or other analysis specific parameters. (Ref. 49, p. 2; Ref. 116, pp. 36-38)
*: According to the laboratory, the MRLs presented above are most closely related to the SQL as defined by the HRS (Ref. 1, Sections 1.1 and 2.3; Ref. 113).

Table 12 EPA IA 2022 ISM Background Levels to Establish the Surface Soil Area of Observed Contamination

Sample Type	Hazardous Substance	Maximum Background Concentration EPA IA 2022 Results (ng/kg)	HRS Table 2-3 Minimum Concentration to Document Observed Contamination by Chemical Analysis (ng/kg)
ISM soil sample	1,2,3,4,7,8-HxCDF	2.57 U	The sample measurement equals or exceeds the sample quantitation limit
	1,2,3,7,8,9-HxCDD	2.57 U	The sample measurement equals or exceeds the sample quantitation limit
	2,3,7,8-TCDD	0.513 U	The sample measurement equals or exceeds the sample quantitation limit

Notes:
CRQL: EPA Contract Laboratory Program Contract Required Quantitation Limit
EPA: United States Environmental Protection Agency
HxCDD Hexachlorodibenzo-p-dioxin
HxCDF Hexachlorodibenzofuran
IA Integrated Assessment
ID Identification number
ISM Incremental Sampling Methodology
ng/kg: nanograms per kilogram
TCDD Tetrachlorodibenzo-p-dioxin
U: The material was analyzed for but was not detected. The associated numerical value is the sample quantitation or detection limit, which has been adjusted for sample weight/sample volume, extraction volume, percent solids, sample dilution or other analysis specific parameters. (Ref. 49, p. 2; Ref. 116, pp. 36-38)

- Contaminated ISM Soil Samples

Table 13 EPA IA ISM AOC B Contaminated Soil Concentrations

Sample ID	Sample Date	Hazardous Substance	Concentration (ng/kg)	MRL* (ng/kg)	References
JHB-07-WY-00-06-01	5/25/2022	2,3,7,8-TCDD	5.17 JK (0.517)	0.513	Ref. 4, p. 86; Ref. 26, pp. 11, 37-40; Ref. 62, p. 7; Ref. 82, pp. 5.
JHB-12-FY-00-03-03***	5/24/2022	1,2,3,7,8,9-HxCDD	63 JK (6.3)	5.6**	Ref. 4, p. 86; Ref. 24, pp. 33-34, 2971; Ref. 69, pp. 26-27; Ref. 82, pp. 4.
JHB-15-WY-00-06-01***	5/25/2022	1,2,3,4,7,8-HxCDF	63.8 JK (6.38)	5.15	Ref. 4, p., 86; Ref. 26, p. 11, 57-60; Ref. 62, p. 15; Ref. 82, pp. 5.
		1,2,3,7,8,9-HxCDD	58.3 JK (5.83)	2.59	
JHB-24-BY-00-03-01***	5/24/2022	2,3,7,8-TCDD	19 JK (1.9)	1.4**	Ref. 4, p. 86; Ref. 22, pp. 21, 2132; Ref. 67, p. 16; Ref. 82, pp. 4.

Table 13 EPA IA ISM AOC B Contaminated Soil Concentrations					
Sample ID	**Sample Date**	**Hazardous Substance**	**Concentration (ng/kg)**	**MRL* (ng/kg)**	**References**
JHB-24-FY-00-03-02***	5/24/2022	2,3,7,8-TCDD	53 JK (5.3)	1.4**	Ref. 4, p. 86; Ref. 22, pp. 18, 2132; Ref. 67, p. 13, Ref. 82, pp. 4.
JHB-24-WY-00-06-01***	5/24/2022	2,3,7,8-TCDD	20.7 JK (2.07)	0.515	Ref. 4, p. 86; Ref. 27, pp. 9, 54-57; Ref. 63, p. 13, Ref. 82, pp. 4.

Notes:

CRQL EPA Contract Laboratory Program Contract Required Quantitation Limit
EPA: United States Environmental Protection Agency
HxCDD Hexachlorodibenzo-p-dioxin
HxCDF Hexachlorodibenzofuran
IA Integrated Assessment
ID Identification number
ISM Incremental Sampling Methodology
MRL: Method Reporting Limit
ng/kg: nanograms per kilogram
RL: Reporting Limit
SQL: Sample Quantitation Limit
TCDD Tetrachlorodibenzo-p-dioxin
J: The analyte was analyzed for, but the associated numerical value may not be consistent with the amount actually present in the environmental sample or may not be consistent with the sample detection or quantitation limit. The value is an estimated quantity. The data should be seriously considered for decision-making and are usable for many purposes (Ref. 62, p. 2; Ref. 63, p. 2; Ref. 67, p. 2; Ref. 69, p. 2).
K: J-qualified data has an unknown bias (Ref. 62, p. 2; Ref. 63, p. 2; Ref. 67, p. 2; Ref. 69, p. 2). The concentration is divided by the adjustment factor of 10. The adjusted value is provided in parentheses (Ref. 50, pp. 8-9).
*: According to the laboratory, the MRLs presented above are most closely related to the SQL as defined by the HRS (Ref. 1, Sections 1.1 and 2.3; Ref. 113).
**: For samples JHB-12-FY-00-03-03, JHB-24-BY-00-03-01, and JHB-24-FY-00-03-02, the laboratory provided Reporting Limits (RLs). According to the laboratory, the RLs presented above are most closely related to the Sample Quantitation Limit (SQL) as defined by the HRS (Ref. 1, Sections 1.1 and 2.3; Ref. 114).
***: This property has undergone soil removal/cleanup actions and as such is not considered in the HRS scoring of this site (Hazardous Waste Quantity or Targets) based on currently available information.

EPA IA 2023 RSE ISM Surface Soil Samples

After reviewing the results of the May 2022 field sampling event, EPA and ODEQ determined that additional properties should be evaluated. EPA and START conducted another round of residential soil sampling from March 6, 2023, through March 16, 2023, which included evaluation of an additional 22 properties (Ref. 4, p. 17).

START collected samples following the ISM. START collected increments of soil to a depth of six inches bgs and from 30-75 increments within each DU. The exact number of increments was determined by the EPA on site. During the 2023 sampling effort, each property was broken up into two DUs, called Front Yard and Backyard, and a 0-6-inch bgs ISM sample was collected from each of those DUs. The difference in approach for ISM samples was directed by EPA and ODEQ. Soil samples were collected from each of these DUs and submitted to the laboratory for analysis (Ref. 4, p. 17). Additionally, one 5-point composite sample was collected from each DU from 0-3 inches bgs (Ref. 4, p. 18). Sample locations are shown on Figure 3B and Figure 4 of this HRS documentation record.

Each increment within a DU was composited into a sample bag. Upon completion of the ISM sample, the 5-point composite sample was collected and placed into a separate bag. Once all samples were collected from a property, the samples were returned to the command post for sample processing and placed in a sample cooler. At the end of the project, samples were shipped to an off-site analytical laboratory for ISM processing and chemical analysis (Ref. 4, p. 18). The subcontracted analytical laboratory dried, sieved, and processed each sample according to ISM. After processing, the samples were analyzed for dioxins and furans using EPA Method 1613B (Ref. 4, p. 18).

- 2023 Background Surface Soil

Background samples JHB-02-FY, JHB-57-FY, JHB-57-BY, JHB-59-BY, and JHB-59-FY were collected from Residence IDs 53, 55, and 54, respectively (Ref. 4, pp. 30, 32; Ref. 51; Figure 4 of this HRS documentation record). These locations were selected to represent background concentrations for the 2023 ISM sampling as they were located furthest to the east beyond properties with lower concentrations during the 2022 sampling and not directly downwind of the retort area (Figure 2, Figure 3B, and Figure 4 of this HRS documentation record; Ref. 4, pp. 74-75, 78, 86; Ref. 39, p. 33; Ref. 59, pp. 3, 16, 35).

