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18 June 2013

Mr. Steve Teel
Department of Ecology
Toxics Cleanup Program
Southwest Regional Office
P.O Box 47775
Olympia, Washington 98504-7775

Subject: Response to Comments Provided in Ecology's 22 April 2013 Letter
Augmented Remedial Investigation and Feasibility Study Report
Former Tacoma Metals Site – Tacoma, Washington
Agreed Order DE 97-5435, Facility No. 1257, Cleanup Site ID 3910
K/J 996098.00

Dear Mr. Teel:

On behalf of Portland Avenue Associates (PAA), this letter presents responses to the Washington State Department of Ecology's (Ecology's) comments on the *Augmented Remedial Investigation and Feasibility Study Report*. Kennedy/Jenks Consultants responses are provided in the same sequence as provided in Ecology's comment letter.

Ecology Comment #1, Section 4.2, Supplemental RI Findings.

Comment noted. The text will be modified to include more specific language regarding the distribution of impacted soils. A single map will also be provided that shows the distribution of chemicals of concern (COC) that exceeds cleanup standards for both the standard and conditional points of compliance for the entire site.

Ecology Comment #2, Section 5.4, Cleanup Alternatives, Page 5-7, last sentence.

Comment noted. The text in Section 5.4 will be modified to address the fact that off-property soil impacts have been detected at concentrations that exceed cleanup standards for direct contact to humans and potential terrestrial ecological receptors. These changes will acknowledge groundwater (both on-property and off-property) contains (COC) at concentrations exceeding the proposed groundwater cleanup standards (surface water standards) established for the site; however, a conditional point of compliance has been established at the point where groundwater discharges to the Puyallup River. Consequently, active remedial actions to address groundwater are not proposed as part of the selected remedy for the site. Where needed, the remedial investigation/feasibility study (RI/FS) will address changes to the remedial alternatives to address COC located off-property above the points of compliance.

Ecology Comment #3, Section 5.2.3, Potential Exposure Pathways.

Comment noted. The text in Section 5.2.3 will be modified to acknowledge the vapor intrusion pathway may potentially be completed if structures are built in the future over portions of the site where volatile organic compounds (VOC) exist and vapors from the site migrate into the building at concentrations exceeding Model Toxics Control Act (MTCA) Method C indoor air cleanup

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levels. The text will acknowledge the existing data indicates VOC concentrations are generally low and would not be expected to pose a threat to human health at the current concentrations. Furthermore, future potential risks from the vapor intrusion pathway will be managed using property deed restrictions and institutional controls, as appropriate. In addition, a significant portion of the impacted soil materials will be removed from the primary source area during the remedial action, decreasing the potential vapor intrusion risk.

Ecology Comment #4, Section 5.2.3, Potential Exposure Pathways, pages 5-6, 3rd paragraph, 3rd sentence.

This comment requests the text be changed to indicate remedial actions to address the direct-contact pathway be implemented for the entire site (not just on-property portions of the site). Comment noted. The text and figures will be modified accordingly.

Ecology Comment #5, Section 5.2.3, Potential Exposure Pathways, pages 5-6, last paragraph.

In this comment, Ecology requests the asphalt cap for the site have a mix design that yields an asphalt concrete with 4 percent or less air void space and a (vertical) hydraulic conductivity of 1×10^{-7} centimeters per second (cm/s).

The asphaltic concrete cap design will include a lower permeability asphalt mix, proper grading design and stormwater conveyance control to achieve the desired low surface water infiltration rate through the cap. The combination of these design components are expected to result in minimal to no infiltration of surface water to underlying soils and achieve the primary objective of preventing direct contact with underlying soils (primarily for metals that have demonstrated low mobility). Since source zone hydrocarbon-impacted soils (which could be potentially mobile) will be removed from unsaturated zone soils as part of the remedial action (both on-property and off-property), installation of an asphalt cover meeting these design criteria is unwarranted.

Based on the result of the RI, residual soils present following soil removal, which contain metals (primarily lead) at concentrations above the MTCA Method C soil cleanup levels, are not expected to mobilize. These soils have been in place for several decades and have not leached to deeper soils or to groundwater during this time period. Furthermore, metals at the site (primarily lead) are widely known to have low aqueous solubility's and low mobility under natural conditions. Therefore, stringent design standards for engineering controls to prevent leaching of COC to groundwater are not supported by the RI analytical results.

Kennedy/Jenks Consultants is aware of several other industrial sites in the Tacoma Tidelands where asphalt caps have been successfully installed under an agreed order or consent decree, which were not required to have these stringent permeability specifications for the pavement design. Since the actual construction of an "impermeable" cap surface (meeting the low permeability specification) poses significant logistical problems and because they are typically less durable under long-term heavy industrial use, Kennedy/Jenks Consultants proposes the asphalt specification for the low permeability asphalt surface be 5×10^{-5} cm/s or less. This vertical hydraulic conductivity, combined with the proper drainage design and stormwater conveyance, will provide adequate protection to possible infiltration of surface water to prevent mobilization and migration of residual COCs below the cap surface, while achieving its primary purpose of preventing direct contact with COCs below the cap.

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Ecology Comment #6, Section 5.2.3, Potential Exposure Pathways, pages 5-6, last paragraph, last sentence.

