STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action by: 3M Company; Akzo Nobel Canada Inc.; Basin Disposal Inc.; Blount International, Inc.; BNSF Railway Company; The Boeing Company; Carr Aviation, LLC; Crown Beverage Packaging LLC; Daimler Trucks North America LLC; Leonard Dietrich; E.I. du Pont de Nemours & Co., Inc.; Franklin County; Georgia Pacific LLC; Goodrich Corporation on behalf of Kalama Specialty Chemicals, Inc.; Intalco Aluminum; PACCAR Inc.; Pasco Sanitary Landfill, Inc.; PCC Structurals, Inc.; Pharmacia Corporation; PPG Architectural Finishes, Inc.; PPG Industries, Inc.; Puget Sound Naval Shipyards; Sandvik Special Metals LLC; Simpson Timber Company; Union Oil of California, on behalf of Collier Carbon and Chemical; United States Air Force; United States Department of Agriculture, Forest Service; United States Department of the Interior, Bureau of Reclamation; Weyerhaeuser NR Company; and Zep Inc.	FIRST AMENDMENT TO ENFORCEMENT ORDER No. DE 16899

EXHIBITS

Exhibit E FIRST ADDENDUM TO CLEANUP ACTION PLAN

Exhibit F ADDENDUM TO SCOPE OF WORK AND SCHEDULE

I. INTRODUCTION

Pursuant to VIII.J. of the November 8, 2019 Enforcement Order No. DE 16899 (2019 Order) issued by the State of Washington, Department of Ecology (Ecology), Ecology is requiring the Potentially Liable Persons subject to the 2019 Order (Enforcement Order PLPs) to take additional remedial actions at the Pasco Landfill NPL Site. These additional remedial actions are outlined in the Addendum to the Cleanup Action Plan (Exhibit E) and the Addendum to the Scope

of Work and Schedule (Exhibit F). This First Amendment to the 2019 Order does not attempt to recite all the provisions of that Order. Provisions of the 2019 Order and the exhibits to that Order not specifically changed in this Amendment remain in full force and effect.

V. FINDINGS OF FACT

Ecology makes the following additional findings of fact:

GG. Thermal remediation in Zone A began in accordance with the Ecology-approved Post-Excavation Engineering Design Report (EDR). In September 2024, Ecology received groundwater data showing the nearest downgradient well to Zone A contained concentrations of Site contaminants of concern exceeding Site cleanup levels due to incomplete capture of contaminants that were liberated during thermal treatment. In October 2024, Ecology received groundwater data showing exceedances of Site cleanup levels in groundwater had migrated beyond the downgradient property boundary.

VII. WORK TO BE PERFORMED

Based on the Findings of Fact and Ecology Determinations, it is hereby ordered that the Enforcement Order PLPs take the following additional remedial actions at the Site. These remedial actions must be conducted in accordance with WAC 173-340.

A. The Enforcement Order PLPs will conduct the following additional work at the Site:

1. Off-Property Groundwater Treatment: identification of the nature and extent of contamination in off-Property groundwater; implementation of expanded groundwater sampling to monitor changing plume extent; and in-situ treatment of off-property groundwater exceeding Site cleanup levels as described in the Addendum to the Cleanup Action Plan (Exhibit E).

2. Protection of Indoor Air: mitigation of conditions that cause exceedances of indoor air cleanup levels in industrial, commercial, or residential structures in on-property and off-property areas, as described in the Addendum to the Cleanup Action Plan (Exhibit E).

The above work shall be completed in accordance with the schedule and terms of the Addendum to the Scope of Work and Schedule (Exhibit F), and all other requirements of this Order.

Effective date of this First Amendment: NOVEMBER 20, 2024

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Nicholas M. Acklam
Section Manager
Toxics Cleanup Program
Eastern Regional Office
509-329-3568

Enforcement Order No. DE 16899

Exhibit E – First Addendum to Cleanup Action Plan

Cleanup Action Plan
First Addendum
Pasco Sanitary Landfill NPL Site

Kahlotus Road and Highway 12, Pasco
Facility Site ID 575, Cleanup Site ID 1910

Toxics Cleanup Program

Washington State Department of Ecology
Spokane, Washington

November 2024

Document Information

This document is available on the Department of Ecology's Pasco Landfill cleanup site webpage[1].

Related Information

- Cleanup site ID: 1910
- Facility site ID: 575

Contact Information

Toxics Cleanup Program

Eastern Regional Office
Jeremy Schmidt, Site Manager
4601 N. Monroe St.
Spokane, WA 99205
Phone: 509-724-1164

Website[2]: Washington State Department of Ecology

ADA Accessibility

The Department of Ecology is committed to providing people with disabilities access to information and services by meeting or exceeding the requirements of the Americans with Disabilities Act (ADA), Section 504 and 508 of the Rehabilitation Act, and Washington State Policy #188.

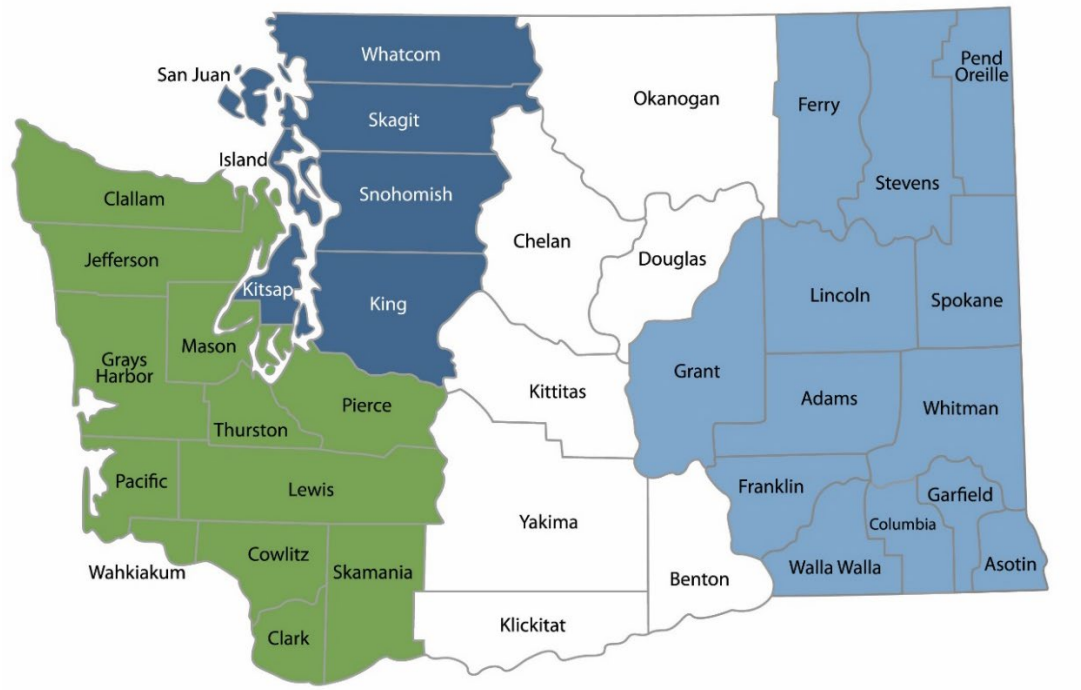
To request an ADA accommodation, contact the Ecology ADA Coordinator by phone at 360-407-6831 or email at ecyadacoordinator@ecy.wa.gov. For Washington Relay Service or TTY call 711 or 877-833-6341. Visit Ecology's website for more information.

---

[1] https://apps.ecology.wa.gov/cleanupsearch/site/1910
[2] www.ecology.wa.gov/contact

Department of Ecology's Regional Offices

Map of Counties Served



Southwest Region 360-407-6300	Northwest Region 206-594-0000	Central Region 509-575-2490	Eastern Region 509-329-3400

Region	Counties served	Mailing Address	Phone
Southwest	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	PO Box 47775 Olympia, WA 98504	360-407-6300
Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	PO Box 330316 Shoreline, WA 98133	206-594-0000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 W Alder St Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 N Monroe Spokane, WA 99205	509-329-3400
Headquarters	Across Washington	PO Box 47600 Olympia, WA 98504	360-407-6000

Table of Contents

1. Introduction

This document is the first addendum to the Washington Department of Ecology's (Ecology) Cleanup Action Plan (CAP) for the Pasco Sanitary Landfill NPL Site (Site). This addendum outlines additional cleanup actions that are required to address changing conditions at the Site that arose while implementing the CAP (Exhibit B under Ecology Enforcement Order No. 16899). Sections of the CAP that address off-property groundwater quality and overall risks to indoor air are superseded by this document.

1.1. Declaration

Ecology has selected this addition to the remedy because it will be protective of human health and the environment. Furthermore, the selected remedy is consistent with the State of Washington's preference for permanent solutions, as stated in RCW 70A.305.040(1)(b). Due to the emergency nature of the change in groundwater quality and potential vapor intrusion risks that require immediate actions to be taken at the Site, Ecology is issuing this First Addendum to the CAP and associated First Amendment to the Enforcement Order concurrent with a public comment period. Ecology will consider all public input received during the public comment period to the extent possible.

1.2. Applicability

Cleanup standards specified in this First Addendum to the CAP are applicable only to the Pasco Sanitary Landfill NPL Site. They were developed as a part of an overall remediation process under Ecology oversight for this Site using the authority of the Model Toxics Control Act (MTCA) and should not be considered as setting precedents for other sites.

1.3. Updates to the administrative record

The documents used to make the decisions discussed in this CAP are on file in the administrative record for the Site. Major documents are listed in the References section of the CAP. The entire administrative record for the Site is available for public review by appointment at Ecology's Eastern Regional Office, located at 4601 N. Monroe Street, Spokane, Washington, 99205-1295. Results from applicable studies and reports are summarized to provide background information related to the First Addendum to the CAP. These studies and reports include:

- *Zone A Post-Excavation Engineering Design Report, Pasco Sanitary Landfill NPL Site,* September 2023
- *Zone A ISTR Monthly Progress Reports, Pasco Sanitary Landfill NPL Site,* May through October 2024
- *Monthly Status Report Nos. 173-175,* August through October 2024

2. Supplemental Data Collection

Supplemental groundwater data collection was completed downgradient of Zone A during the Zone A remedial activities for performance and compliance monitoring of the cleanup action.