Table 14 EPA IA 2023 ISM Background Surface Soil Concentrations

Sample ID	Sampling Date	Hazardous Substance	Concentration (ng/kg)	PQL* (ng/kg)	References
JHB-02-FY-00-06-01	3/14/2023	1,2,3,4,6,7,8-HpCDD	93.6	6.15	Ref. 4, p. 380; Ref. 34, pp. 9, 26-27; Ref. 77, p. 7
		1,2,3,4,6,7,8-HpCDF	14.6	6.15	
		1,2,3,4,7,8,9-HpCDF	6.15 U	6.15	
		2,3,7,8-TCDD	1.23 U	1.23	
		OCDD	787	12.3	
		OCDF	47.0	12.3	
JHB-57-FY-00-06-01	3/14/2023	1,2,3,4,6,7,8-HpCDD	91.8	6.74	Ref. 4, p. 380; Ref. 34, p. 9, 33; Ref. 77, p. 14
		1,2,3,4,6,7,8-HpCDF	15.0	6.74	
		1,2,3,4,7,8,9-HpCDF	6.74 U	6.74	
		2,3,7,8-TCDD	1.35 U	1.35	
		OCDD	871	13.5	
		OCDF	47.9	13.5	
JHB-57-BY-00-06-01	3/14/2023	1,2,3,4,6,7,8-HpCDD	128	6.45	Ref. 4, p. 380; 35, pp. 9, 32; Ref. 79, p. 15
		1,2,3,4,6,7,8-HpCDF	30.2	6.45	
		1,2,3,4,7,8,9-HpCDF	6.45 U	6.45	
		2,3,7,8-TCDD	1.29 U	1.29	
		OCDD	951	12.9	
		OCDF	76.3	12.9	
JHB-59-BY-00-06-01	3/14/2023	1,2,3,4,6,7,8-HpCDD	85.4	6.26	Ref. 4, p. 380; Ref. 35, pp. 9, 34-35; Ref. 79 p. 17
		1,2,3,4,6,7,8-HpCDF	12.7	6.26	
		1,2,3,4,7,8,9-HpCDF	6.26 U	6.26	
		2,3,7,8-TCDD	1.25 U	1.25	
		OCDD	743	12.5	
		OCDF	47.2	12.5	
JHB-59-FY-00-06-01	3/14/2023	1,2,3,4,6,7,8-HpCDD	139	5.90	Ref. 4, p. 380; 35, pp. 9, 39; Ref. 79, p. 22
		1,2,3,4,6,7,8-HpCDF	21.3	5.90	
		1,2,3,4,7,8,9-HpCDF	5.90 U	5.90	
		2,3,7,8-TCDD	1.18 U	1.18	
		OCDD	1,170	11.8	
		OCDF	59.3	11.8	

Notes:
EPA: United States Environmental Protection Agency
HpCDD: Heptachlorodibenzo-p-dioxin
HpCDF: Heptachlorodibenzofuran
IA: Integrated Assessment
ISM: Incremental Sampling Methodology
ng/kg: nanograms per kilogram
OCDD: Octachlorodibenzodioxin
OCDF: Octachlorodibenzofuran
PQL: Practical Quantitation Limit
SQL: Sample Quantitation Limit
TCDD: Tetrachlorodibenzo-p-dioxin
U: The material was analyzed for but was not detected. The associated numerical value is the sample quantitation or detection limit, which has been adjusted for sample weight/sample volume, extraction volume, percent solids, sample dilution or other analysis specific parameters. (Ref. 77, p. 2; Ref. 79, p. 2; Ref. 116, pp. 36-38)
*: According to the laboratory, the PQLs presented above are most closely related to the SQL as defined by the HRS (Ref. 1, Sections 1.1 and 2.3; Ref. 115)

Table 15 EPA IA 2023 ISM Background Levels to Establish the Surface Soil Area of Observed Contamination

Sample Type	Hazardous Substance	Maximum Background Concentration EPA IA 2023 ISM Sampling Results (ng/kg)	HRS Table 2-3 Minimum Concentration to Document Observed Contamination by Chemical Analysis (ng/kg)
ISM Surface Soil	1,2,3,4,6,7,8-HpCDD	139	417
	1,2,3,4,6,7,8-HpCDF	30.2	90.6
	1,2,3,4,7,8,9-HpCDF	6.74 U	The sample measurement equals or exceeds the sample quantitation limit
	2,3,7,8-TCDD	1.35 U	The sample measurement equals or exceeds the sample quantitation limit
	OCDD	1,170	3,510
	OCDF	76.3	228.9

Notes:
EPA: United States Environmental Protection Agency
HpCDD: Heptachlorodibenzo-p-dioxin
HpCDF: Heptachlorodibenzofuran
IA: Integrated Assessment
ISM: Incremental Sampling Methodology
ng/kg: nanograms per kilogram
OCDD: Octachlorodibenzodioxin
OCDF: Octachlorodibenzofuran
TCDD: Tetrachlorodibenzo-p-dioxin
U: The material was analyzed for but was not detected. The associated numerical value is the sample quantitation or detection limit, which has been adjusted for sample weight/sample volume, extraction volume, percent solids, sample dilution or other analysis specific parameters (Ref. 77, p. 2; Ref. 79, p. 2).

- Contaminated ISM Soil Samples

Table 16 EPA IA 2023 ISM AOC B Contaminated Soil Concentrations					
Sample ID	**Sample Date**	**Hazardous Substance**	**Concentration (ng/kg)**	**PQL* (ng/kg)**	**References**
JHB-09-FY-00-06-01	3/8/2023	1,2,3,4,6,7,8-HpCDD	1,100	6.10	Ref. 4, p. 377; Ref. 32 pp. 10, 65; Ref. 71, p. 28
		1,2,3,4,6,7,8-HpCDF	125	6.10	
		1,2,3,4,7,8,9-HpCDF	8.07	6.10	
		2,3,7,8-TCDD	2.95	1.22	
		OCDF	294	12.2	
JHB-09-BY-00-06-01	3/8/2023	2,3,7,8-TCDD	2.34	1.31	Ref. 4, p. 377; Ref. 31, pp. 9, 49; Ref. 72, p. 17
JHB-23-FY-00-06-01	3/7/2023	2,3,7,8-TCDD	8.51	1.26	Ref. 4, p. 376; Ref. 30, pp. 9, 48; Ref. 73, p. 13
JHB-25-FY-00-06-01	3/7/2023	1,2,3,4,6,7,8-HpCDD	417	6.27	Ref. 4, p. 376; Ref. 30, pp. 9, 54; Ref. 73, p. 19
JHB-25-BY-00-06-01	3/7/2023	1,2,3,4,6,7,8-HpCDD	430	6.04	Ref. 4, p. 376; Ref. 30, pp. 9, 57; Ref. 73, p. 22
		OCDD	3,800	12.1	
JHB-27-FY-00-06-01	3/7/2023	1,2,3,4,6,7,8-HpCDD	576	5.72	Ref. 4, p. 376; Ref. 28, p. 9, 45; Ref. 74, p. 13
		1,2,3,4,7,8,9-HpCDF	7.85	5.72	
		OCDF	341	11.4	
JHB-27-BY-00-06-01	3/7/2023	1,2,3,4,6,7,8-HpCDD	958	6.12	Ref. 4, p. 376; Ref. 30, pp. 9, 43; Ref. 73, p. 8
		1,2,3,4,6,7,8-HpCDF	173	6.12	
		1,2,3,4,7,8,9-HpCDF	10.3	6.12	
		2,3,7,8-TCDD	3.95	1.22	
		OCDF	433	12.2	
JHB-28-FY-00-06-01	3/8/2023	1,2,3,4,6,7,8-HpCDD	1,030	6.14	Ref. 4, p. 377; Ref. 32, p. 10, 55-56; Ref. 71, p. 18
		1,2,3,4,6,7,8-HpCDF	230	6.14	
		1,2,3,4,7,8,9-HpCDF	18.4	6.14	
		OCDF	850	12.3	
JHB-37-BY-00-06-01	3/6/2023	2,3,7,8-TCDD	6.25	1.09	Ref. 4, p. 375; Ref. 28, pp. 9, 42-44; Ref. 74, p. 11
JHB-37-FY-00-06-01	3/6/2023	2,3,7,8-TCDD	8.71	1.11	Ref. 4, p. 375; Ref. 28, p. 9, 39-41; Ref. 74, p. 8
JHB-38-FY-00-06-01	3/8/2023	1,2,3,4,6,7,8-HpCDD	825	6.19	Ref. 4, p. 377; Ref. 31, pp. 9, 41-42; Ref. 72, p. 9
		1,2,3,4,6,7,8-HpCDF	134	6.19	
		1,2,3,4,7,8,9-HpCDF	6.50	6.19	
JHB-39-FY-00-06-01	3/8/2023	OCDF	254	11.2	Ref. 4, p. 377; Ref. 28, pp. 9, 58-59; Ref. 74, p. 26
JHB-41-BY-00-06-01	3/7/2023	1,2,3,4,6,7,8-HpCDD	476	5.95	Ref. 4, p. 376; Ref. 29, pp. 9, 57-59; Ref. 75, p. 24
		2,3,7,8-TCDD	3.48	1.19	
		OCDD	4,330	11.9	
JHB-41-FY-00-06-01	3/7/2023	1,2,3,4,6,7,8-HpCDD	991	6.16	Ref. 4, p. 376; Ref. 29, pp. 9, 60-61; Ref. 75, p. 26
		1,2,3,4,6,7,8-HpCDF	144	6.16	
		1,2,3,4,7,8,9-HpCDF	8.48	6.16	
		OCDF	393	12.3	