Comment noted. The text will be modified to identify the vapor intrusion may be a potentially complete pathway following completion of the remedial action; however, as indicated above, this would be dependent the following conditions being met:

- An occupied building or structure being placed in close proximity to the former creosote-affected areas where VOC have been detected in soil or groundwater.
- Post-remediation residual VOC concentrations (primarily benzene) being present in soil or groundwater at adequate concentrations to pose a threat to an industrial worker at the site. Based on this exposure scenario, benzene vapor concentrations would need to be present in a building/structure at a concentrations at or equal to the MTCA Method C indoor air cleanup level of 3.2 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), (based on Ecology's draft *Guidance for Evaluating Soil Vapor Intrusion In Washington State, October 2009*).

Because the proposed remedial alternative will remove vadose zone sources that may contain benzene, exceedance of the cleanup level is not expected in the future.

Ecology Comment #7, Section 5.5.2, Long-Term Monitoring.

Comment noted. The text and figures will be modified to identify that piezometer locations (P-1, P-2, and P-3) will be included in the long-term monitoring program as either permanent wells (if approved by the Corps of Engineers) or temporary piezometers (if not approved for permanent installation).

Ecology Comment #8, Section 6, 1st Paragraph, 1st Sentence.

Ecology requests the term "site" be used instead of "property." Comment noted. Appropriate changes will be made to the text where applicable.

Ecology Comment #9, Text (Volume 1) Table 3.

Ecology has requested several changes to Table 3, as follows:

- Ecology has indicated Table 3 incorrectly shows freshwater chronic criteria instead of marine chronic criteria. PAA believes freshwater criteria are the correct values for use since the site lies above (upstream) the saltwater wedge in the Puyallup River. In addition, Table 602 (use designations for fresh water) in WAC 173-201A indicates the Puyallup River is designated as fresh water at all points upstream from the mouth of the river (Water Resource Inventory Area #10). The site is located approximately 1.3 miles upstream from the river mouth. Listings for Commencement Bay in Table 612 (use designations for marine water) in WAC 173-201A includes no indication any waters of the Puyallup River are designated as marine waters. Therefore, freshwater criteria appear to be appropriate for the site.

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- Ecology indicates the soil protection of wildlife value for petroleum hydrocarbons – diesel-range needs to be changed from 5,000 [milligrams per kilograms (mg/kg)] to 6,000 (mg/kg) to match Table 749-3 in WAC 173-201A. PAA believes the hydrocarbon present in the creosote plant area is neither gasoline-range nor diesel-range (it is not petrogenic); therefore, neither value is appropriate. However, Table 3 values will be increased to 6,000 mg/kg, as requested.
- Ecology has requested the term “Direct Contact” be added before “Human Exposure.” Comment noted. The table will be modified as requested.
- Ecology has requested a footnote be added to Table 3 that soil and groundwater cleanup levels for VOCs may not be protective of the indoor air pathway. Comment note. A footnote will be added to Table 3 as requested. As indicated above, a completed indoor air pathway following remedial action depends on several factors occurring in the future, which cannot be determined at this time (e.g., creation of an exposed population and accumulation of vapors at concentrations above the indoor air cleanup levels). Since the site is currently zoned for industrial use and is expected to stay that way into the future, future indoor air standards for industrial use will be appropriate. PAA suggests future concerns over the vapor intrusion pathway be addressed through property deed restrictions that will also be required as part of the industrial cleanup standards used for the site.

Ecology Comment #10, Section 5.5 - Cleanup Alternative 2 Update, Subsection 5.5.1 - Source Control Excavation Areas and Subsection 5.5.3 - Capping and Institutional Controls.

Ecology requests the same comments provided earlier also be addressed in the report text. Further, Ecology has reiterated institutional controls and environmental covenants shall be used to prevent exposure to potential human and ecological receptors.

Comment noted. The text in the above sections will reflect Ecology’s comments above.

Ecology Comment #11, Text (Volume 1) Figure 2.

Comment noted. Appendix C is the correct reference.

Ecology Comment #12, Volume 2) Appendix C, Figures 4-3, 5-1; Tables 4-3, 4-8B, 5-3, and 6-1.

Ecology requests the cited figures and tables be updated to reflect the current use of toxicity equivalent factors (TEFs), which were not in place when the figures and tables were originally prepared in 2001.

Comment noted. The current TEFs will be applied to these tables.

Ecology Comment #13, Volume 2, Appendix H, Revised Remedial Alternative Costs.

Ecology requests the following changes to the remedial cost estimates:

- Cost estimates need to be revised to include actions on the off-property parcels that are part of the site. Comment noted.

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- Ecology is requesting asphalt pavement with a hydraulic conductivity of 1×10^{-7} cm/s and less than 4 percent air voids. See response to comment # 5 above.
- Ecology is requesting a minimum of 5 years of semiannual groundwater monitoring followed by 5-year periodic review monitoring events. The initial frequency will be semiannual for 1 year. The frequency of subsequent events will be determined after the first year of monitoring. Comment noted.

Ecology Comment #14, Appendix I, Boring and Well Construction Logs.

Ecology is requesting logs for monitoring wells MW-1, MW-2, MW-3(D), MW-5, MW-6, and MW-7 be included in Appendix I.

Comment noted. All available logs will be provided. Any logs that cannot be located will not be provided in the report.

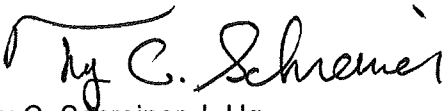
Ecology Comment #15.

Ecology has requested two bound hard copies of the revised report. Comment noted.

If you have any questions regarding the information presented in this response letter, please call us at (253) 835-6400.

Very truly yours,

KENNEDY/JENKS CONSULTANTS



Ty C. Schreiner, L.Hg.
Vice President

Attachments

cc: Mr. Guy Sternal, Eisenhower & Carlson, PLLC
Mr. Bill Hengemihle, LECG