2.1. Groundwater

Prior to 2024, concentrations of volatile organic compounds (VOCs) remained consistently below the Site cleanup levels (CULs) in off-property groundwater, though some constituents remained at detectable levels in some residential and monitoring wells (Ecology, 2019).

In July 2024, supplemental groundwater data collected immediately downgradient of Zone A indicated that concentrations of VOCs were newly present in groundwater above Site CULs. By October 2024, groundwater exceeding Site CULs had migrated beyond the Pasco Landfill property boundary. Data collected to monitor the performance of the thermal remediation system, including pressure and temperature measurements from inside the treatment area, indicated that not all thermally liberated contaminants had been captured during heating, and vapors had migrated to groundwater (Floyd|Snider, October 2024).

2.2. Risks to human health and environment

Risks to indoor air from off-property groundwater contamination were not assessed in the 2019 CAP because Site CULs were not exceeded in off-property groundwater and the exposure pathway was determined to be incomplete. With the 2024 release of volatile contaminants to groundwater from the thermal treatment system, Ecology has determined that groundwater to indoor air is a potentially complete exposure pathway that requires evaluation in the CAP.

Ecology has developed screening levels to assess whether groundwater contaminant concentrations could pose a risk to indoor air. If exceedances of the appropriate land-use-specific screening levels are detected, there may be impacts to indoor air quality that could affect human health. The groundwater and soil gas screening levels used at this Site will be appropriate for the land use at each potentially impacted property.

3. Cleanup Standards

MTCA requires the establishment of cleanup standards for individual sites. The two primary components of cleanup standards are CULs and points of compliance.

When the CAP was written, indoor air was not identified as a media of concern, since Site groundwater CULs are protective of vapor intrusion to indoor air, and CULs were not exceeded in off-property groundwater.

This CAP Addendum develops indoor air cleanup standards. Additionally, groundwater screening levels for risk to indoor air have been added to the assessment of groundwater CULs at the Site; however, this assessment does not change the Site CULs for groundwater. The Site groundwater CULs are already protective of indoor air and will be maintained.

3.1. Site cleanup levels

The standard Method B CULs for indoor air will be used per WAC 173-340-750(3)(a). Exposure to hazardous substances via inhalation of indoor air in a residential setting represents the reasonable maximum exposure under current and potential future Site-use scenarios. CULs developed to protect these Site-use scenarios will be protective of all other uses.

Ecology used the 2019 groundwater indicator hazardous substances (IHS) list as the basis for assessing vapor intrusion risk and developing cleanup levels for air. This list was compared to Ecology's list of constituents that can pose a vapor intrusion risk, and non-volatile constituents were removed from analysis. Finally, this list of constituents was compared to the groundwater data collected immediately downgradient of Zone A to ensure all constituents detected in groundwater downgradient of Zone A that have an associated vapor intrusion risk were assessed. The comparison determined that the IHS list covers the primary constituents present in downgradient groundwater that could pose a risk to indoor air. Because the hazard index for three non-cancer end effects (immunotoxicity, hepatotoxicity, and neurotoxicity) exceeded 1, some CULs must be adjusted to meet the hazard index of 1 for each of the end effects. The final CULs are shown in Table 6 and summarized below.

Tables 1 through 6 of this CAP Addendum supersede Tables 1 through 4 of the 2019 CAP and are updated to include groundwater screening levels for protection of indoor air (Table 1), soil gas screening criteria (Table 3), and indoor air CULs (Table 6). Table 6 shows the cancer risks and hazard quotient calculations at the CULs for indoor air. The threshold criteria of 1×10^{-5} cancer risk and hazard indices of 1 at the different end points are met. The final Site CULs for indoor air and groundwater, therefore, are as follows:

Indoor Air	Units	CUL	Basis	PQL
VOCs				
Benzene	ug/m^3	**0.321**	Protection of Indoor Air	0.038
1,1-Dichloroethane	ug/m^3	**1.56**	Protection of Indoor Air	0.024
1,2-Dichloroethane	ug/m^3	**0.0962**	Protection of Indoor Air	0.024
1,1-Dichloroethene	ug/m^3	**70**	Protection of Indoor Air	0.044
cis-1,2-Dichloroethene	ug/m^3	**11.1**	Protection of Indoor Air	0.02
Methylene chloride	ug/m^3	**38**	Protection of Indoor Air	1.3
Tetrachloroethene	ug/m^3	**9.62**	Protection of Indoor Air	0.18
Toluene	ug/m^3	**885**	Protection of Indoor Air	0.095
1,1,1-Trichloroethane	ug/m^3	**200**	Protection of Indoor Air	0.043
Trichloroethene	ug/m^3	**0.334**	Protection of Indoor Air	0.051
Vinyl chloride	ug/m^3	**0.284**	Protection of Indoor Air	0.012

Notes: CUL = cleanup level, PQL = practical quantitation limit, VOCs = volatile organic compounds, ug/m^3 = micrograms per cubic meter

Groundwater	Units	CUL	Basis	PQL
VOCs				
Benzene	ug/L	**1.2**	Protection of SW	0.028
1,1-Dichloroethane	ug/L	**7.68**	Protection of GW	0.02
1,2-Dichloroethane	ug/L	**0.38**	Protection of SW	0.0141
1,1-Dichloroethene	ug/L	**0.057**	Protection of SW	0.02
cis-1,2-Dichloroethene	ug/L	**12**	Protection of GW	2
Methylene chloride	ug/L	**5**	Protection of GW	1
Tetrachloroethene	ug/L	**0.69**	Protection of SW	0.05
Toluene	ug/L	**157**	Protection of GW	1
1,1,1-Trichloroethane	ug/L	**200**	Protection of GW	2
Trichloroethene	ug/L	**2.5**	Protection of SW	0.0534
Vinyl chloride	ug/L	**0.053**	Protection of GW	0.02
Metals				
Total chromium	ug/L	**100**	Protection of GW	0.59

Notes: CUL = cleanup level, GW = groundwater, PQL = practical quantitation limit, SW = surface water, VOCs = volatile organic compounds, ug/L = micrograms per liter

Because soil gas and/or indoor air data have yet to be collected above the off-property groundwater plume, overall site risk cannot be calculated at this time. If indoor air data indicates there are exceedances of the Method B CULs listed above and in Table 5, Ecology will assess overall site risk and may adjust CULs accordingly.

3.2. Point of compliance for indoor air

MTCA defines the point of compliance as the point or points where CULs shall be attained. Once CULs are met at the point of compliance, the Site is no longer considered a threat to human health or the environment. The standard point of compliance for indoor air is within in any structure that is large enough for a person to fit into, throughout the Site.

4. Cleanup Action Selection

4.1. Potential indoor air exposure pathways

Previous assessments of possible subsurface vapor intrusion into buildings that overlie areas of known groundwater contamination no longer apply, since the magnitude of the 2024 release at the Site exceeds concentrations of VOCs previously seen in Site groundwater downgradient of Zone A.

Humans can be exposed to Site contaminants either on- or off-property by volatilization of VOCs from groundwater. Pressure gradients can cause these vapors to migrate upward and enter buildings through cracks, seams, or utility penetrations in subsurface walls or floors, or

through openings in floors that are in direct contact with ground surface (Ecology, 2022). Concentrations of contaminants in off-property groundwater at the Site exceed groundwater screening criteria, indicating a potential risk to indoor air. In the absence of further data, Ecology has determined the groundwater-to-air exposure pathway is potentially complete.

4.2. Additional remedial action objectives

Remedial action objectives describe the actions necessary to protect human health and the environment by eliminating, reducing, or otherwise controlling risks posed through each exposure pathway and migration route. They are developed considering the characteristics of the contaminated media, the characteristics of the hazardous substances present, migration and exposure pathways, and potential receptor points.

Given the potential indoor air exposure pathways, the following are additional remedial action objectives for the Site besides those listed in the 2019 CAP:

- Prevent off-property migration of contaminants in groundwater at concentrations that could pose a risk to indoor air quality.
- Prevent direct inhalation of contaminated air by humans.

4.3. Additional cleanup actions

The alternatives assessed in the 2019 CAP did not address off-property groundwater quality or vapor intrusion risks because off-property groundwater did not contain concentrations of Site IHS above CULs. Given the nature of the 2024 release—short in duration, high in concentration, and requiring immediate response—and the rate of groundwater flow at the Site, any cleanup alternatives that require extensive installation of infrastructure before implementation do not meet the requirement of protecting human health and the environment.

Ecology has determined that expeditious in-situ treatment of groundwater migrating off-property with follow-up assessment and treatment of the wider groundwater plume is the preferred alternative to address groundwater contamination. This cleanup action will be completed to ensure that contamination released to groundwater from the thermal treatment system is treated as quickly as possible to first protect downgradient receptors and to achieve a reasonable restoration timeframe for groundwater cleanup. It is expected that this cleanup action will be completed in phases—the first would address contamination that is imminently migrating off-property, and subsequent treatment would address the wider groundwater plume.

Ecology has also determined that immediate assessment of the groundwater-to-indoor air pathway is a required action. If groundwater contamination is shown to pose a risk to indoor air, immediate mitigation of indoor air quality will be a requirement of the remedy to protect human health.

4.4. Decision

Based on the analysis described above, Ecology has selected in-situ groundwater treatment and vapor intrusion assessment with potential mitigation as additional remedial actions for the Site. These additional remedial actions will ensure timely action is taken to address the spread of contaminants in groundwater, assess and address the vapor intrusion pathway, and protect indoor air quality.

5. References

Floyd|Snider, *Zone A Post-Excavation Engineering Design Report, Pasco Sanitary Landfill NPL Site,* September 2023.

Floyd|Snider, *Zone A ISTR Monthly Progress Report, Pasco Sanitary Landfill NPL Site*, May 2024.

Floyd|Snider, *Zone A ISTR Monthly Progress Report, Pasco Sanitary Landfill NPL Site*, June 2024.

Floyd|Snider, *Zone A ISTR Monthly Progress Report, Pasco Sanitary Landfill NPL Site*, July 2024.

Floyd|Snider, *Zone A ISTR Monthly Progress Report, Pasco Sanitary Landfill NPL Site*, August 2024.

Floyd|Snider, *Zone A ISTR Monthly Progress Report, Pasco Sanitary Landfill NPL Site*, September 2024.

Floyd|Snider, *Zone A ISTR Monthly Progress Report, Pasco Sanitary Landfill NPL Site*, October 2024.