Table 16 EPA IA 2023 ISM AOC B Contaminated Soil Concentrations					
Sample ID	**Sample Date**	**Hazardous Substance**	**Concentration (ng/kg)**	**PQL* (ng/kg)**	**References**
JHB-42-FY-00-06-01	3/8/2023	1,2,3,4,6,7,8-HpCDD	954	6.21	Ref. 4, p. 377; Ref. 32, pp. 10, 47; Ref. 71, p. 10
		1,2,3,4,6,7,8-HpCDF	145	6.21	
		1,2,3,4,7,8,9-HpCDF	8.24	6.21	
		2,3,7,8-TCDD	6.94	1.24	
		OCDF	320	12.4	
JHB-42-BY-00-06-01	3/8/2023	1,2,3,4,6,7,8-HpCDD	1,230	6.37	Ref. 4, p. 377; Ref. 31, pp. 9, 39; Ref. 72, p. 7
		1,2,3,4,6,7,8-HpCDF	266	6.37	
		1,2,3,4,7,8,9-HpCDF	19.8	6.37	
		2,3,7,8-TCDD	2.12	1.27	
		OCDF	827	12.7	
JHB-43-BY-00-06-01	3/7/2023	2,3,7,8-TCDD	5.81	1.10	Ref. 4, p. 376; Ref. 28, pp. 9, 48; Ref. 74, p. 16
JHB-43-FY-00-06-01	3/7/2023	1,2,3,4,6,7,8-HpCDD	1,340	6.13	Ref. 4, p. 376; Ref. 29, pp. 9, 41; Ref. 75, p. 7
		1,2,3,4,6,7,8-HpCDF	98.6	6.13	
		OCDF	234	12.3	
JHB-44-FY-00-06-01	3/8/2023	1,2,3,4,6,7,8-HpCDD	864	6.20	Ref. 4, p. 377; Ref. 32, p. 10, 51; Ref. 71, p. 14
		1,2,3,4,6,7,8-HpCDF	137	6.20	
		1,2,3,4,7,8,9-HpCDF	11.8	6.20	
JHB-44-BY-00-06-01	3/8/2023	1,2,3,4,6,7,8-HpCDD	638	5.94	Ref. 4, p. 377; Ref. 31, pp. 9, 46; Ref. 72, p. 14
		1,2,3,4,6,7,8-HpCDF	109	5.94	
		1,2,3,4,7,8,9-HpCDF	8.45	5.94	
		2,3,7,8-TCDD	1.60	1.19	
JHB-52-BY-00-06-01	3/9/2023	1,2,3,4,6,7,8-HpCDD	493	6.45	Ref. 4, p. 377; Ref. 31, pp. 9, 51; Ref. 72, p. 19
		1,2,3,4,6,7,8-HpCDF	101	6.45	
		2,3,7,8-TCDD	1.48	1.29	
		OCDF	327	12.9	
JHB-55-FY-00-06-01	3/7/2023	1,2,3,4,6,7,8-HpCDD	479	5.64	Ref. 4, p. 376; Ref. 28, pp. 9, 50; Ref. 74, p. 18
		2,3,7,8-TCDD	1.61	1.13	
		OCDF	246	11.3	
JHB-55-BY-00-06-01	3/7/2023	1,2,3,4,6,7,8-HpCDD	423	5.93	Ref. 4, p. 376; Ref. 30, pp. 9, 45; Ref. 73, p. 10
		1,2,3,4,6,7,8-HpCDF	107	5.93	
		2,3,7,8-TCDD	1.58	1.19	
		OCDF	283	11.9	
JHB-65-BY-00-06-01	3/15/2023	1,2,3,4,6,7,8-HpCDD	464	6.56	Ref. 4, p. 380; Ref. 33, pp. 10, 43; Ref. 76, p. 24
		OCDD	3,980	13.1	
JHB-67-BY-00-06-01	3/14/2023	1,2,3,4,6,7,8-HpCDD	929	6.64	Ref. 4, p. 380; Ref. 34, pp. 9, 37; Ref. 77, p. 18
		1,2,3,4,6,7,8-HpCDF	119	6.64	
		2,3,7,8-TCDD	11.5	1.33	
JHB-67-FY-00-06-01	3/14/2023	1,2,3,4,6,7,8-HpCDD	1,120	6.09	Ref. 4, p. 380; Ref. 34, pp. 9, 39; Ref. 77, pp. 20
		1,2,3,4,6,7,8-HpCDF	117	6.09	
		1,2,3,4,7,8,9-HpCDF	6.26	6.09	
		OCDF	297	12.2	

Notes:
EPA: United States Environmental Protection Agency
HpCDD: Heptachlorodibenzo-p-dioxin

HpCDF: Heptachlorodibenzofuran
IA: Integrated Assessment
ID: Identification number
ISM: Incremental Sampling Methodology
ng/kg: nanograms per kilogram
OCDD: Octachlorodibenzodioxin
OCDF: Octachlorodibenzofuran
SQL: Sample Quantitation Limit
TCDD: Tetrachlorodibenzo-p-dioxin
*: According to the laboratory, the PQLs presented above are most closely related to the SQL as defined by the HRS (Ref. 1, Sections 1.1 and 2.3; Ref. 115).

AOC B Hazardous Waste Quantity

Hazardous Constituent Quantity (Tier A)

The hazardous constituent quantity for AOC B could not be adequately determined according to the HRS requirements; that is, the total mass of all CERCLA hazardous substances in the source and releases from the source is not known and cannot be estimated with reasonable confidence (Ref. 1, Section 2.4.2.1.1). 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 all CERCLA hazardous substances in the source and the associated releases from the source. Therefore, there is insufficient information to calculate the hazardous constituent quantity for AOC B with reasonable confidence. Scoring proceeds to the evaluation of Tier B, hazardous wastestream quantity (Ref. 1, Section 2.4.2.1.1).

Hazardous Constituent Quantity Value: NS

Hazardous Wastestream Quantity (Tier B)

The total Hazardous Wastestream Quantity for AOC B could not be adequately determined according to the HRS requirements; that is, the total mass, or a partial estimate, of all hazardous wastestreams and CERCLA pollutants and contaminants for the source and releases from the source is not known and cannot be estimated with reasonable confidence (Ref. 1, Section 2.4.2.1.2). Insufficient historical and current data (permits, waste concentration data, annual reports, etc.) are available to adequately calculate the total mass, or a partial estimate, of all hazardous wastestreams and CERCLA pollutants and contaminants for the source and the associated releases from the source. Therefore, there is insufficient information to adequately calculate or extrapolate a total or partial Hazardous Wastestream Quantity for AOC B with reasonable confidence. Scoring proceeds to the evaluation of Tier C, volume (Ref. 1, Section 2.4.2.1.3).

Hazardous Wastestream Quantity Value: NS

Volume (Tier C)

Tier C, volume is not applicable to source type contaminated soil for the soil exposure component (Ref. 1, Section 5.1.1.2.2).

Volume Assigned Value: 0

Area (Tier D)

The area of AOC B is estimated to be approximately 454,604 square feet, based on surface soil samples collected by ODEQ in 2021 and by EPA in 2022 and 2023 during the IA with concentrations of hazardous substances that were at concentrations significantly above background (see Figure 3B, Tables 5 through 16 of this HRS documentation record.) However, the area of AOC B is not considered to be adequately determined as an undetermined portion of AOC B is beneath buildings, roads, or other impervious covers and seven properties within the AOC boundaries have undergone removal actions (Figure 3B of this HRS documentation record; Ref. 41, pp. 10, 30). Therefore, the area of AOC B is greater than 0 but unknown.

Area Assigned Value: >0

Attribution of Observed Contamination in AOC A and AOC B to the J. H. Baxter Facility

Facility Operations and Emissions

J. H. Baxter operated as a wood-treatment facility from 1943 through 2022 (Ref. 6, p. 10; Ref. 7, p. 18; Ref. 8, p. 1; Ref. 12, p. 17; Ref. 14, p. 11). Operations at the facility included high-pressure wood treating in retorts using a variety of preservative chemicals, including PCP, ACZA, 50/50 Heavy Oil Blends of Creosote and Bunker C Oil (50/50), Creosote, and ACQ (Ref. 5, pp. 13-18; Ref. 10, pp. 3-4; Ref. 14, p. 5; Ref. 15, pp. 17, 57; Ref. 16, p. 9; Ref. 87, p. 9). After raw wood products were treated in retorts, they were transported to concrete drip pads where the treated wood was allowed to dry until no further drippage occurred. After drying on the drip pad, treated wood products were either stored on one of several on-site treated wood-storage areas, or transported off-site by truck or rail (Ref. 7, pp. 20, 40; Ref. 15, p. 18; Ref. 87, p. 11).

Vapors generated during the wood-treating process were routed to a condenser to remove liquid from the exhaust stream. Liquids removed by the condenser were routed to a hot well prior to flowing to a downstream collection sump. Process liquids collected in the sump were delivered to a recovery tank prior to entering the process water treatment system. The dried exhaust stream was routed to a knock-out drum prior to exhausting to atmosphere through the PCP stack. The dried exhaust stream during heavy oil charges were routed to a downstream air pollution control device for control of VOC emissions prior to emitting to atmosphere (Ref. 87, p. 10).

