Interstate 82 Exit 33A Yakima City Landfill: Response to Comments Regarding Groundwater and Surface Water PCULs

To: Jennifer Lind
Site Manager
Toxics Cleanup Program
Central Regional Office

From: Arthur Buchan
Toxicologist
Toxics Cleanup Program
Central Regional Office

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Background and Scope

This memorandum represents a continued effort to come to agreement regarding Preliminary Cleanup Levels (PCULs) at the Interstate 82 Exit 33A Yakima City Landfill Cleanup Site (Facility Site ID – 1927, Cleanup Site ID – 3853).[1] The information included in this memorandum is derived from previous correspondence:

1) Ecology Memorandum: *Interstate 82 Exit 33A Yakima City Landfill Preliminary Cleanup Levels* (Ecology, September 22, 2023); and
2) Responses from Landau Associates Memorandum: *Response to Ecology September 2023 Memorandum and Letter Regarding Preliminary Cleanup Levels and Contaminant of Potential Concern, Interstate 82 Exit 33A Yakima City Landfill, Yakima, Washington* (Landau, October 20, 2023).

Once these remaining items (for groundwater and surface water) have been agreed upon, Ecology will evaluate soil concentrations – this is because the calculated PCULs for soil will be dependent on those that are agreed upon for both groundwater and surface water.

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1. Table 3 (Groundwater): Preliminary Cleanup Levels (PCULs) for groundwater for selected contaminants at the Interstate 82 Exit 33A Yakima City Landfill Site.

3,3'-Dichlorobenzidine: Please verify that all wells (either on source property, or down-gradient of source property) have at least four (4) consecutive quarters of concentrations of 3,3'-Dichlorobenzidine below 2.00 ug/L. If that information can be provided, then this contaminant may be removed from the Contaminants of Potential Concern (COPC) list for groundwater.

Please note: Information provided indicates this contaminant has been found in wells on-site or down-gradient of the site.

[1] https://apps.ecology.wa.gov/cleanupsearch/site/3853

Deliverable: Please provide a table showing groundwater (GW) monitoring results for this analyte, along with a figure showing sampling locations/monitoring network with sampling data (all events for particular analyte), and discussion. Ecology will need to verify at least four (4) consecutive quarters of concentrations of 3,3'-Dichlorobenzidine are below 2.00 ug/L.

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2. **Table 4 (Surface Water): Preliminary Cleanup Levels (PCULs) for groundwater protective of surface water for selected contaminates at the Interstate 82 Exit 33A Yakima City Landfill Site.**

Diesel + Heavy Oil (HO): Please verify the specific well closest to a body of surface water, and downgradient of the contamination, has a measured value of Diesel + HO that is less than 5.00E+02 ug/L. If that information can be provided, then this contaminant may be removed from the COPC list for surface water.

Please note: It appears this analyte was detected downgradient of the source property.

Deliverable: Please provide a table showing GW monitoring results for Diesel + HO, along with a figure showing the specific well sampling location (closest to the surface water body) is below 5.00E+02 ug/L, and discussion.

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3. **Table 4 (Surface Water): Preliminary Cleanup Levels (PCULs) for groundwater protective of surface water for selected contaminates at the Interstate 82 Exit 33A Yakima City Landfill Site.**

3,3'-Dichlorobenzidine: See comment #1 above. Since the PCUL for 3,3'-Dichlorobenzidine is the same for surface water (SW) as GW, it may be removed if you can meet the requirements for this analyte above (in GW). If that information can be provided, then this contaminant may be removed from the COPC list for SW.

Deliverable: Please provide a table showing GW monitoring results for this analyte, along with a figure showing sampling locations/monitoring network with sampling data (all events for particular analyte), and discussion.

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4. **Table 4 (Surface Water): Preliminary Cleanup Levels (PCULs) for groundwater protective of surface water for selected contaminates at the Interstate 82 Exit 33A Yakima City Landfill Site.**

Benzo(b)fluoranthene: The Surface Water (Human Health) Applicable or Relevant and Appropriate Requirement (ARAR) (40 CFR 131.45) lists 1.60 E-04 as a protective value for Benzo(b)fluoranthene. This value may be upward adjusted to an agreed upon practical quantitation limit (PQL) (which has been listed at 0.02 ug/L). However, the highest value detected is 0.08 ug/L, which is higher than the individual ARAR, with an upward adjustment to a PQL. It is important to note that under MTCA, both the carcinogenic Polycyclic Aromatic Hydrocarbon (cPAH) toxic equivalent quotient (TEQ) and individual cPAHs are required to be complied with for surface water. If that information can be provided, then this contaminant may be removed from the COPC list for SW.

Deliverable: Please provide a table showing GW monitoring results for Benzo(b)fluoranthene, along with a figure showing the specific well sampling location (closest to the surface water body) is below 0.02 ug/L, and discussion.