PBS Engineering and Environmental, *Monthly Status Report No. 173*, August 2024.

PBS Engineering and Environmental, *Monthly Status Report No. 174*, September 2024.

PBS Engineering and Environmental, *Monthly Status Report No. 175*, October 2024.

Washington Department of Ecology, *Enforcement Order No. DE 1689*, November 20, 2019.

Washington Department of Ecology, *Guidance for Evaluating Vapor Intrusion in Washington State*, March 2022.

Appendix A. Tables

TABLE 1. GROUND WATER CRITERIA UNDER WAC 173-340-720(4)(b)(i), (iii), AND WAC 173-340-720(1)(c)

CONTAMINANT	WAC 173-340-720(4)(b)(i)							WAC 173-340-720(1)(c)			WAC 173-340-720(4)(b)(iii)		GROUNDWATER SCREENING LEVEL, ug/L	
	POTABLE GROUNDWATER ARARS			MTCA Cancer Risk @ at MCL	MTCA HQ @ MCL	Protective?	MCL adjusted to cancer risk of $1X10^{-5}$ or hazard quotient of 1, ug/L	GROUNDWATER SCREENING LEVELS FOR INDOOR AIR, ug/L			MTCA METHOD B FORMULA, ug/L			
	Federal MCL, ug/L	State MCL, ug/L	Federal MCL Goal, ug/L					Carcinogen	Noncarcinogen	Short Term Risk	Carcinogen	Noncarcinogen	Concentration	Basis
Volatile Organic Compounds (VOCs)														
Acetone	NR	NR	NR					NR	NR	NR	NR	7200	**7200**	Method B, Noncarcinogen
Acrolein	NR	NR	NR					NR	2.90E+00	NR	NR	4	**4**	Method B, Noncarcinogen
Acrylonitrile	NR	NR	NR					1.20E+01	2.90E+02	NR	0.081	320	**0.081**	Method B, Carcinogen
Benzene	5	5	0	6.29E-06	0.156	YES		2.40E+00	1.00E+02	NR	0.795	32	**5**	MCL
Bromodichloromethane	80	0.3	0	4.25E-07	0.002	YES		1.40E+00	NR	NR	0.706	160	**0.3**	State MCL
Bromoform (Tribromomethane)	80	80	0	1.44E-05	0.500	NO	55.4	2.20E+02	NR	NR	5.54	160	**55.4**	MCL adjusted to 1x10-5 cancer risk
Bromomethane (Methyl Bromide)	NR	NR	NR					NR	1.10E+01	NR	NR	11.2	**11.2**	Method B, Noncarcinogen
2-butanone	NR	NR	NR					NR	1.70E+06	NR	NR	4800	**4800**	Method B, Noncarcinogen
Carbon disulfide	NR	NR	NR					NR	8.40E+02	NR	NR	800	**800**	Method B, Noncarcinogen
Carbon tetrachloride	5	5	0	8.00E-06	0.156	YES		6.20E-01	6.80E+01	NR	0.625	32	**5**	MCL
Chlorobenzene	100	100	100		0.625	YES		NR	3.40E+02	NR	NR	160	**100**	MCL/MCLG
Chloroform	80	80	70	5.67E-05	1.000	NO	14.1	1.20E+00	4.90E+02	NR	1.41	80	**14.1**	MCL adjusted to 1x10-5 cancer risk
2-Chlorotoluene	NR	NR	NR					NR	NR	NR	NR	160	**160**	Method B, Noncarcinogen
1,2-Dibromo-3-chloropropane	0.2	0.2	0	3.66E-06	0.125	NO	0.547	4.20E-02	3.50E+01	NR	0.0547	1.6	**0.547**	MCL adjusted to 1x10-5 cancer risk
Dibromochloromethane	80	80	60	1.54E-04	0.500	NO	5.21	1.40E+00	NR	NR	0.521	160	**5.21**	MCL adjusted to 1x10-5 cancer risk
1,2-Dibromoethane	0.05	0.05	0	2.28E-06	0.001	YES		3.00E-01	2.90E+02	NR	0.0219	72	**0.05**	MCL
Dibromomethane	NR	NR	NR					NR	9.70E+01	NR	NR	80	**80**	Method B, Noncarcinogen
Dichlorodifluoromethane	NR	NR	NR					NR	4.20E+00	NR	NR	1600	**1600**	Method B, Noncarcinogen
1,1-Dichloroethane	NR	NR	NR					1.10E+01	NR	NR	7.68	1600	**7.68**	Method B, Carcinogen
1,2-Dichloroethane	5	5	0	1.04E-05	0.104	NO	4.81	3.50E+00	1.20E+02	NR	0.481	48	**4.81**	MCL adjusted to 1 x10-5 cancer risk
1,1-Dichloroethene	7	7	7		0.018	YES		NR	1.30E+02	NR	NR	400	**7**	MCL
1,2-Dichloroethene	NR	NR	NR					NR	NR	NR	NR	72	**72**	Method B, Noncarcinogen
cis-1,2-Dichloroethene	70	70	70		4.375	NO	16	NR	1.80E+02	NR	NR	16	**16**	MCL adjusted to hazard quotient of 1

TABLE 1. GROUND WATER CRITERIA UNDER WAC 173-340-720(4)(b)(i), (iii), AND WAC 173-340-720(1)(c)

CONTAMINANT	WAC 173-340-720(4)(b)(i)							WAC 173-340-720(1)(c)			WAC 173-340-720(4)(b)(iii)		GROUNDWATER SCREENING LEVEL, ug/L	
	POTABLE GROUNDWATER ARARS			MTCA Cancer Risk @ at MCL	MTCA HQ @ MCL	Protective?	MCL adjusted to cancer risk of $1X10^{-5}$ or hazard quotient of 1, ug/L	GROUNDWATER SCREENING LEVELS FOR INDOOR AIR, ug/L			MTCA METHOD B FORMULA, ug/L			
	Federal MCL, ug/L	State MCL, ug/L	Federal MCL Goal, ug/L					Carcinogen	Noncarcinogen	Short Term Risk	Carcinogen	Noncarcinogen	Concentration	Basis
trans-1,2-Dichloroethene	100	100	100		0.625	YES		NR	7.70E+01	NR	NR	160	**100**	MCL/MCLG
1,2-Dichloropropane	5	5	0	4.10E-06		YES		1.00E+01	2.80E+01	NR	1.22	720	**5**	MCL
cis-1,3-Dichloropropene	NR	NR	NR					8.00E+00	1.20E+02	NR	0.438	240	**0.438**	Method B, Carcinogen
trans-1,3-Dichloropropene	NR	NR	NR					8.00E+00	1.20E+02	NR	0.438	240	**0.438**	Method B, Carcinogen
1,4-Dioxane	NR	NR	NR					4.70E+03	1.30E+05	NR	0.438	240	**0.438**	Method B, Carcinogen
Ethylbenzene	700	700	700		0.875	YES		2.79E+03	1.30E+05	NR	NR	800	**700**	MCL
Hexachlorobutadiene	NR	NR	NR					6.40E-01	NR	NR	0.561	8	**0.561**	Method B, Carcinogen
Isopropylbenzene	NR	NR	NR					NR	9.10E+02	NR	NR	800	**800**	Method B, Noncarcinogen
Methyl ethyl ketone	NR	NR	NR					NR	1.70E+06	NR	NR	4800	**4800**	Method B, Noncarcinogen
Methyl isobutyl ketone	NR	NR	NR					NR	4.70E+05	NR	NR	640	**640**	Method B, Noncarcinogen
Methylene chloride	5	5	0	2.28E-07	0.104	YES		7.80E+02	3.30E+03	NR	21.9	48	**5**	MCL
n-Propylbenzene	NR	NR	NR					NR	2.30E+03	NR	NR	800	**800**	Method B, Noncarcinogen
Styrene	100	100	100		0.063	YES		NR	8.50E+03	NR	NR	1600	**100**	MCL
1,1,1,2-Tetrachloroethane	NR	NR	NR					7.10E+00	NR	NR	1.68	240	**1.68**	Method B, Carcinogen
1,1,2,2-Tetrachloroethane	NR	NR	NR					5.90E+00	NR	NR	0.219	160	**0.219**	Method B, Carcinogen
Tetrachloroethene	5	5	0	2.40E-07	0.104	YES		2.50E+01	4.80E+01	NR	20.8	48	**5**	MCL
Toluene	1000	1000	1000		1.563	NO	640	NR	1.50E+04	NR	NR	640	**640**	MCL/MCLG adjusted to hazard quotient of 1
1,1,1-Trichloroethane	200	200	200		0.125	YES		NR	5.40E+03	NR	NR	1600	**200**	MCL/MCLG
1,1,2-Trichloroethane	5	5	3	6.51E-06	0.156	YES		8.80E+00	5.10E+00	NR	0.768	32	**5**	MCL
Trichloroethene	5	5	0	9.26E-06	1.250	NO	4	1.40E+00	3.90E+00	8.00E+00	0.54	4	**4**	MCL adjusted to hazard quotient of 1
1,2,3-Trichloropropane	NR	NR	NR					NR	2.00E+01	NR	0.00146	32	**0.00146**	Method B, Carcinogen
1,1,2-Trichlorotrifluoroethane	NR	NR	NR					NR	1.70E+02	NR	NR	24000	**24000**	Method B, Noncarcinogen
Trichlorofluoromethane	NR	NR	NR					NR	1.20E+02	NR	NR	2400	**2400**	Method B, Noncarcinogen
1,3,5-Trimethylbenzene	NR	NR	NR					NR	1.70E+02	NR	NR	80	**80**	Method B, Noncarcinogen

TABLE 1. GROUND WATER CRITERIA UNDER WAC 173-340-720(4)(b)(i), (iii), AND WAC 173-340-720(1)(c)