Poor housekeeping, including pipe leakage, soil staining, pooling of hazardous waste on the soil surface, and failure to abide by odor abatement requirements have been noted during facility operations (Ref. 13, pp. 1-6; Ref. 90, pp. 4-5; Ref. 91, pp. 14-15, 19, 23-24, 26-27). In 2014, an inspection was conducted at the J. H. Baxter facility using Forward Looking Infrared (FLIR) technology and a Photoionization Detector (PID) to identify process gas releases. Gas releases were identified at multiple locations including the oil-water separators, cooling tower basin, process water clarifier and vault, creosote and PCP sumps, ACZA scrubber vent, condensate unit, retorts, and treated wood (Ref. 91, pp. 1-2, 3-5, 31-57).

In 2021, J. H. Baxter collected multiple raw material and process water samples from the facility for analysis of dioxins and furans, PAHs, VOCs, ammonia, wood organics, and/or total metals (Ref. 85, p. 1; Ref. 87, pp. 1-2, 13-15, 21, 24-25). As shown in Table 17 of this HRS documentation record below, hazardous substances associated with AOC A and AOC B, including PCP, dioxins, furans, and PAHs, were detected in raw material and process water samples from the facility (Ref. 85, pp. 4-7).

The hazardous substances found at observed contamination concentrations in AOCs A and B include PAHs, PCP, dioxins, furans, and metals (see Tables 2 through 16 of this HRS documentation record). There are three types of contaminants generally found at wood treater facilities, either alone or in combination: creosote, PCP, and chromated copper arsenate (CCA). Creosote is an oily liquid made up of approximately 85% PAHs (Ref. 11, p. 23; Ref. 19, p. 165). In the wood preserving industry, creosote signifies a distillate of coal tar produced by the high temperature carbonization of bituminous coal. Coal tar creosote refers to “the fractions or blends of fractions specifically used for timber preservation” (Ref. 19, p. 165). The PAHs commonly found at wood treater sites include anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, PCP, phenanthrene, and pyrene (Ref. 11, p. 23; Ref. 19, pp. 166, 169-171, 184). PCP was first used in the U.S. in 1936 as a wood preservative to prevent fungal decay and insect damage. PCP and by-products of its

synthesis (hereinafter collectively referred to as PCP because those exposed to PCP are also exposed to products formed during its synthesis) include higher-chlorinated dioxins and furans (Ref. 20, pp. 1, 3). Common PCP synthesis by-products include polychlorinated phenols (tetra- and tri-); hexachlorobenzene (HCB); hexa-, hepta-, and octachlorodibenzo-p-dioxins (HxCDD, HpCDD, and OCDD); and hexa-, hepta-, and octachlorodibenzofurans. 2,3,7,8-TCDD is a by-product of 2,4,5-trichlorophenol; 2,3,7,8-TCDD may also result from the alkaline hydrolysis of HCB to PCP although it is rarely detected in commercial preparations (Ref. 20, pp. 1, 3). Metals, such as arsenic, cadmium, chromium, copper, and lead, are associated with CCA or are otherwise commonly found at wood treater sites (Ref. 11, p. 23). Pesticides may also be used in wood treatment to prevent rotting, insect damage, and mold (Ref. 23, p. 1). The presence of the PAH benzo(g,h,i)perylene and the phthalate bis(2-ethylhexyl) phthalate (aka di(2-ethylhexyl) phthalate) at the site may be associated with the use of pesticides during the wood treating process (Ref. 43, p. 2; Ref. 47, p. 1).

J. H. Baxter Process and Wastestream Samples

Table 17 J. H. Baxter Raw Material and Process Water Sampling Results

Sample ID and Description	Sampling Date	Hazardous Substance	Concentration	PQL	References
PCPHW-01 PCP Hot Well Influent	2/11/2021	1,2,3,4,6,7,8-HpCDD	22,500 J ng/kg	2,580 ng/kg	Ref. 85, pp. 4, 21-22; Ref. 87, pp. 21, 25
		1,2,3,4,6,7-HpCDF	18,400 J ng/kg	2,580 ng/kg	
		OCDD	96,700 J ng/kg	5,150 ng/kg	
		OCDF	206,000 J ng/kg	5,150 ng/kg	
PCPHW-02 Penta Hot Well Influent	6/3/2021	Pentachlorophenol	37,800 mg/kg	480 mg/kg	Ref. 85, pp. 6, 265-266; Ref. 87, pp. 21, 25
		Phenanthrene	118 mg/kg	96 mg/kg	
BLND-01 50/50 Blend Preservative Solution	2/11/2021	1,2,3,4,6,7,8-HpCDD	728,000 J ng/kg	2,690 ng/kg	Ref. 85, pp. 4, 25-26; Ref. 87, pp. 21, 25
		1,2,3,4,6,7,8-HpCDF	125,000 J ng/kg	2,690 ng/kg	
		1,2,3,4,7,8,9-HpCDF	3,460 J ng/kg	2,690 ng/kg	
		1,2,3,4,7,8-HxCDD	4,880 J ng/kg	2,690 ng/kg	
		1,2,3,6,7,8-HxCDD	89,400 J ng/kg	2,690 ng/kg	
		1,2,3,7,8,9-HxCDD	20,600 J ng/kg	2,690 ng/kg	
		1,2,3,7,8-PeCDD	4,220 J ng/kg	2,690 ng/kg	
		OCDD	1,920,000 ng/kg	5,380 ng/kg	
		OCDF	225,000 J ng/kg	5,380 ng/kg	
BLND-02 50/50 Blend Preservative Solution	6/3/2021	Anthracene	6,750 mg/kg	500 mg/kg	Ref. 85, pp. 6, 263-264; Ref. 87, pp. 21, 25
		Benzo(a)anthracene	6,430 mg/kg	100 mg/kg	
		Benzo(a)pyrene	1,820 mg/kg	100 mg/kg	
		Benzo(g,h,i)perylene	564 mg/kg	100 mg/kg	
		Benzo(k)fluoranthene	1,980 mg/kg	100 mg/kg	
		Chrysene	5,900 mg/kg	100 mg/kg	
		Fluoranthene	40,100 mg/kg	500 mg/kg	
		Indeno(1,2,3-c,d)pyrene	576 mg/kg	100 mg/kg	
		Naphthalene	21,400 mg/kg	500 mg/kg	
		Pentachlorophenol	1,070 mg/kg	not provided	
		Phenanthrene	54,400 mg/kg	2,500 mg/kg	
		Pyrene	24,700 mg/kg	500 mg/kg	