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5. **Table 4 (Surface Water): Preliminary Cleanup Levels (PCULs) for groundwater protective of surface water for selected contaminates at the Interstate 82 Exit 33A Yakima City Landfill Site.**

Barium: Please see WAC 173-340-730(3)(b)(ii)[2] – *For hazardous substances for which environmental effects-based concentrations have not been established under applicable state or federal laws, concentrations that are estimated to result in no adverse effects on the protection and propagation of wildlife, fish, and other aquatic life….*
If the value that is proposed is protective of aquatic receptors (with justification) and is above the highest value detected in the well closest to the surface water, it may be removed from the list.

Please Note: I have provided a limited list of protective values for Barium in Appendix A. While you do not need to use a value (or statistical calculation) from this list, an estimated protective value must be provided to Ecology to meet WAC 173-340-730(3)(b)(ii).

Deliverable: Please provide a value (with justification) for Barium that is estimated to result in no adverse effects on the protection and propagation of wildlife, fish, and other aquatic life.

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6. Table 4 (Surface Water): Preliminary Cleanup Levels (PCULs) for groundwater protective of surface water for selected contaminates at the Interstate 82 Exit 33A Yakima City Landfill Site.

4,4' – DDD (dichlorodiphenyldichloroethane) and 4,4' – DDT (dichlorodiphenyltrichloroethane): Based on the information provided, it appears appropriate to accept a PQL based off of method reporting limits (MRLs) of 3.00E-03 ug/L. Please verify the specific well closest to a body of surface water, and downgradient of the contamination, has measured values of 4,4' – DDD and 4,4' – DDT less than 3.00E-03 ug/L. If that information can be provided, then these contaminants may be removed from the COPC list for SW.

Deliverable:

Part 1: Complete - Sufficient information has been provided to raise the PQL up to 0.003 ug/L from 0.0025 ug/L. Note: If another

Part 2: Please provide a table showing GW monitoring results for 4,4' – DDD and 4,4' DDT, along with a figure showing the specific well sampling location (closest to the surface water body) is below 3.00E-03 ug/L, and discussion.

REFERENCES

Ecology. (2023). Memorandum: *Interstate 82 Exit 33A Yakima City Landfill Preliminary Cleanup Levels.*[3] Washington State Department of Ecology. No Publication No.

Landau. (2023). Memorandum: *Response to Ecology September 2023 Memorandum and Letter Regarding Preliminary Cleanup Levels and Contaminant of Potential Concern, Interstate 82 Exit 33A Yakima City Landfill, Yakima, Washington.* Landau Associates. No Publication No.

Risk Assessment Information System.[4] (2020).

[2] https://app.leg.wa.gov/wac/default.aspx?cite=173-340-730
[3] https://apps.ecology.wa.gov/cleanupsearch/document/130578
[4] https://rais.ornl.gov/tools/eco_search.php

Appendix A: Brief Literature Review of Barium Values that are Expected to be Protective of Aquatic Organisms in Surface Water (RAIS, 2020).

Analyte	CAS	Benchmark	Organism	Value (Footnotes)	Units	Source
Barium	7440-39-3	British Columbia Aquatic Life -F	Not specified	1	mg/L	British Columbia
Barium	7440-39-3	OSWER Ecotox -Freshwater T	Not Specified	0.0039	mg/L	EPA OSWER
Barium	7440-39-3	EPA Region 3 BTAG -Freshwa	Not specified	0.004	mg/L	EPA Region 3
Barium	7440-39-3	EPA Region 4 -Acute Freshwat	Not specified	2	mg/L	EPA Region 4
Barium	7440-39-3	EPA Region 4 -Acute Marine (M	Not specified	0.11	mg/L	EPA Region 4
Barium	7440-39-3	EPA Region 4 -Chronic Marine	Not specified	0.004	mg/L	EPA Region 4
Barium	7440-39-3	EPA Region 4 -Chronic Freshw	Not specified	0.22	mg/L	EPA Region 4
Barium	7440-39-3	EPA Region 5 -RCRA Surface W	Not Specified	0.22	mg/L	EPA Region 5
Barium	7440-39-3	EPA Region 6 -Freshwater Acu	Not specified	123	mg/L	EPA Region 6
Barium	7440-39-3	EPA Region 6 -Freshwater Chr	Not specified	20.5	mg/L	EPA Region 6
Barium	7440-39-3	EPA Region 6 -Saltwater Acute	Not specified	150	mg/L	EPA Region 6
Barium	7440-39-3	EPA Region 6 -Saltwater Chron	Not specified	25	mg/L	EPA Region 6
Barium	7440-39-3	LANL ECORISK 4.3 -Surface W	Aquatic community organisms	0.0039	mg/L	LANL ECORISK
Barium	7440-39-3	LANL ECORISK 4.3 -Surface W	Aquatic community organisms	0.039	mg/L	LANL ECORISK
Barium	7440-39-3	ORNL Tier II Secondary Chron	Not specified	0.004	mg/L	ORNL
Barium	7440-39-3	ORNL Tier II Secondary Acute	Not specified	0.11	mg/L	ORNL