CONTAMINANT	WAC 173-340-720(4)(b)(i)							WAC 173-340-720(1)(c)			WAC 173-340-720(4)(b)(iii)		GROUNDWATER SCREENING LEVEL, ug/L	
	POTABLE GROUNDWATER ARARS			MTCA Cancer Risk @ at MCL	MTCA HQ @ MCL	Protective?	MCL adjusted to cancer risk of $1X10^{-5}$ or hazard quotient of 1, ug/L	GROUNDWATER SCREENING LEVELS FOR INDOOR AIR, ug/L			MTCA METHOD B FORMULA, ug/L			
	Federal MCL, ug/L	State MCL, ug/L	Federal MCL Goal, ug/L					Carcinogen	Noncarcinogen	Short Term Risk	Carcinogen	Noncarcinogen	Concentration	Basis
Vinyl acetate	NR	NR	NR					NR	8.10E+03	NR	NR	8000	**800**	Method B, Noncarcinogen
Vinyl chloride	2	2	0	6.90E-05	0.083	NO	0.29	3.30E-01	5.40E+01	NR	0.029	24	**0.29**	MCL adjusted to 1x10-5 cancer risk
Total Xylenes	10000	10000	10000					NR	3.20E+02	NR	NR	1600	**1600**	Method B, Noncarcinogen
m,p-Xylene	NR	NR	NR					NR	NR	NR	NR	1600	**1600**	Method B, Noncarcinogen
o-Xylene	NR	NR	NR					NR	NR	NR	NR	1600	**1600**	Method B, Noncarcinogen
Semi-Volatile Organic Compounds (SVOCs)														
Aniline	NR	NR	NR					NR	NR	NR	7.68	56	**7.68**	Method B, Carcinogen
Azobenzene	NR	NR	NR					NR	NR	NR	0.795	NR	**0.795**	Method B, Carcinogen
Benzoic acid	NR	NR	NR					NR	NR	NR	NR	64000	**64000**	Method B, Noncarcinogen
Benzyl alcohol	NR	NR	NR					NR	NR	NR	NR	800	**800**	Method B, Noncarcinogen
bis(2-Chloroethyl)ether	NR	NR	NR					NR	NR	NR	0.0398	NR	**0.0398**	Method B, Carcinogen
Bis(2-Ethylhexyl)phthalate	6	6	0	9.60E-07	0.019	YES		NR	NR	NR	6.25	320	**6**	MCL
Butyl benzyl phthalate	NR	NR	NR					NR	NR	NR	4.61	3200	**4.61**	Method B, Carcinogen
4-Chloroaniline	NR	NR	NR					NR	NR	NR	0.219	32	**0.219**	Method B, Carcinogen
2-Chloronaphthalene	NR	NR	NR					NR	NR	NR	NR	640	**640**	Method B, Noncarcinogen
2-Chlorophenol	NR	NR	NR					NR	NR	NR	NR	40	**40**	Method B, Noncarcinogen
Dibenzofuran	NR	NR	NR					NR	NR	NR	NR	16	**16**	Method B, Noncarcinogen
3-3'-Dichlorobenzidine	NR	NR	NR					NR	NR	NR	0.194	NR	**0.194**	Method B, Carcinogen
2,4-Dichlorophenol	NR	NR	NR					NR	NR	NR	NR	24	**24**	Method B, Noncarcinogen
Diethyl phthalate	NR	NR	NR					NR	NR	NR	NR	12800	**12800**	Method B, Noncarcinogen
2,4-Dimethylphenol	NR	NR	NR					NR	NR	NR	NR	160	**160**	Method B, Noncarcinogen
2,4-Dinitrophenol	NR	NR	NR					NR	NR	NR	NR	32	**32**	Method B, Noncarcinogen
Di-n-butylphthalate	NR	NR	NR					NR	NR	NR	NR	1600	**1600**	Method B, Noncarcinogen
2,4-Dinitrotoluene	NR	NR	NR					NR	NR	NR	0.282	32	**0.282**	Method B, Carcinogen

TABLE 1. GROUND WATER CRITERIA UNDER WAC 173-340-720(4)(b)(i), (iii), AND WAC 173-340-720(1)(c)

CONTAMINANT	WAC 173-340-720(4)(b)(i)							WAC 173-340-720(1)(c)			WAC 173-340-720(4)(b)(iii)		GROUNDWATER SCREENING LEVEL, ug/L	
	POTABLE GROUNDWATER ARARS			MTCA Cancer Risk @ at MCL	MTCA HQ @ MCL	Protective?	MCL adjusted to cancer risk of $1X10^{-5}$ or hazard quotient of 1, ug/L	GROUNDWATER SCREENING LEVELS FOR INDOOR AIR, ug/L			MTCA METHOD B FORMULA, ug/L			
	Federal MCL, ug/L	State MCL, ug/L	Federal MCL Goal, ug/L					Carcinogen	Noncarcinogen	Short Term Risk	Carcinogen	Noncarcinogen	Concentration	Basis
2,6-Dinitrotoluene	NR	NR	NR					NR	NR	NR	0.0583	4.8	**0.0583**	Method B, Carcinogen
Hexachlorobenzene	1	1	0	1.83E-05	0.078	YES	0.547	2.40E-01	NR	NR	0.0547	12.8	**0.547**	MCL adjusted to 1x10-5 cancer risk
Hexachlorocyclopentadiene	50	50	50		1.042	NO	48	NR	4.20E+00	NR	NR	48	**48**	MCL/MCLG adjusted to hazard quotient of 1
Hexachloroethane	NR	NR	NR					1.40E+00	8.60E+01	NR	1.09	5.6	**1.09**	Method B, Carcinogen
Isophorone	NR	NR	NR					NR	NR	NR	46.1	1600	**46.1**	Method B, Carcinogen
2-Methylphenol (O-Cresol)	NR	NR	NR					NR	NR	NR	NR	400	**400**	Method B, Noncarcinogen
2-Nitroaniline	NR	NR	NR					NR	NR	NR	NR	160	**160**	Method B, Noncarcinogen
Nitrobenzene	NR	NR	NR					NR	NR	NR	NR	16	**16**	Method B, Noncarcinogen
N-Nitrosodimethylamine	NR	NR	NR					NR	NR	NR	0.000858	0.064	**0.000858**	Method B, Carcinogen
Pentachlorophenol	1	1	0	4.57E-06	0.013	NO		NR	NR	NR	0.219	80	**1**	MCL
Phenol	NR	NR	NR					NR	NR	NR	NR	2400	**2400**	Method B, Noncarcinogen
Pyridine	NR	NR	NR					NR	NR	NR	NR	8	**8**	Method B, Noncarcinogen
2,3,4,6-Tetrachlorophenol	NR	NR	NR					NR	NR	NR	NR	480	**480**	Method B, Noncarcinogen
1,2,4-Trichlorobenzene	70	70	70	4.64E-05	0.875	NO	15.1	NR	3.90E+01	NR	1.51	80	**15.1**	MCL adjusted to 1x10-5 cancer risk
2,4,5-Trichlorophenol	NR	NR	NR					NR	NR	NR	NR	800	**800**	Method B, Noncarcinogen
2,4,6-Trichlorophenol	NR	NR	NR					NR	NR	NR	3.98	8	**3.98**	Method B, Carcinogen
Pesticides/Herbicides														
2,4,5-TP	50	50	50		0.391	YES		NR	NR	NR	NR	128	**50**	MCL/MCLG
2,2-Dichloropropionic Acid (Dalap	200	200	200		0.833	YES		NR	NR	NR	NR	240	**200**	MCL/MCLG
2,4,-D	70	70	70		0.438	YES		NR	NR	NR	NR	160	**70**	MCL/MCLG
2,4-DB	NR	NR	NR					NR	NR	NR	NR	128	**128**	Method B, Noncarcinogen
Dicamba	NR	NR	NR					NR	NR	NR	NR	480	**480**	Method B, Noncarcinogen
MCPA	NR	NR	NR					NR	NR	NR	NR	8	**8**	Method B, Noncarcinogen
Mecoprop (MCPP)	NR	NR	NR					NR	NR	NR	NR	16	**16**	Method B, Noncarcinogen

TABLE 1. GROUND WATER CRITERIA UNDER WAC 173-340-720(4)(b)(i), (iii), AND WAC 173-340-720(1)(c)

CONTAMINANT	WAC 173-340-720(4)(b)(i)							WAC 173-340-720(1)(c)			WAC 173-340-720(4)(b)(iii)		GROUNDWATER SCREENING LEVEL, ug/L	
	POTABLE GROUNDWATER ARARS			MTCA Cancer Risk @ at MCL	MTCA HQ @ MCL	Protective?	MCL adjusted to cancer risk of $1X10^{-5}$ or hazard quotient of 1, ug/L	GROUNDWATER SCREENING LEVELS FOR INDOOR AIR, ug/L			MTCA METHOD B FORMULA, ug/L			
	Federal MCL, ug/L	State MCL, ug/L	Federal MCL Goal, ug/L					Carcinogen	Noncarcinogen	Short Term Risk	Carcinogen	Noncarcinogen	Concentration	Basis
Polycyclic Aromatic Hydrocarbons (PAHs)														
1-Methylnaphthalene	NR	NR	NR					NR	1.70E-01	NR	1.51	560	**1.51**	Method B, Carcinogen
2-Methylnaphthalene	NR	NR	NR					NR	NR	NR	NR	32	**32**	Method B, Noncarcinogen
Acenaphthene	NR	NR	NR					NR	NR	NR	NR	960	**960**	Method B, Noncarcinogen
Anthracene	NR	NR	NR					NR	NR	NR	NR	4800	**4800**	Method B, Noncarcinogen
Benzo(a)anthracene	NR	NR	NR					NR	NR	NR	0.12	NR	**0.12**	Method B, Carcinogen
Benzo(a)pyrene	0.2	0.2	0	1.67E-05		NO	0.12	NR	NR	NR	0.012	NR	**0.12**	MCL adjusted to 1x10-5 cancer risk
Benzo(b)fluoranthene	NR	NR	NR					NR	NR	NR	0.12	NR	**0.12**	Method B, Carcinogen
Benzo(k)fluoranthene	NR	NR	NR					NR	NR	NR	1.2	NR	**1.2**	Method B, Carcinogen
Chrysene	NR	NR	NR					NR	NR	NR	12	NR	**12**	Method B, Carcinogen
Dibenzo(a,h)anthracene	NR	NR	NR					NR	NR	NR	0.012	NR	**0.012**	Method B, Carcinogen
Fluoranthene	NR	NR	NR					NR	NR	NR	NR	640	**640**	Method B, Noncarcinogen
Fluorene	NR	NR	NR					NR	NR	NR	NR	640	**640**	Method B, Noncarcinogen
Indeno(1,2,3-c,d)pyrene	NR	NR	NR					NR	NR	NR	0.12	NR	**0.12**	Method B, Carcinogen
Naphthalene	NR	NR	NR					8.90E+00	1.60E+02	NR	NR	160	**160**	Method B, Noncarcinogen
Pyrene	NR	NR	NR					NR	NR	NR	NR	480	**480**	Method B, Noncarcinogen
Metals														
Antimony	6	6	6		0.938	YES		NR	NR	NR	NR	6.4	**6**	MCL/MCLG
Arsenic	10	10	0	1.72E-04	2.083	NO	0.583	NR	NR	NR	0.0583	4.8	**0.583**	MCL adjusted to 1x10-5 cancer risk
Barium	2000	2000	2000		0.625	YES		NR	NR	NR	NR	3200	**200**	MCL/MCLG
Beryllium	4	4	4		0.125	YES		NR	NR	NR	NR	32	**4**	MCL/MCLG
Cadmium	5	5	5		0.625	YES		NR	NR	NR	NR	8	**8**	MCL/MCLG
Total Chromium	100	100	100					NR	NR	NR	NR	NR	**100**	MCL/MCLG
Chromium VI	NR	100	100		2.083	NO	48	NR	NR	NR	NR	48	**48**	MCL/MCLG adjusted to hazard quotient of 1