Table 17 J. H. Baxter Raw Material and Process Water Sampling Results

Sample ID and Description	Sampling Date	Hazardous Substance	Concentration	PQL	References
PCP-01 PCP Preservative Solution	2/11/2021	1,2,3,4,6,7,8-HpCDD	2,500,000 J ng/kg	12,300 ng/kg	Ref. 85, pp. 4, 27-28; Ref. 87, pp. 21, 25
		1,2,3,4,6,7,8-HpCDF	2,050,000 J ng/kg	12,300 ng/kg	
		1,2,3,4,7,8,9-HpCDF	147,000 J ng/kg	12,300 ng/kg	
		1,2,3,4,7,8-HxCDF	18,800 J ng/kg	12,300 ng/kg	
		1,2,3,6,7,8-HxCDD	137,000 J ng/kg	12,300 ng/kg	
		1,2,3,7,8,9-HxCDD	21,600 J ng/kg	12,300 ng/kg	
		OCDD	6,110,000 J ng/kg	24,500 ng/kg	
		OCDF	19,900,000 J ng/kg	24,500 ng/kg	
PCP-01-DUP PCP Preservative Solution	2/11/2021	1,2,3,4,6,7,8-HpCDD	2,670,000 J ng/kg	13,300 ng/kg	Ref. 85, pp. 4, 29-30; Ref. 87, pp. 21, 25
		1,2,3,4,6,7,8-HpCDF	2,180,000 J ng/kg	13,300 ng/kg	
		1,2,3,4,7,8,9-HpCDF	150,000 J ng/kg	13,300 ng/kg	
		1,2,3,4,7,8-HxCDF	18,400 J ng/kg	13,300 ng/kg	
		1,2,3,6,7,8-HxCDD	132,000 J ng/kg	13,300 ng/kg	
		1,2,3,7,8,9-HxCDD	23,700 J ng/kg	13,300 ng/kg	
		OCDD	12,500,000 J ng/kg	26,600 ng/kg	
		OCDF	27,100,000 J ng/kg	26,600 ng/kg	
PCP-02 PCP Preservative Solution	6/3/2021	Pentachlorophenol	68,900 mg/kg	2,500 mg/kg	Ref. 85, pp. 6, 259-260; Ref. 87, pp. 21, 25
PCPHO-01 PCP Chamber Oil Water Separator Influent	2/11/2021	1,2,3,4,6,7,8-HpCDD	2,070,000 J ng/kg	13,300 ng/kg	Ref. 85, pp. 4, 37-38; Ref. 87, pp. 21, 25
		1,2,3,4,6,7,8-HpCDF	1,740,000 J ng/kg	13,300 ng/kg	
		1,2,3,4,7,8,9-HpCDF	126,000 J ng/kg	13,300 ng/kg	
		1,2,3,4,7,8-HxCDF	14,400 J ng/kg	13,300 ng/kg	
		1,2,3,6,7,8-HxCDD	99,200 J ng/kg	13,300 ng/kg	
		1,2,3,7,8,9-HxCDD	17,500 J ng/kg	13,300 ng/kg	
		OCDD	9,910,000 J ng/kg	26,600 ng/kg	
		OCDF	21,500,000 J ng/kg	26,600 ng/kg	
OWSPCP-02 PCP Chamber Oil Water Separator Influent	6/3/2021	Fluoranthene	119 mg/kg	98 mg/kg	Ref. 85, pp. 6, 267-268; Ref. 87, pp. 21, 25
		Pentachlorophenol	67,100 mg/kg	2,500 mg/kg	
		Phenanthrene	164 mg/kg	98 mg/kg	
EVAP-01 Evaporator Influent (Carbon Filter Discharge)	2/11/2021	1,2,3,4,6,7,8-HpCDD	371,000 J pg/L	2,490 pg/L	Ref. 85, pp. 5, 7, 39-40, 146; Ref. 87, pp. 21, 25
		1,2,3,4,6,7,8-HpCDF	203,000 J pg/L	2,490 pg/L	
		1,2,3,4,7,8,9-HpCDF	13,600 J pg/L	2,490 pg/L	
		1,2,3,4,7,8-HxCDD	3,370 J pg/L	2,490 pg/L	
		1,2,3,6,7,8-HxCDD	24,000 J pg/L	2,490 pg/L	
		1,2,3,7,8,9-HxCDD	12,000 J pg/L	2,490 pg/L	
		1,2,3,7,8-PeCDD	4,700 J pg/L	2,490 pg/L	
		OCDD	1,700,000 J pg/L	4,970 pg/L	
		OCDF	2,280,000 J pg/L	4,970 pg/L	
		Arsenic	5,645.79 J µg/L	1,000.000 µg/L	
		Copper	3,560.88 J µg/L	200.000 µg/L	
		Zinc	309.72 J µg/L	200.000 µg/L	

Table 17 J. H. Baxter Raw Material and Process Water Sampling Results					
Sample ID and Description	**Sampling Date**	**Hazardous Substance**	**Concentration**	**PQL**	**References**
EVAP-01-DUP Evaporator Influent (Carbon Filter Discharge)	2/11/2021	1,2,3,4,6,7,8-HpCDD	454,000 J pg/L J	2,520 pg/L	Ref. 85, pp. 5, 7, 41-42, 147; Ref. 87, pp. 21, 25
		1,2,3,4,6,7,8-HpCDF	253,000 J pg/L J	2,520 pg/L	
		1,2,3,4,7,8,9-HpCDF	18,200 J pg/L J	2,520 pg/L	
		1,2,3,4,7,8-HxCDD	4,540 J pg/L J	2,520 pg/L	
		1,2,3,6,7,8-HxCDD	30,300 J pg/L J	2,520 pg/L	
		1,2,3,7,8,9-HxCDD	15,700 J pg/L J	2,520 pg/L	
		1,2,3,7,8-PeCDD	5,940 J pg/L J	2,520 pg/L	
		2,3,7,8-TCDD	507 J pg/L J	504 pg/L	
		OCDD	2,100,000 J pg/L J	5,040 pg/L	
		OCDF	2,930,000 J pg/L J	5,040 pg/L	
		Arsenic	7,405.846 J µg/L	1,000.000 µg/L	
		Copper	3,436.34 J µg/L	200.000 µg/L	
		Zinc	274.84 J µg/L J	200.000 µg/L	
EVAP-02 Evaporator Influent (Carbon Filter Discharge)	6/2/2021	1,2,3,4,6,7,8-HpCDD	55,300 J pg/L	274 pg/L	Ref. 85, pp. 4, 6, 7, 192-193, 237-238, 288; Ref. 87, pp. 21, 25
		1,2,3,4,6,7,8-HpCDF	16,600 J pg/L	274 pg/L	
		1,2,3,4,7,8,9-HpCDF	1,030 J pg/L	274 pg/L	
		1,2,3,6,7,8-HxCDD	5,690 J pg/L	274 pg/L	
		1,2,3,7,8,9-HxCDD	2,310 J pg/L	274 pg/L	
		1,2,3,7,8-PeCDD	676 J pg/L	274 pg/L	
		OCDD	184,000 J pg/L	548 pg/L	
		OCDF	163,000 J pg/L	548 pg/L	
		Anthracene	21.9 J µg/L	1.9 µg/L	
		Benzo(a)anthracene	4.88 J µg/L	1.9 µg/L	
		Benzo(a)pyrene	2.13 J µg/L	1.9 µg/L	
		Benzo(k)fluoranthene	1.96 J µg/L	1.9 µg/L	
		Chrysene	3.42 J µg/L	1.9 µg/L	
		Fluoranthene	45 J µg/L	1.9 µg/L	
		Pentachlorophenol	258,000 J µg/L	2,900 µg/L	
		Phenanthrene	66.4 J µg/L	1.9 µg/L	
		Pyrene	16.3 J µg/L	1.9 µg/L	
		Arsenic	37,030.51 µg/L	1,000.000 µg/L	
		Copper	30,603 µg/L	1,000.000 µg/L	
		Zinc	2130.84 µg/L	100.000 µg/L	
STRM-01 Storm Water Treatment Influent	2/11/2021	1,2,3,4,6,7,8-HpCDD	96,100 J pg/L	508 pg/L	Ref. 85, pp. 4, 6, 43-44, 97; Ref. 87, pp. 21, 25
		1,2,3,4,6,7,8-HpCDF	13,400 J pg/L	508 pg/L	
		1,2,3,4,7,8,9-HpCDF	631 J pg/L	508 pg/L	
		1,2,3,4,7,8-HxCDD	6,900 J pg/L	508 pg/L	
		1,2,3,4,7,8-HxCDF	597 J pg/L	508 pg/L	
		1,2,3,6,7,8-HxCDD	15,300 J pg/L	508 pg/L	
		1,2,3,6,7,8-HxCDF	688 J pg/L	508 pg/L	
		1,2,3,7,8,9-HxCDD	14,900 J pg/L	508 pg/L	
		1,2,3,7,8-PeCDD	11,000 J pg/L	508 pg/L	
		2,3,7,8-TCDD	834 J pg/L	102 pg/L	
		OCDD	210,000 J pg/L	1,020 pg/L	
		OCDF	31,400 J pg/L	1,020 pg/L	
		Pentachlorophenol	100 J µg/L	5.4 µg/L	