TABLE 1. GROUND WATER CRITERIA UNDER WAC 173-340-720(4)(b)(i), (iii), AND WAC 173-340-720(1)(c)

CONTAMINANT	WAC 173-340-720(4)(b)(i)							WAC 173-340-720(1)(c)			WAC 173-340-720(4)(b)(iii)		GROUNDWATER SCREENING LEVEL, ug/L	
	POTABLE GROUNDWATER ARARS			MTCA Cancer Risk @ at MCL	MTCA HQ @ MCL	Protective?	MCL adjusted to cancer risk of $1X10^{-5}$ or hazard quotient of 1, ug/L	GROUNDWATER SCREENING LEVELS FOR INDOOR AIR, ug/L			MTCA METHOD B FORMULA, ug/L			
	Federal MCL, ug/L	State MCL, ug/L	Federal MCL Goal, ug/L					Carcinogen	Noncarcinogen	Short Term Risk	Carcinogen	Noncarcinogen	Concentration	Basis
Copper	1300	1300	1300		2.031	NO	640	NR	NR	NR	NR	640	**640**	MCL/MCLG adjusted to hazard quotient of 1
Iron	NR	NR	NR					NR	NR	NR	NR	11200	**11200**	Method B, Noncarcinogen
Lead	15	15	0					NR	NR	NR	NR	NR	**15**	MCL
Manganese	NR	NR	NR					NR	NR	NR	NR	2240	**2240**	Method B, Noncarcinogen
Nickel	ND	100	NR		0.31250	YES		NR	NR	NR	NR	320	**100**	State MCL
Selenium	50	50	50		0.62500	YES		NR	NR	NR	NR	80	**50**	MCL
Silver	NR	NR	NR					NR	NR	NR	NR	80	**80**	Method B, Noncarcinogen
Thallium	2	2	0.5		12.50000	NO	0.16	NR	NR	NR	NR	0.16	**0.16**	MCL/MCLG adjusted to hazard quotient of 1
Vanadium	NR	NR	NR					NR	NR	NR	NR	80	**80**	Method B, Noncarcinogen
Zinc	NR	NR	NR					NR	NR	NR	NR	4800	**4800**	Method B, Noncarcinogen

Not protective - Exceeds 1x10-5 cancer risk and/or Hazard Quotient of 1
Method B Formula values not applicable because existing ARAR is protective or was adjusted to be protective
State MCL was lowest applicable ARAR
ARARs = Applicable, relevant, and appropriate requirements
HQ = Hazard Quotient
MTCA = Model Toxics Control Act
MCL = Maximum Contaminant Level
MCLG = Maximum Contaminant Level Goal
NR = Value not reported in CLARC at time of finalization
ug/L = micrograms per liter

TABLE 2. SURFACE WATER CRITERIA UNDER WAC 173-340-720(4)(b)(ii) AND 173-340-730(2)(b)

CONTAMINANT	SURFACE WATER ARARS								Lowest Surface Water ARAR	Cancer Risk @ Lowest ARAR	HQ @ Lowest ARAR	Is ARAR protective?	ARAR Adjusted to cancer risk of 1 x 10^{-5} or hazard quotient of 1	MTCA METHOD B FORMULA, ug/L		Surface Water Protection Criteria, ug/L	
	AQUATIC LIFE						HUMAN HEALTH										
	Ch. 173-201A, ug/L		CWA Section 304, ug/L		NTR (40 CFR 131), ug/L		CWA Section 304, ug/L	NTR (40 CFR131) , ug/L									
	Acute	Chronic	Acute	Chronic	Acute	Chronic								Carcinogen	Noncarcinogen		Basis
Volatile Organic Compounds (VOCs)																	
Benzene	NR	NR	NR	NR	NR	NR	2.2	1.2	1.2	6.03E-10	0.053	YES		1990	22.7	1.2	Human Health - NTR
1,2-Dichloroethane	NR	NR	NR	NR	NR	NR	0.38	0.38	0.38	6.397E-09	3E-05	YES		59.4	13000	0.38	Human Health - CWA, NTR
1,1-Dichloroethene	NR	NR	NR	NR	NR	NR	330	0.057	0.057	NA	2E-06	YES		NR	23100	0.057	Human Health - NTR
Tetrachloroethene	NR	NR	NR	NR	NR	NR	0.69	0.8	0.69	6.928E-09	0.001	YES		99.6	502	0.69	Human Health - CWA
Trichloroethene	NR	NR	NR	NR	NR	NR	2.5	2.7	2.5	1.953E-07	0.212	YES		12.8	11.8	2.5	Human Health - CWA

Method B Formula values not applicable because existing ARAR is protective of was adjusted to be protective
*Note: Only contaminants that had reached the groundwater monitoring wells closest to the Columbia River require Surface Water Protection Criteria
ARARs = Applicable, relevant, and appropriate requirements
CWA = Clean Water Act
HQ = Hazard Quotient
MTCA = Model Toxics Control Act
MCL = Maximum Contaminant Level
MCLG = Maximum Contaminant Level Goal
NR = Value not reported in CLARC at time of finalization
NTR = National Toxics Rule
ug/L = micrograms per liter

TABLE 3. SOIL GAS SCREENING LEVELS UNDER WAC 173-340-720(1)(c)

CONTAMINANT	WAC 173-340-720(1)(c)			
	SOIL GAS SCREENING LEVELS FOR PROTECTION OF INDOOR AIR, ug/m^3		SELECTED SOIL GAS SCREENING LEVEL FOR RESIDENTIAL PROPERTIES, ug/m3	
	Noncarcinogen	Carcinogen	Concentration	Basis
Volatile Organic Compounds (VOCs)				
Acrolein	3.00E-01		0.30	Method B, Noncarcinogen
Acrylonitrile	3.00E+01	1.20E+00	30	Method B, Carcinogen
Benzene	4.60E+02	1.10E+01	11	Method B, Carcinogen
Bromodichloromethane		2.30E+00	2.3	Method B, Carcinogen
Bromoform (Tribromomethane)		7.60E+01	76	Method B, Carcinogen
Bromomethane (Methyl Bromide)	6.10E+01		61	Method B, Noncarcinogen
2-butanone	7.60E+04		76000	Method B, Noncarcinogen
Carbon disulfide	1.10E+04		11000	Method B, Noncarcinogen
Carbon tetrachloride	1.50E+03	1.40E+01	14	Method B, Carcinogen
Chlorobenzene	7.60E+02		760	Method B, Noncarcinogen
Chloroform	1.50E+03	3.60E+00	3.6	Method B, Carcinogen
1,2-Dibromo-3-chloropropane	3.00E+00	3.70E-03	0.0037	Method B, Carcinogen
1,2-Dibromoethane	1.40E+02	1.40E-01	0.14	Method B, Carcinogen
Dibromomethane	6.10E+01		61	Method B, Noncarcinogen
Dichlorodifluoromethane	1.50E+03		1500	Method B, Noncarcinogen

TABLE 3. SOIL GAS SCREENING LEVELS UNDER WAC 173-340-720(1)(c)

CONTAMINANT	WAC 173-340-720(1)(c)			
	SOIL GAS SCREENING LEVELS FOR PROTECTION OF INDOOR AIR, ug/m^3		SELECTED SOIL GAS SCREENING LEVEL FOR RESIDENTIAL PROPERTIES, ug/m3	
	Noncarcinogen	Carcinogen	Concentration	Basis
1,1-Dichloroethane		5.20E+01	52	Method B, Carcinogen
1,2-Dichloroethane	1.10E+02	3.20E+00	3.2	Method B, Carcinogen
1,1-Dichloroethene	3.00E+03		3000	Method B, Noncarcinogen
cis-1,2-Dichloroethene	6.10E+02		610	Method B, Noncarcinogen
trans-1,2-Dichloroethene	6.10E+02		610	Method B, Noncarcinogen
1,2-Dichloropropane	6.10E+01	2.30E+01	23	Method B, Carcinogen
cis-1,3-Dichloropropene	3.00E+02	2.10E+01	21	Method B, Carcinogen
trans-1,3-Dichloropropene	3.00E+02	2.10E+01	21	Method B, Carcinogen
1,4-Dioxane	4.60E+02	1.70E+01	17	Method B, Carcinogen
Ethylbenzene	1.50E+04		15000	Method B, Noncarcinogen
Hexachlorobutadiene		3.80E+00	3.8	Method B, Carcinogen
Isopropylbenzene	6.10E+03		6100	Method B, Noncarcinogen
Methyl ethyl ketone	7.60E+04		76000	Method B, Noncarcinogen
Methyl isobutyl ketone	4.60E+04		46000	Method B, Noncarcinogen
Methylene chloride	9.10E+03	2.20E+03	2200	Method B, Carcinogen
n-Propylbenzene	1.50E+04		15000	Method B, Noncarcinogen

TABLE 3. SOIL GAS SCREENING LEVELS UNDER WAC 173-340-720(1)(c)