Table 17 J. H. Baxter Raw Material and Process Water Sampling Results					
Sample ID and Description	**Sampling Date**	**Hazardous Substance**	**Concentration**	**PQL**	**References**
POND-01 Mill Pond	2/11/2021	1,2,3,4,6,7,8-HpCDD	13,900 J pg/L	508 pg/L	Ref. 85, pp. 4, 6, 7, 45-46, 99-100, 133; Ref. 87, pp. 21, 25
		1,2,3,4,6,7,8-HpCDF	2,790 J pg/L	508 pg/L	
		1,2,3,4,7,8-HxCDD	511 J pg/L	508 pg/L	
		1,2,3,6,7,8-HxCDD	1,390 J pg/L	508 pg/L	
		1,2,3,7,8,9-HxCDD	1,260 J pg/L	508 pg/L	
		1,2,3,7,8-PeCDD	554 J pg/L	508 pg/L	
		OCDD	47,300 J pg/L	1,020 pg/L	
		OCDF	7,770 J pg/L	1,020 pg/L	
		Pentachlorophenol	32 J µg/L	5.4 µg/L	
CFI-01 Carbon Filter Inlet (Pre-Treat)	6/2/2021	1,2,3,4,6,7,8-HpCDD	386,000 J pg/L	2,490 pg/L	Ref. 85, pp. 4, 6, 190-191, 235-236; Ref. 87, pp. 21, 25
		1,2,3,4,6,7,8-HpCDF	188,000 J pg/L	2,490 pg/L	
		1,2,3,4,7,8,9-HpCDF	12,700 J pg/L	2,490 pg/L	
		1,2,3,4,7,8-HxCDD	3,480 J pg/L	2,490 pg/L	
		1,2,3,4,7,8-HxCDF	2,590 J pg/L	2,490 pg/L	
		1,2,3,6,7,8-HxCDD	26,300 J pg/L	2,490 pg/L	
		1,2,3,7,8,9-HxCDD	13,200 J pg/L	2,490 pg/L	
		OCDD	1,650,000 J pg/L	4,980 pg/L	
		OCDF	2,020,000 J pg/L	4,980 pg/L	
		Anthracene	1,250 J µg/L	20 µg/L	
		Benzo(a)anthracene	645 J µg/L	20 µg/L	
		Benzo(a)pyrene	166 J µg/L	20 µg/L	
		Benzo(g,h,i)perylene	46.6 J µg/L	20 µg/L	
		Benzo(k)fluoranthene	209 J µg/L	20 µg/L	
		Chrysene	605 J µg/L	20 µg/L	
		Fluoranthene	4,240 J µg/L	200 µg/L	
		Indeno(1,2,3-c,d)pyrene	55.2 J µg/L	20 µg/L	
		Pentachlorophenol	389,000 J µg/L	5,000 µg/L	
		Phenanthrene	6,530 J µg/L	200 µg/L	
		Pyrene	65.4 J µg/L	20 µg/L	
EV-OUT-01 Evaporator Blowdown (Recycle)	6/2/2021	1,2,3,4,6,7,8-HpCDD	7,970,000 J pg/L	9,760 pg/L	Ref. 85, pp. 4, 6, 194-195, 239-240; Ref. 87, pp. 21, 25
		1,2,3,4,6,7,8-HpCDF	2,080,000 J pg/L	9,760 pg/L	
		1,2,3,4,7,8,9-HpCDF	144,000 J pg/L	9,760 pg/L	
		1,2,3,4,7,8-HxCDD	98,300 J pg/L	9,760 pg/L	
		1,2,3,4,7,8-HxCDF	30,200 J pg/L	9,760 pg/L	
		1,2,3,6,7,8-HxCDD	982,000 J pg/L	9,760 pg/L	
		1,2,3,6,7,8-HxCDF	15,200 J pg/L	9,760 pg/L	
		1,2,3,7,8,9-HxCDD	413,000 J pg/L	9,760 pg/L	
		1,2,3,7,8-PeCDD	106,000 J pg/L	9,760 pg/L	
		2,3,4,6,7,8-HxCDF	17,000 J pg/L	9,760 pg/L	
		2,3,7,8-TCDD	4,470 J pg/L	1,950 pg/L	
		OCDD	25,000,000 J pg/L	19,500 pg/L	
		OCDF	20,600,000 J pg/L	19,500 pg/L	
		Anthracene	245 J µg/L	20 µg/L	
		Benzo(a)anthracene	559 J µg/L	20 µg/L	
		Benzo(a)pyrene	41.6 J µg/L	20 µg/L	
		Benzo(b)fluoranthene	210 J µg/L	20 µg/L	
		Benzo(g,h,i)perylene	29.2 J µg/L	20 µg/L	
		Benzo(k)fluoranthene	216 µg/L	20 µg/L	
		Chrysene	567 J µg/L	20 µg/L	

Table 17 J. H. Baxter Raw Material and Process Water Sampling Results					
Sample ID and Description	**Sampling Date**	**Hazardous Substance**	**Concentration**	**PQL**	**References**
		Fluoranthene	2,460 J µg/L	200 µg/L	
		Indeno(1,2,3-c,d)pyrene	41 J µg/L	20 µg/L	
		Pentachlorophenol	2,820,000 J µg/L	30,000 µg/L	
		Phenanthrene	967 J µg/L	20 µg/L	
		Pyrene	1,490 J µg/L	20 µg/L	

Facility Emissions to the Residential Neighborhood North of the J. H. Baxter Property

Seasonal downwind direction from the facility is northward toward the residential neighborhood at AOC B (Ref. 21; Ref. 39, p. 33; Ref. 59, pp. 3, 14, 16, 35; Ref. 64; Ref. 92, p. 1). Since 1977, when the first air quality complaint was recorded, residents of the neighborhoods to the north and northeast of the facility have reported numerous complaints to LRAPA concerning odor and symptoms of illness (Ref. 59, p. 14; Ref. 88, pp. 5, 7, 8, 10; Ref. 90, pp. 11-12). The number of air quality complaints peaked in 2004, with 762 complaints recorded (Ref. 88, p. 7; Ref. 90, pp. 11-12). Soil deposition modeling was performed to help determine which residential properties were likely to need removals of dioxin-contaminated soils just north of the J. H. Baxter facility (Ref. 92, p. 5).

An Air Contaminant Discharge Permit renewal application submitted to LRAPA by Baxter in October 2003 indicated that most of Baxter's VOC emissions were from creosote. The permit application details the weight fraction of polycyclic aromatic compounds in gaseous emissions from liquid creosote, including naphthalene (44%), 2-methylnaphthalene (13%), dibenzofuran (5%), acenaphthene (5%), 1-methylnaphthalene (4%), fluorene (2%), and phenanthrene (1%) (Ref. 59, p. 9).

In 2005-2006, LRAPA conducted an air sampling study in response to community concerns regarding emissions from J. H. Baxter. The study was designed to measure maximum downwind exposures in the neighborhoods nearest to the J. H. Baxter facility adjacent to the north, northeast and northwest. The process at the J. H. Baxter facility that generated the majority of the emissions used mixtures of creosote, oil and PCP to treat wood products for preservation. The various stages of treatment operations were performed in drying kilns and large retorts using pressure and vacuum. Emissions occurred from many points, including vacuum pumps, tank vents, retort door openings, and treated product storage (Ref. 59, p. 3).

Detections of hazardous substances related to plant site processes correlated well with downwind exposure. None of the facility-related hazardous substances were ever detected in samples that had no downwind exposure (Ref. 59, pp. 6, 9). LRAPA staff documented operations-related odors on the facility and in the neighborhood to the north during many of the air sampling events as part of the 2005-2006 study. Resident complaints were received during these times and confirmed by LRAPA staff (Ref. 59, pp. 25-27, 29-34).

Other Facilities

To assess attribution from the J. H. Baxter facility, multiple tools were used to examine other facilities within the area. A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR), including environmental databases, historical Sanborn maps, historical topographic maps, historical aerial photographs, and historical city directories (Ref. 94, p. 1; Ref. 95, p.

1; Ref. 96, p. 1; Ref. 97, p. 1; Ref. 98, p. 1; Ref. 99, p. 1). LRAPA provided information to EPA regarding other potential contributors of emissions in the facility area (Ref. 100). Public records databases were reviewed to identify other facilities within a mile radius of the J. H. Baxter facility that have CERCLA hazardous substances associated with them (Ref. 98, p. 3; Ref. 100, p. 1).

The recycling facility, directly neighboring J. H. Baxter to the east, reports some dioxins and metals attributed to their emissions. This facility is situated on land owned by J. H. Baxter until 2007 and has been in business since 2015. (Ref. 100, p. 1). There are multiple other facilities within 1.5 miles of the J. H. Baxter site (Ref. 93, pp. 1-7). These facilities include lumber and sawmills, plywood, truss, cabinet and veneer manufactures, recycling facilities, a landfill, auto sales, tire re-treaders, gas stations and garages, a laboratory, chemical products wholesaler, electroplating, surface coating, paint, resin, and glue manufactures, a printing facility, and sheet metal manufacturing (Ref. 94; Ref. 95; Ref. 96; Ref. 97; Ref. 98; Ref. 99; Ref. 100; Ref. 101; Ref. 102; Ref. 103; Ref. 104; Ref. 105; Ref. 106; Ref. 107; Ref. 108; Ref. 109; Ref. 110; Ref. 111; Ref. 112; see Ref. 93, pp. 1-7 for specific page numbers). Some of these facilities are associated with some of the same hazardous substances as those attributable to J. H. Baxter emissions and wastes and thus could be contributing to the soil contamination in the larger site area. Most of these facilities, however, are located to the south of the J. H. Baxter site, beyond background soil sample locations (Figure 4 of this HRS documentation record; Ref. 93, p. 1).

J. H. Baxter Attribution Summary

For over 50 years, J. H. Baxter operated a wood treatment facility at its Roosevelt Boulevard location, formerly Baxter Street, in southwest Eugene, Lane County, Oregon (Figure 1 and Figure 2 of this HRS documentation record; Ref. 4, p. 13; Ref. 7, p. 18; Ref. 18, p. 6). The hazardous substances found in AOC A, located on the J. H. Baxter facility property, and/or AOC B, located immediately north and downwind of the J. H. Baxter facility and its emissions sources, are commonly associated with wood-treating operations and include PAHs, PCP, dioxins, furans, metals, and pesticides (see Tables 2 through 16 of this HRS documentation record; Ref. 11, p. 23; Ref. 19, pp. 165, 166, 169-171, 184; Ref. 20, pp. 1, 3; Ref. 23, p. 1; Ref. 36, p. 1; Ref. 37, p. 2; Ref. 38, p. 1; Ref. 43, p. 2; Ref. 47, p. 1; Ref. 92, pp. 1, 5, 12-35).