CONTAMINANT	WAC 173-340-720(1)(c)			
	SOIL GAS SCREENING LEVELS FOR PROTECTION OF INDOOR AIR, ug/m^3		SELECTED SOIL GAS SCREENING LEVEL FOR RESIDENTIAL PROPERTIES, ug/m3	
	Noncarcinogen	Carcinogen	Concentration	Basis
Styrene	1.50E+04		15000	Method B, Noncarcinogen
1,1,1,2-Tetrachloroethane		1.10E+01	11	Method B, Carcinogen
1,1,2,2-Tetrachloroethane		1.40E+00	1.4	Method B, Carcinogen
Tetrachloroethene	6.10E+02	3.20E+02	320	Method B, Carcinogen
Toluene	7.60E+04		76000	Method B, Noncarcinogen
1,1,1-Trichloroethane	7.60E+04		76000	Method B, Noncarcinogen
1,1,2-Trichloroethane	3.00E+00	5.20E+00	3.0	Method B, Noncarcinogen
Trichloroethene	3.00E+01	1.10E+01	11	Method B, Carcinogen
1,2,3-Trichloropropane	4.60E+00		4.6	Method B, Noncarcinogen
1,1,2-Trichlorotrifluoroethane	7.60E+04		76000	Method B, Noncarcinogen
Trichlorofluoromethane	1.10E+04		11000	Method B, Noncarcinogen
1,3,5-Trimethylbenzene	9.10E+02		910	Method B, Noncarcinogen
Vinyl acetate	3.00E+03		3000	Method B, Noncarcinogen
Vinyl chloride	1.50E+03	9.50E+00	9.5	Method B, Carcinogen
Total Xylenes	1.50E+03		1500	Method B, Noncarcinogen

TABLE 3. SOIL GAS SCREENING LEVELS UNDER WAC 173-340-720(1)(c)

CONTAMINANT	WAC 173-340-720(1)(c)			
	SOIL GAS SCREENING LEVELS FOR PROTECTION OF INDOOR AIR, ug/m^3		SELECTED SOIL GAS SCREENING LEVEL FOR RESIDENTIAL PROPERTIES, ug/m3	
	Noncarcinogen	Carcinogen	Concentration	Basis
Semi-Volatile Organic Compounds (SVOCs)				
Hexachlorobenzene		1.80E-01	0.18	Method B, Carcinogen
Hexachlorocyclopentadiene	3.00E+00		3.0	Method B, Noncarcinogen
Hexachloroethane	4.60E+02	7.60E+00	7.6	Method B, Carcinogen
1,2,4-Trichlorobenzene	3.00E+01		30	Method B, Noncarcinogen
Polycyclic Aromatic Hydrocarbons (PAHs)				
1-Methylnaphthalene	4.60E-02		0.05	Method B, Noncarcinogen
Naphthalene	4.60E+01	2.50E+00	2.50	Method B, Carcinogen

ARARs = Applicable, relevant, and appropriate requirements
MTCA = Model Toxics Control Act
NR = Value not reported in CLARC at time of finalization
ug/m^3 = micrograms per cubic meter

TABLE 4. SCREENING FOR GROUND WATER INDICATORS

CONTAMINANT	Screening Criteria, ug/L			IHS Analysis					INDICATOR?	
	Protection of Ground Water	Protection of Surface Water	Back-ground	No. of Samples	No of Detections	Frequency of Detection (%)	Maximum Concentration Detected, ug/L	No. of samples Exceeding Criteria		Data Source
Volatile Organic Compounds (VOCs)										
Acetone	7200			4901	118	2.4%	20000	1	No	All data collected up to FFS
Acrolein	4			918	0	0.0%		0	No	All data collected up to FFS
Acrylonitrile	0.081			919	7	0.8%	0.85	3	No	All data collected up to FFS
Benzene	5			5386	292	5.4%	51	86	**Yes**	All data collected up to FFS
Bromodichloromethane	0.3			4901	0	0.0%		0	No	All data collected up to FFS
Bromoform (Tribromomethane	55.4			4901	2	0.0%	0.807	0	No	All data collected up to FFS
Bromomethane (Methyl Bromi	11.2			4901	2	0.0%	1.7	0	No	All data collected up to FFS
2-butanone	4800			4915	52	1.1%	38000	2	No	All data collected up to FFS
Carbon disulfide	800			4901	67	1.4%	22	0	No	All data collected up to FFS
Carbon tetrachloride	5			3458	32	0.9%	83	5	No	All data collected up to FFS
Chlorobenzene	100			4908	44	0.9%	5	0	No	All data collected up to FFS
Chloroform	14.1			3460	366	10.6%	86	42	No	All data collected up to FFS
2-Chlorotoluene	160			4315	1	0.0%	2	0	No	All data collected up to FFS
1,2-Dibromo-3-chloropropane	0.547			4860	0	0.0%		0	No	All data collected up to FFS
Dibromochloromethane	5.21			4899	2	0.0%	16	2	No	All data collected up to FFS
1,2-Dibromoethane	0.05			4921	1	0.0%	0.021	0	No	All data collected up to FFS
Dibromomethane	80			4858	1	0.0%	13	0	No	All data collected up to FFS
Dichlorodifluoromethane	1600			1412	83	5.9%	103	0	No	All data collected up to FFS
1,1-Dichloroethane	7.68			3470	1031	29.7%	830	326	**Yes**	All data collected up to FFS
1,2-Dichloroethane		0.38		5329	1493	28.0%	460	1220	**Yes**	All data collected up to FFS
1,1-Dichloroethene		0.057		6249	1065	17.0%	250	845	**Yes**	All data collected up to FFS
1,2-Dichloroethene	72			41	7	17.1%	170	3	No	All data collected up to FFS
cis-1,2-Dichloroethene	16			4887	2046	41.9%	3200	648	**Yes**	All data collected up to FFS
trans-1,2-Dichloroethene	100			3436	125	3.6%	110	1	No	All data collected up to FFS
1,2-Dichloropropane	5			3460	91	2.6%	1.7	0	No	All data collected up to FFS
cis-1,3-Dichloropropene	0.438			3460	5	0.1%	1.2	5	No	All data collected up to FFS
trans-1,3-Dichloropropene	0.438			3460	1	0.0%	33	1	No	All data collected up to FFS
1,4-Dioxane	0.438			11	0	0.0%		0	No	All data collected up to FFS
Ethylbenzene	700			4904	149	3.0%	2070	1	No	All data collected up to FFS
Hexachlorobutadiene	0.561			4811	2	0.0%	1	1	No	All data collected up to FFS
Isopropylbenzene	800			4316	59	1.4%	11	0	No	All data collected up to FFS
Methyl ethyl ketone	4800			3474	44	1.3%	6500	1	No	All data collected up to FFS
Methyl isobutyl ketone	640			4915	48	1.0%	1300	2	No	All data collected up to FFS
Methylene chloride	5			4901	237	4.8%	360	103	**Yes**	All data collected up to FFS
n-Propylbenzene	800			4316	80	1.9%	26	0	No	All data collected up to FFS
Styrene	100			4901	19	0.4%	46	0	No	All data collected up to FFS
1,1,1,2-Tetrachloroethane	1.68			4857	1	0.0%	0.11	0	No	All data collected up to FFS
1,1,2,2-Tetrachloroethane	0.219			4945	5	0.1%	0.251	1	No	All data collected up to FFS
Tetrachloroethene		0.69		5544	1743	31.4%	74	969	**Yes**	All data collected up to FFS
Toluene	640			4919	225	4.6%	3400	38	**Yes**	All data collected up to FFS
1,1,1-Trichloroethane	200			4927	710	14.4%	950	25	**Yes**	All data collected up to FFS
1,1,2-Trichloroethane	5			4901	169	3.4%	9	4	No	All data collected up to FFS
Trichloroethene		2.5		5520	2392	43.3%	280	937	**Yes**	All data collected up to FFS
1,2,3-Trichloropropane	0.00146			4857	2	0.0%	6.6	2	No	All data collected up to FFS
1,1,2-Trichlorotrifluoroethane	24000			44	15	34.1%	1440	0	No	All data collected up to FFS
Trichlorofluoromethane	2400			4860	111	2.3%	47	0	No	All data collected up to FFS
1,3,5-Trimethylbenzene	80			4316	105	2.4%	63	0	No	All data collected up to FFS
Vinyl acetate	800			1534	1	0.1%	0.054	0	No	All data collected up to FFS
Vinyl chloride	0.29			6367	693	10.9%	31	209	**Yes**	All data collected up to FFS
Total Xylenes	1600			3424	141	4.1%	1500	0	No	All data collected up to FFS
m,p-Xylene	1600			47	1	2.1%	8	0	No	All data collected up to FFS
o-Xylene	1600			4877	203	4.2%	540	0	No	All data collected up to FFS
Semi-Volatile Organic Compounds (SVOCs)										
Aniline	7.68			228	0	0.0%		0	No	All data collected up to FFS
Azobenzene	0.795			26	0	0.0%		0	No	All data collected up to FFS
Benzoic acid	64000			228	2	0.9%	30.5	0	No	All data collected up to FFS
Benzyl alcohol	800			228	1	0.4%	12.2	0	No	All data collected up to FFS
bis(2-Chloroethyl)ether	0.0398			254	0	0.0%		0	No	All data collected up to FFS