For decades, residents living in the neighborhoods to the north and northeast of the J. H. Baxter facility have reported complaints to LRAPA concerning odor and symptoms of illness (Ref. 59, p. 14; Ref. 88, pp. 5, 7, 8, 10; Ref. 90, pp. 11-12). An Air Contaminant Discharge Permit renewal application submitted by J. H. Baxter in October 2003 indicated that most of J. H. Baxter's VOC emissions were from creosote (Ref. 59, p. 9). In 2005-2006, an air sampling study was conducted in response to community concerns regarding emissions from J. H. Baxter. Detections of hazardous substances related to plant site processes correlated well with downwind exposure (Ref. 59, pp. 3, 6, 9).

The J. H. Baxter site is located in an industrialized area. Other facilities have been identified in the site vicinity that may also be associated with some of the hazardous substances found in J. H. Baxter process and waste samples and that are present at observed contamination levels in AOCs A and B (Ref. 93, p. 1-7); some of these other facilities may have contributed to the soil contamination in the area. However, soil deposition modeling indicates dioxins and metals were likely to be deposited in the neighborhood north of the J. H. Baxter facility from J. H. Baxter's emissions sources (Ref. 92, pp. 1, 5, 12-35). Based on available evidence, including the soil deposition modeling, air emission data, the significantly lower contaminant levels found at background soil sample locations between the J. H. Baxter site and other facilities south of the site, downwind odor complaints directly tied to J. H. Baxter operations, samples of

J. H. Baxter process products with high concentrations of generally the same hazardous substances as those found in the observed contamination, and predominant wind directions that are seasonally to the north, the hazardous substances found at levels significantly above background in AOC A and AOC B are clearly attributable, at least in part, to J. H. Baxter facility operations (Ref. 21; Ref. 39, pp. 33, 56, 59; Ref. 59, pp. 3, 14, 16, 35; Ref. 64; Ref. 92, p. 1; Table 17 of this HRS documentation record).

5.1.1 RESIDENT POPULATION THREAT

5.1.1.1 LIKELIHOOD OF EXPOSURE

Samples documenting observed contamination to residential properties north of the J. H. Baxter facility were collected during the 2021 ODEQ sampling event and the 2022 and 2023 EPA IA sampling events (Ref 4, pp. 15, 17-20). Residential samples were collected within property boundaries and within 200 feet of the residential structures within AOC B (Figure 3B of this HRS documentation record). In addition, although operations ceased at the J. H. Baxter facility in 2022, two full-time workers continue to report to the facility to maintain the stormwater and groundwater treatment systems in the vicinity of AOC A and a single retort (Figure 2 and Figure 3A of this HRS documentation record; Ref. 4, p. 66).

Resident Population Threat Likelihood of Exposure Factor Category Value: 550

5.1.1.2 WASTE CHARACTERISTICS

5.1.1.2.1 Toxicity

Table 18 Toxicity

Hazardous Substance	Toxicity Factor Value	References
1,2,3,4,6,7,8-HpCDD	10,000	Ref. 2, p. 20
1,2,3,4,6,7,8-HpCDF	10,000	Ref. 2, p. 22
1,2,3,4,7,8,9-HpCDF	10,000	Ref. 2, p. 24
1,2,3,4,7,8-HxCDD	10,000	Ref. 2, p. 26
1,2,3,4,7,8-HxCDF	10,000	Ref. 2, p. 32
1,2,3,6,7,8-HxCDD	10,000	Ref. 2, p. 28
1,2,3,6,7,8-HxCDF	10,000	Ref. 2, p. 34
1,2,3,7,8,9-HxCDD	10,000	Ref. 2, p. 30
1,2,3,7,8,9-HxCDF	10,000	Ref. 2, p. 36
1,2,3,7,8-PeCDD	10,000	Ref. 2, p. 46
1,2,3,7,8-PeCDF	10,000	Ref. 2, p. 48
2,3,4,6,7,8-HxCDF	10,000	Ref. 2, p. 38
2,3,4,7,8-PeCDF	10,000	Ref. 2, p. 50
2,3,7,8-TCDD	10,000	Ref. 2, p. 56
2,3,7,8-TCDF	10,000	Ref. 2, p. 58
OCDD	10,000	Ref. 2, p. 42
OCDF	10,000	Ref. 2, p. 44
Antimony	10,000	Ref. 2, p. 61
Arsenic	10,000	Ref. 2, p. 2
Cadmium	10,000	Ref. 2, p. 8
Chromium	10,000	Ref. 2, p. 63
Copper	100	Ref. 2, p. 65
Lead	10,000	Ref. 2, p. 40
Selenium	100	Ref. 2, p. 67
Silver	100	Ref. 2, p. 90
Zinc	10	Ref. 2, p. 69

Table 18 Toxicity		
Hazardous Substance	**Toxicity Factor Value**	**References**
Anthracene	10	Ref. 2, p. 72
Benzo(a)anthracene	100	Ref. 2, p. 4
Benzo(a)pyrene	10,000	Ref. 2, p. 6
Benzo(g,h,i)perylene	0	Ref. 2, p. 74
Benzo(k)fluoranthene	10	Ref. 2, p. 78
Bis(2-ethylhexyl)phthalate	100	Ref. 2, p. 80
Chrysene	10	Ref. 2, p. 82
Fluoranthene	100	Ref. 2, p. 76
Indeno(1,2,3-cd)pyrene	100	Ref. 2, p. 84
Pentachlorophenol	100	Ref. 2, p. 86
Phenanthrene	1	Ref. 2, p. 88
Pyrene	100	Ref. 2, p. 54

Notes:

HpCDD: Heptachlorodibenzo-p-dioxin
HpCDD: Heptachlorodibenzo-p-dioxin
HpCDF: Heptachlorodibenzofuran
HxCDD: Hexachlorodibenzo-p-dioxin
HxCDF: Hexachlorodibenzofuran
OCDD: Octachlorodibenzodioxin
OCDF: Octachlorodibenzofuran
PeCDD Pentachlorodibenzo-p-dioxin
PeCDF Pentachlorodibenzofuran
TCDD: Tetrachlorodibenzo-p-dioxin
TCDF: Tetrachlorodibenzofuran

Toxicity Factor Value: 10,000

5.1.1.2.2 Hazardous Waste Quantity

Table 19 Hazardous Waste Quantity		
AOC Letter	**Source Type**	**Area Hazardous Waste Quantity**
A	Contaminated Soil	**>0**
B	Contaminated Soil	**>0**
	Sum of Values:	**>0**

Hazardous Waste Quantity Factor Value (Ref. 1, Table 2-6): 10

5.1.1.2.3 Calculation of Waste Characteristics Factor Category Value

Toxicity Factor Value: 10,000
Hazardous Waste Quantity Factor Value: 10

Toxicity Factor Value x Hazardous Waste Quantity Factor Value: 100,000

Waste Characteristics Factor Category Value (Ref. 1, Table 2-7): 18

5.1.1.3 TARGETS

Residential properties are identified by Residence IDs rather than addresses, to protect the privacy of individual residents. The cross-reference between Residence IDs and street addresses is provided in confidential reference 51. Sample concentrations are provided in Tables 7, 10, 13, and 16 of this HRS documentation record. Only those properties where removals have not occurred are listed below and used in scoring (Ref. 41, pp. 10, 30).

Table 20 Level I Concentrations

Residence ID (Ref. 51)	Sample ID	Hazardous Substance	Hazardous Substance Conc. (ng/kg)	Benchmark Conc. (ng/kg)	Benchmark	Reference
3	JHB-S36	1,2,3,4,6,7,8-HpCDD	540	535	Cancer Risk Screen Conc.	Ref. 2, p. 21
		1,2,3,7,8-PeCDD	6.6	5.35	Cancer Risk Screen Conc.	Ref. 2, p. 47
		2,3,7,8-TCDD	62	5.35	Cancer Risk Screen Conc.	Ref. 2, p. 57
7	JHB-S37	1,2,3,4,6,7,8-HpCDD	1,300	535	Cancer Risk Screen Conc.	Ref. 2, p. 21
		1,2,3,7,8-PeCDD	17	5.35	Cancer Risk Screen Conc.	Ref. 2, p. 47
13	JHB-28-FY-00-06-01	1,2,3,4,6,7,8-HpCDD	1,030	535	Cancer Risk Screen Conc.	Ref. 2, p. 21
14	JHB-44-FY-00-06-01	1,2,3,4,6,7,8-HpCDD	864	535	Cancer Risk Screen Conc.	Ref. 2, p. 21
	JHB-44-BY-00-06-01	1,2,3,4,6,7,8-HpCDD	638	535	Cancer Risk Screen Conc.	Ref. 2, p. 21
23	JHB-S19	1,2,3,7,8-PeCDD	6.6	5.35	Cancer Risk Screen Conc.	Ref. 2, p. 47
24	JHB-23-FY-00-06-01	2,3,7,8-TCDD	8.51	5.35	Cancer Risk Screen Conc.	Ref. 2, p. 57
26	JHB-27-FY-00-06-01	1,2,3,4,6,7,8-HpCDD	576	535	Cancer Risk Screen Conc.	Ref. 2, p. 21
	JHB-27-BY-00-06-01	1,2,3,4,6,7,8-HpCDD	958	535	Cancer Risk Screen Conc.	Ref. 2, p. 21
30	JHB-09-FY-00-06-01	1,2,3,4,6,7,8-HpCDD	1,100	535	Cancer Risk Screen Conc.	Ref. 2, p. 21
36	JHB-S26	1,2,3,4,6,7,8-HpCDD	1,500	535	Cancer Risk Screen Conc.	Ref. 2, p. 21
		OCDD	19,000	17800	Cancer Risk Screen Conc.	Ref. 2, p. 43
40	JHB-38-FY-00-06-01	1,2,3,4,6,7,8-HpCDD	825	535	Cancer Risk Screen Conc.	Ref. 2, p. 21
41	JHB-67-BY-00-06-01	1,2,3,4,6,7,8-HpCDD	929	535	Cancer Risk Screen Conc.	Ref. 2, p. 21
		2,3,7,8-TCDD	11.5	5.35	Cancer Risk Screen Conc.	Ref. 2, p. 57
	JHB-67-FY-00-06-01	1,2,3,4,6,7,8-HpCDD	1,120	535	Cancer Risk Screen Conc.	Ref. 2, p. 21
43	JHB-42-FY-00-06-01	1,2,3,4,6,7,8-HpCDD	954	535	Cancer Risk Screen Conc.	Ref. 2, p. 21
		2,3,7,8-TCDD	6.94	5.35	Cancer Risk Screen Conc.	Ref. 2, p. 57
	JHB-42-BY-00-06-01	1,2,3,4,6,7,8-HpCDD	1,230	535	Cancer Risk Screen Conc.	Ref. 2, p. 21
44	JHB-41-FY-00-06-01	1,2,3,4,6,7,8-HpCDD	991	535	Cancer Risk Screen Conc.	Ref. 2, p. 21
45	JHB-37-BY-00-06-01	2,3,7,8-TCDD	6.25	5.35	Cancer Risk Screen Conc.	Ref. 2, p. 57
	JHB-37-FY-00-06-01	2,3,7,8-TCDD	8.71	5.35	Cancer Risk Screen Conc.	Ref. 2, p. 57

Table 20 Level I Concentrations						
Residence ID (Ref. 51)	**Sample ID**	**Hazardous Substance**	**Hazardous Substance Conc. (ng/kg)**	**Benchmark Conc. (ng/kg)**	**Benchmark**	**Reference**
46	JHB-43-BY-00-06-01	2,3,7,8-TCDD	5.81	5.35	Cancer Risk Screen Conc.	Ref. 2, p. 57
	JHB-43-FY-00-06-01	1,2,3,4,6,7,8-HpCDD	1,340	535	Cancer Risk Screen Conc.	Ref. 2, p. 21

Notes:

HpCDD: Heptachlorodibenzo-p-dioxin
HxCDF: Hexachlorodibenzofuran
ID: Identification Number
ng/kg: nanograms per kilogram
OCDD: Octachlorodibenzodioxin
PeCDD Pentachlorodibenzo-p-dioxin
PeCDF Pentachlorodibenzofuran
TCDD: Tetrachlorodibenzo-p-dioxin

5.1.1.3.1 Resident Individual

AOC Letter: B

Level of Contamination: Level I
According to the HRS, hazardous constituents that meet the criteria for an observed release (or observed contamination) and meet or exceed media-specific benchmark values meet the criteria for Level I contamination (Ref. 1, Sect. 2.5). Based on results from the 2021 ODEQ Soil Sampling Investigation and the 2023 Weston IA, Level I concentrations shown in Table 20 of this HRS documentation record have been established on residential properties (refer to HRS documentation record Section 5.1.0, Summary of Site Contamination). A value of 50 is assigned to resident individual because there is at least one resident individual subject to Level I concentrations (Ref. 1, Sect. 5.1.1.3.1).

Resident Individual Factor Value: 50

5.1.1.3.2 Resident Population

5.1.1.3.2.1 Level I Concentrations

Level I Resident Population Targets
Observed contamination has been documented at residences in AOC B (see Section 5.1.0). Interviews were conducted at most residences to determine the number of occupants in each household (Ref. 55). For residences where interviews were not conducted, each residence is multiplied by the U.S. Census persons per household for Lane County, Washington, to determine the resident population (Ref. 83).

Table 21 Level I Resident Population Targets

AOC Letter	Residence with Observed Contamination	Total No. of Residents	References
B	3	2	Ref. 51; Ref. 55
B	7	2.35*	Ref. 51; Ref. 55
B	13	5	Ref. 51; Ref. 55
B	14	2.35*	Ref. 51; Ref. 55
B	23	4	Ref. 51; Ref. 55
B	24	2.35*	Ref. 51; Ref. 55
B	26	2.35*	Ref. 51; Ref. 55
B	30	2.35*	Ref. 51; Ref. 55
B	36	2	Ref. 51; Ref. 55
B	40	2.35*	Ref. 51; Ref. 55
B	41	2.35*	Ref. 51; Ref. 55
B	43	2.35*	Ref. 51; Ref. 55
B	44	2.35*	Ref. 51; Ref. 55
B	45	4	Ref. 51; Ref. 55
B	46	2.35*	Ref. 51; Ref. 55

* Interview of occupants was not conducted. Lane County multiplier is applied.

Sum of individuals subject to Level I concentrations: 40.5
Sum of individuals subject to Level I concentrations x 10: 405

Level I Concentrations Factor Value: 405

5.1.1.3.2.2 Level II Concentrations

The Area B AOC was documented based on sampling conducted during the 2023 IA. In accordance with Ref. 1, Section 5.0.1, observed contamination is inferred for residences where samples were not collected, but that are located within the AOC (see Figure 3B of this HRS documentation record). For residences where interviews were not conducted, each residence is multiplied by the U.S. Census persons per household for the County of Lane County, Washington, to determine the resident population (Ref. 83).

Table 22 Level II Resident Population Targets

AOC Letter	Residence with Observed Contamination	Total No. of Residents	References
B	4	2.35*	Ref. 51; Ref. 55
B	5	2.35*	Ref. 51; Ref. 55
B	6	2.35*	Ref. 51; Ref. 55
B	9	2.35*	Ref. 51; Ref. 55
B	10	2.35*	Ref. 51; Ref. 55
B	11	2.35*	Ref. 51; Ref. 55
B	12	2.35*	Ref. 51; Ref. 55
B	15	2.35*	Ref. 51; Ref. 55
B	16	2.35*	Ref. 51; Ref. 55
B	17	2.35*	Ref. 51; Ref. 55
B	21	2.35*	Ref. 51; Ref. 55
B	22	3	Ref. 51; Ref. 55
B	28	1	Ref. 51; Ref. 55
B	29	2.35*	Ref. 51; Ref. 55
B	31	4	Ref. 51; Ref. 55
B	32	1	Ref. 51; Ref. 55
B	33	2.35*	Ref. 51; Ref. 55
B	34	4	Ref. 51; Ref. 55
B	35	3	Ref. 51; Ref. 55
B	37	2.35*	Ref. 51; Ref. 55
B	38	2.35*	Ref. 51; Ref. 55
B	39	2.35*	Ref. 51; Ref. 55
B	42	2.35*	Ref. 51; Ref. 55
B	47	2.35*	Ref. 51; Ref. 55
B	48	2.35*	Ref. 51; Ref. 55

Table 22 Level II Resident Population Targets			
AOC Letter	**Residence with Observed Contamination**	**Total No. of Residents**	**References**
B	49	3	Ref. 51; Ref. 55
B	50	2.35*	Ref. 51; Ref. 55
B	51	2.35*	Ref. 51; Ref. 55

* Interview of occupants was not conducted. Lane County multiplier is applied.

Sum of individuals subject to Level II concentrations: 68.35

Level II Concentrations Factor Value: 68.35

5.1.1.3.3 Workers

Operations ceased at the J. H. Baxter facility in 2022; however, two full-time workers continue to report to the facility to maintain the stormwater and ground water treatment systems and a single retort. A portion of the stormwater treatment system and the retorts are located within AOC A (Ref. 4, p. 66, Figures 2 and 3A of this HRS documentation record).

AOC Letter	Number of Workers	References
A	2	Ref. 4, p. 66

Total workers: 2

Workers Factor Value (Ref. 1, Table 5-4): 5

5.1.1.3.4 Resources

No known commercial agriculture, silviculture, livestock production, or grazing are known to be conducted within AOC A or B.

5.1.1.3.5 Terrestrial Sensitive Environments

There are no known terrestrial-sensitive environments within AOC A or B.

5.1.2 NEARBY POPULATION THREAT

The Nearby Population Threat was not scored, as it does not significantly affect the listing decision.