TABLE 4. SCREENING FOR GROUND WATER INDICATORS

CONTAMINANT	Screening Criteria, ug/L			IHS Analysis					INDICATOR?	
	Protection of Ground Water	Protection of Surface Water	Back-ground	No. of Samples	No of Detections	Frequency of Detection (%)	Maximum Concentration Detected, ug/L	No. of samples Exceeding Criteria		Data Source
Bis(2-Ethylhexyl)phthalate	6			228	1	0.4%	138	1	No	All data collected up to FFS
Butyl benzyl phthalate	4.61			228	0	0.0%		0	No	All data collected up to FFS
4-Chloroaniline	0.219			228	0	0.0%		0	No	All data collected up to FFS
2-Chloronaphthalene	640			228	0	0.0%		0	No	All data collected up to FFS
2-Chlorophenol	40			228	0	0.0%		0	No	All data collected up to FFS
Dibenzofuran	16			228	0	0.0%		0	No	All data collected up to FFS
3-3'-Dichlorobenzidine	0.194			202	0	0.0%		0	No	All data collected up to FFS
2,4-Dichlorophenol	24			228	0	0.0%		0	No	All data collected up to FFS
Diethyl phthalate	12800			228	0	0.0%		0	No	All data collected up to FFS
2,4-Dimethylphenol	160			228	0	0.0%		0	No	All data collected up to FFS
2,4-Dinitrophenol	32			228	0	0.0%		0	No	All data collected up to FFS
Di-n-butylphthalate	1600			228	0	0.0%		0	No	All data collected up to FFS
2,4-Dinitrotoluene	0.282			228	0	0.0%		0	No	All data collected up to FFS
2,6-Dinitrotoluene	0.0583			228	0	0.0%		0	No	All data collected up to FFS
Hexachlorobenzene	0.547			254	0	0.0%		0	No	All data collected up to FFS
Hexachlorocyclopentadiene	48			228	0	0.0%		0	No	All data collected up to FFS
Hexachloroethane	1.09			228	0	0.0%		0	No	All data collected up to FFS
Isophorone	46.1			228	0	0.0%		0	No	All data collected up to FFS
2-Methylphenol (O-Cresol)	400			228	1	0.4%	19	0	No	All data collected up to FFS
2-Nitroaniline	160			228	0	0.0%		0	No	All data collected up to FFS
Nitrobenzene	16			228	0	0.0%		0	No	All data collected up to FFS
N-Nitrosodimethylamine	0.000858			26	0	0.0%		0	No	All data collected up to FFS
Pentachlorophenol	1			350	0	0.0%		0	No	All data collected up to FFS
Phenol	2400			228	0	0.0%		0	No	All data collected up to FFS
Pyridine	8			26	0	0.0%		0	No	All data collected up to FFS
2,3,4,6-Tetrachlorophenol	480			26	0	0.0%		0	No	All data collected up to FFS
1,2,4-Trichlorobenzene	15.1			3813	23	0.6%	6	0	No	All data collected up to FFS
2,4,5-Trichlorophenol	800			228	0	0.0%		0	No	All data collected up to FFS
2,4,6-Trichlorophenol	3.98			228	0	0.0%		0	No	All data collected up to FFS
PESTICIDES/HERBICIDES										
2,4,5-TP	50			327	0	0.0%		0	No	All Data in EIM
2,2-Dichloropropionic Acid (Da	200			282	0	0.0%		0	No	All Data in EIM
2,4,-D	70			323	3	0.9%	0.96	0	No	All Data in EIM
2,4-DB	128			329	0	0.0%		0	No	All Data in EIM
Dicamba	480			330	1	0.3%	0.9	0	No	All Data in EIM
MCPA	8			316	3	0.9%	0.4	0	No	All Data in EIM
Mecoprop (MCPP)	16			319	0	0.0%		0	No	All Data in EIM
Polycyclic Aromatic Hydrocarbons (PAHs)										
1-Methylnaphthalene	1.51			73	16	21.9%	6.8	6	No	All Data in EIM
2-Methylnaphthalene	32			437	24	5.5%	18	0	No	All Data in EIM
Acenaphthene	960			436	9	2.1%	0.32	0	No	All Data in EIM
Anthracene	4800			437	2	0.5%	0.029	0	No	All Data in EIM
Benzo(a)anthracene	0.12			430	1	0.2%	0.047	0	No	All Data in EIM
Benzo(a)pyrene	0.12			424	3	0.7%	0.24	2	No	All Data in EIM
Benzo(b)fluoranthene	0.12			335	2	0.6%	0.19	2	No	All Data in EIM
Benzo(k)fluoranthene	1.2			337	2	0.6%	0.22	0	No	All Data in EIM
Chrysene	12			430	1	0.2%	0.044	0	No	All Data in EIM
Dibenzo(a,h)anthracene	0.012			429	3	0.7%	0.24	3	No	All Data in EIM
Fluoranthene	640			432	0	0.0%		0	No	All Data in EIM
Fluorene	640			432	5	1.2%	0.063	0	No	All Data in EIM
Indeno(1,2,3-c,d)pyrene	0.12			425	3	0.7%	0.2	2	No	All Data in EIM
Naphthalene	160			4061	78	1.9%	280	4	No	All Data in EIM
Pyrene	480			428	8	1.9%	0.093	0	No	All Data in EIM
METALS										
Antimony	6		11.4	1310	223	17.0%	102	17	No	All Data in EIM
Arsenic	0.583		7.2	1297	1170	90.2%	10.4	5	No	All Data in EIM
Barium	200		68.1	1196	1157	96.7%	673	37	No	All Data in EIM
Berryllium	4		0.9	1297	91	7.0%	0.1	0	No	All Data in EIM
Cadmium	8		2.2	1311	14	1.1%	12.5	2	No	All Data in EIM

TABLE 4. SCREENING FOR GROUND WATER INDICATORS

CONTAMINANT	Screening Criteria, ug/L			IHS Analysis					INDICATOR?	
	Protection of Ground Water	Protection of Surface Water	Back-ground	No. of Samples	No of Detections	Frequency of Detection (%)	Maximum Concentration Detected, ug/L	No. of samples Exceeding Criteria		Data Source
Total Chromium	100		7.76	1691	1140	67.4%	1890	42	**Yes**	All Data in EIM
Chromium VI	48			295	14	4.7%	23	0	No	All Data in EIM
Copper	640		73.43	1297	683	52.7%	268	0	No	All Data in EIM
Iron	11200		104	1577	470	29.8%	18600	12	No	All Data in EIM
Lead	15		4	1297	171	13.2%	17	2	No	All Data in EIM
Manganese	2240		6.95	1554	522	33.6%	5290	56	No	All Data in EIM
Nickel	100		17.25	1297	916	70.6%	128	4	No	All Data in EIM
Selenium	50		15	1297	666	51.3%	8	0	No	All Data in EIM
Silver	80		15	1297	7	0.5%	1	0	No	All Data in EIM
Thallium	0.16		2.6	1297	17	1.3%	12	8	No	All Data in EIM
Vanadium	80		21.04	1238	1082	87.4%	142	1	No	All Data in EIM
Zinc	4800		32.78	1326	327	24.7%	286	0	No	All Data in EIM

EIM = Environmental Information Management database

FFS = Focused Feasibility Study

IHS = Indicator hazardous substances

ug/L = micrograms per liter

Table 5
Final Groundwater Cleanup Levels Adjusted for Risk

INDICATOR	MTCA METHOD B FORMULA, ug/L		Preliminary Method B CUL, ug/L	Adjusted Method B CUL, ug/L	Carcinogenic Risk	Non-Carcinogenic Risk, Oral Ingestion Route						PQL, ug/L
						nephrotoxicity	hepatotoxicity	neurotoxicity	hematotoxicity	Liver cell polymorphism	Other	
VOCs	Carcinogen	Noncarcinogen		**SEE KEY**								
Benzene	0.795	32	0.795	**1.2**	1.51E-06						0.038	0.028
1,1-Dichloroethane	7.680	1600	7.680	**7.68**	1.00E-06	0.005	0.005	0.005			0.005	0.02
1,2-Dichloroethane	0.48	48	0.38	**0.38**	7.92E-07						0.008	0.0141
1,1-Dichloroethene	NR	400	0.057	**0.057**			0.000					0.020
cis-1,2-Dichloroethene	NR	16	16	**12**		0.750						2
Methylene chloride	21.90	48	5	**5**	2.28E-07		0.104					1
Tetrachloroethene	20.8	48	0.69	**0.69**	3.32E-08			0.014				0.05
Toluene	NR	640	640	**157**		0.245		0.245				1
1,1,1-Trichloroethane	NR	16000	200	**200**			0.013	0.013			0.013	2
Trichloroethene	0.54	4	0.54	**2.5**	4.63E-06						0.625	0.0534
Vinyl chloride	0.029	24	0.029	**0.053**	1.83E-06		0.002			0.002		0.02
METALS												
Chromium III	NR	24000	100	**100**							0.004	0.59
			Total Cancer Risk =		**1.00E-05**							
			Total Hazard Index =			**1.000**	**0.124**	**0.277**	**0.000**	**0.002**	**0.692**	

KEY

CUL dictated by Method B, No MCL

Adjusted to result in non-carcinogenic risk (Hazard Index) of 1

Surface Water Criteria applicable to Indicator

CUL dictated by Surface Water Criteria

CUL is MCL, adjusted to be protective if necessary, then adjusted down to meet total cancer risk of 1x10^-5

CUL dictated by MCL

CUL = Cleanup Level
MTCA = Model Toxics Control Act
MCL = Maximum Contaminant Level
PQL = Practical Quantitation Level
ug/L = micrograms per liter

Table 6
Final Indoor Air Cleanup Levels Adjusted for Risk

INDICATOR	MTCA METHOD B FORMULA, ug/m^3		Preliminary Method B CUL, ug/m^3	Adjusted Method B CUL, ug/m^3	Carcinogenic Risk	Non-Carcinogenic Risk, Inhalation Route						PQL, ug/m^3
						immunotoxicity	hepatotoxicity	neurotoxicity	ocular toxicity	developmental toxicity	Other	
VOCs	Carcinogen	Noncarcinogen		**SEE KEY**								
Benzene	3.21E-01	1.37E+01	3.21E-01	**0.321**	1.00E-06	0.023						0.038
1,1-Dichloroethane	1.56E+00	NR	1.56E+00	**1.56**	1.00E-06							0.024
1,2-Dichloroethane	9.62E-02	3.20E+00	9.62E-02	**0.0962**	1.00E-06						0.030	0.024
1,1-Dichloroethene	NR	9.14E+01	9.14E+01	**70**			0.766					0.044
cis-1,2-Dichloroethene	NR	1.83E+01	1.83E+01	**11.1**		0.607						0.02
Methylene chloride	6.58E+01	2.74E+02	6.58E+01	**38**	5.78E-07		0.139					1.3
Tetrachloroethene	9.62E+00	1.83E+01	9.62E+00	**9.62**	1.00E-06			0.526	0.526			0.18
Toluene	NR	2.29E+03	2.29E+03	**885**				0.386				0.095
1,1,1-Trichloroethane	NR	2.29E+03	2.29E+03	**200**			0.087	0.087				0.043
Trichloroethene	3.34E-01	9.14E-01	3.34E-01	**0.334**	1.00E-06	0.365				0.365		0.051
Vinyl chloride	2.84E-01	4.57E+01	2.84E-01	**0.284**	1.00E-06		0.006					0.012
			Total Cancer Risk =		**6.58E-06**							
			Total Hazard Index =			**0.995**	**0.998**	**1.000**	**0.526**	**0.365**	**0.030**	

KEY

CUL dictated by Method B, No MCL

Adjusted to result in non-carcinogenic risk (Hazard Index) of 1

Adjusted to meet total cancer risk of 1x10^-5

CUL = Cleanup Level
MTCA = Model Toxics Control Act
MCL = Maximum Contaminant Level
PQL = Practical Quantitation Level
ug/m^3 = micrograms per cubic meter

Enforcement Order No. DE 16899

Exhibit F – Addendum to Scope of Work and Schedule

EXHIBIT F

Pasco Sanitary Landfill NPL Site

Addendum to Scope of Work and Schedule

This Addendum to the Scope of Work (SOW) and Schedule implements the First Addendum to the Cleanup Action Plan (CAP) (Exhibit E to the First Amendment to Enforcement Order No. 16899) to address groundwater contamination at the Pasco Sanitary Landfill NPL Site (Site) in Franklin County, Washington, generally described in Exhibit A. The potentially liable persons under the Enforcement Order (PLPs) will implement this SOW to perform Site cleanup and shall furnish all personnel, materials, and services necessary for, or incidental to, performing the cleanup action selected for the Site. All work completed for this SOW must meet the requirements of the Model Toxics Control Act (MTCA) Cleanup Regulation, Chapter 173-340 Washington Administrative Code (WAC).

This SOW amends Exhibit C of Enforcement Order No. 16899 to address changes in Site conditions but does not supplant or delay any ongoing interim action operations, maintenance, monitoring, or reporting required under Enforcement Order No. 16899.

This SOW amends Exhibit C by adding the following task:

- Task I: Off-Property Groundwater Treatment and Protection of Indoor Air

This amended schedule includes additional tasks required by Task I. The actions to be accomplished under this SOW are described in Section 4 of the First Addendum to the CAP (Exhibit E) with the following clarifications. More detailed descriptions will be documented in the Vapor Intrusion Monitoring Plan and the Groundwater Treatment Work Plan.

Task I. Off-Property Groundwater Treatment and Protection of Indoor Air

The required actions to address contaminants in off-property groundwater and ensure protection of indoor air provide for the assessment of vapor intrusion risk to structures in the vicinity of and downgradient of Zone A and the in-situ treatment of groundwater to reduce concentrations of Site indicator hazardous substances (IHS) that exceed groundwater cleanup levels (CULs) and/or may pose a risk to indoor air quality. The required actions will be further developed in the Vapor Intrusion Monitoring Plan (Task I.1), the Groundwater Treatment Work Plan (Task I.3), and the Contingency Groundwater Treatment Work Plan (Task I.5).

The cleanup action for off-property groundwater and protection of indoor air will consist of the following actions, decisions, and activities:

1. Complete a vapor intrusion assessment across the groundwater plume.
2. If soil gas concentrations exceed Ecology's soil gas screening levels for protection of indoor air, the PLPs will complete an assessment of indoor air quality at structures that may be at risk for vapor intrusion.

3. If indoor air concentrations exceed the CULs listed in the CAP Addendum, the PLPs will take immediate action to mitigate indoor air exposure for all impacted buildings and occupants in accordance with Ecology guidance.
4. Increase groundwater monitoring frequency and scope to track the expanding groundwater plume.
5. Install additional groundwater monitoring wells if necessary to fully define the expanding plume.
6. Expeditiously address groundwater contamination using in-situ remedial methods to reduce contaminant concentrations that are migrating downgradient from Zone A.
7. Following the initial in-situ remedial actions, assess whether further in-situ methods can be used to address portions of the off-property plume that were not targeted by the initial in-situ remedial actions.

Task I.1 Preparing a Vapor Intrusion Monitoring Plan

The PLPs prepared and submitted a draft Vapor Intrusion Monitoring Plan (VIMP) to Ecology for review and comment that addresses the planning, execution, contingencies, and reporting associated with the vapor intrusion investigation. The draft VIMP was submitted to Ecology for approval on November 18, 2024, and was approved as final by Ecology on November 19, 2024. These activities are generally described in the CAP Addendum 1, Section 4 (Exhibit E).

The VIMP addresses the immediate concerns about potential vapor intrusion as the release from Zone A moves downgradient and includes contingency action if vapor intrusion is causing or may cause impacts to indoor air.

The following sub-plan will be included with the VIMP:

A. Health and Safety Plan

The existing Site-specific Health and Safety Plan (HASP) shall be updated to include a job hazard assessment specific to the activities to be completed under the VIMP. The HASP will also be updated to address any changes to emergency response actions and procedures, site security, communications, or access control.

Task I.2 Preparing Vapor Intrusion Data Report and Monitoring Plan Addendum

Following the receipt of data from the Phase 1 evaluation as outlined in the Ecology-approved VIMP, a VI Data Report shall be prepared. This report will compare concentrations of contaminants detected in Phase 1 of the VI evaluation to appropriate screening levels, correlate groundwater concentrations with soil gas detections, assess the impact of deep vapor extraction on soil gas contaminant concentrations, estimate vapor attenuation rates through the Upper Pasco Gravels to the extent possible,

and determine whether VI contingency actions are triggered, as outlined in the Ecology-approved VIMP.

If the Phase 2 VI contingency actions are triggered, the VI Data Report will also act as a VIMP Addendum, to include plans and procedures for additional data collection. The plans and procedures outlined in this report shall satisfy WAC 173-340-410 and -820 requirements and will include specific sampling procedures, analytical methods, and associated quality assurance/quality control (QA/QC) requirements to properly guide all sampling and monitoring activities associated with the VIMP contingency actions.

Task I.3 Executing the Vapor Intrusion Monitoring Plan

The PLPs will execute the Ecology-approved VIMP, including any required contingency efforts.

Task 1.4 Preparing a Groundwater Treatment Work Plan

The PLPs will prepare and submit a draft Groundwater Treatment Work Plan (GTWP) to Ecology for review and comment that addresses the planning, execution, monitoring, and reporting associated with the groundwater treatment on the areas of the plume with elevated concentrations of Site IHS. Following incorporation of Ecology's comments, the GTWP will be finalized. These activities are generally described in the CAP Addendum, Section 4 (Exhibit E).

The GTWP will outline the design and execution of immediate in-situ groundwater treatment to address off-property groundwater contamination.

The following sub-plans will be included with the GTWP:

A. Health and Safety Plan

The existing Site-specific HASP shall be updated to include a job hazard assessment specific to the activities to be completed under the GTWP. The HASP will also be updated to address any changes to emergency response actions and procedures, site security, communications, or access control.

B. Performance Monitoring Plan

A Performance Monitoring Plan (PMP) will be prepared to satisfy WAC 173-340-410(1)(b) requirements. The PMP will provide monitoring information and assessment metrics to verify the effectiveness of the groundwater treatment activities. Specifically, the PMP will address the monitoring of (1) changes over time in contaminant mass in the downgradient plume, (2) continued vapor control from the thermal remediation system, and (3) soil gas conditions within the plume where concentrations of contaminants in groundwater exceed the groundwater screening levels listed in the CAP

Addendum. These performance data will provide important metrics for determining that the cleanup objectives have been met. Additional performance monitoring metrics as determined by the in-situ treatment designer or contractor will be described in the PMP. Additional data collected as performance data shall be reported in the progress reporting already required under Enforcement Order No. 16899.

Task I.5 Executing the Groundwater Treatment Work Plan

The PLPs will execute the Ecology-approved GTWP.

Task I.6 Preparing the Off-Property Groundwater Contingency Work Plan

If Ecology deems additional off-property groundwater treatment is required in the wider groundwater plume, the PLPs will prepare and submit a draft Off-Property Groundwater Contingency Work Plan to Ecology for review and comment that addresses the planning, execution, and reporting associated with additional off-property groundwater treatment. Following incorporation of Ecology's comments, the Off-Property Groundwater Contingency Work Plan will be finalized. These activities are generally described in the CAP Addendum, Section 4 (Exhibit E).

The following sub-plans will be included with the Off-Property Groundwater Contingency Work Plan:

A. Health and Safety Plan

The existing Site-specific HASP shall be updated to include a job hazard assessment specific to the activities to be completed under the Off-Property Groundwater Contingency Work Plan. The HASP will also be updated to address any changes to emergency response actions and procedures, site security, communications, or access control.

B. Performance Monitoring Plan

A PMP will be prepared to satisfy WAC 173-340-410(1)(b) requirements. The PMP will provide monitoring information and assessment metrics to verify the effectiveness of the groundwater treatment activities. Specifically, the PMP will address monitoring of (1) changes over time in contaminant mass in the downgradient plume and (2) soil gas conditions within the plume where concentrations of contaminants in groundwater exceed the groundwater screening levels listed in the CAP Addendum. These performance data will provide important metrics for determining that the cleanup objectives have been met. Additional performance monitoring metrics as determined by the treatment designer or contractor will be described in the PMP. Additional data collected as performance data shall be reported in the progress reporting already required under Enforcement Order No. 16899.

Task I.7 Executing the Off-Property Groundwater Contingency Work Plan

The PLPs will execute the Ecology-approved Off-Property Groundwater Contingency Work Plan if directed by Ecology.

Schedule

All required documents are subject to Ecology's review and approval. Ecology will approve, approve with conditions, or disapprove of these documents. If Ecology disapproves of a draft document, we will provide comments to the PLPs who will submit a revised document addressing the comments.

Task(s)	Deliverable/Milestone	Due Date
	Effective date of EO Amendment	Start
I.1	PLPs submit Vapor Intrusion Monitoring Plan (VIMP) for Ecology approval	November 18, 2024 (completed)
I.2	PLPs submit VI Data Report and Monitoring Plan Addendum for Ecology approval	December 16, 2024
I.3	PLPs implement VIMP Phase 1	November 19, 2024
I.3	PLPs implement VIMP Phase 2	Immediately upon Ecology approval of Task I.2
I.4	PLPs submit Groundwater Treatment Work Plan (GTWP), including associated sub-plans, for Ecology approval	51 days following the effective date of the EO Amendment 1
I.5	PLPs implement GTWP	Within 7 days of Ecology approval of the GTWP
I.6	PLPs submit Off-Property Contingency Work Plan, including associated sub-plans, for Ecology approval	Within 30 days of written Ecology determination
I.7	PLPs implement Off-Property Contingency Work Plan	Within 14 days of Ecology approval