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DEPARTMENT OF ECOLOGY
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September 12, 2025

Sent via hard copy and electronically

Shane DeGross
BSNF Railway Company
605 Puyallup Avenue
Tacoma, WA 98421

RE: Ecology comments on the First Revised Draft of the Sediment Feasibility Report, dated June 6, 2025, for the following Site:

- **Site Name:** BNSF Track Switching Facility
- **Site Alias:** Wishram Railyard
- **Site Address:** 500 Main Street, Wishram
- **Facility Site ID:** 1625461
- **Cleanup Site ID:** 230
- **Agreed Order:** DE 12897

Dear Shane DeGross:

Thank you for submitting the above-referenced draft report in accordance with Agreed Order DE 12897. The Department of Ecology (Ecology) has the following comments on this document. We start with the comments compiled by Ecology's Sediments Team with Chance Asher and Rachel McDermott.

1. **Issue: Lack of data demonstrating the effectiveness of capping alternatives**

To remediate this site in compliance with SMS and MTCA, remedial technologies contained in the preferred remedy must prevent NAPL releases via ebullition to protect surface sediment, aquatic life, and surface water quality in perpetuity.

Before submitting both Feasibility Study (FS) drafts, Ecology needed information to demonstrate the effectiveness of the capping alternatives, including design life. If this cannot be demonstrated, a realistic and conservative cost estimate must include cap monitoring, maintenance, and replacement in perpetuity.

In response, the 2nd draft FS includes:

a. A time frame of 100 years to calculate costs. However, there is no clear reasoning regarding how this timeframe was determined, nor is there an assumption that non-aqueous phase liquid (NAPL) releases via ebullition will be remediated by Year 100. Without more information, Ecology must assume that NAPL contamination will be released via ebullition in perpetuity.

b. A reference to a former CERCLA site ORD 990949412 in a channel of the Columbia River in Oregon, which stated that the capping alternative has remained protective since its construction in 1995. However, according to the 1996 Record of Decision for the Union Pacific Railroad site,[1] this sediment site did not contain NAPL, or ebullition caused chemical releases. Instead, the cap was intended to isolate the arsenic (882 ppm). PAHs (4,611 ppm), and PCP (99.5 ppm) contamination at 4-8 feet bss. This example does not demonstrate the effectiveness of the capping alternatives to remediate NAPL releases via ebullition in perpetuity.

Resolution: Please revise accordingly using sites with NAPL releases via ebullition. If this information is not available, use Ecology's revised scoring of the disproportionate cost analysis (Table 1 of this letter).

2. Issue: The disproportionate cost analysis is inappropriately scored.

The capping alternatives are scored similarly to the dredging alternative for permanence, long-term effectiveness, and protectiveness, which is not consistent with MTCA or the SMS rules. This is a comment that Ecology made for the 1st draft FS, and we provided examples of how to score the site, which was not carried forward to this 2nd draft. Specifically:

a. Permanence. MTCA WAC 173-340-200[2] defines a permanent solution or permanent solution cleanup action as: "a cleanup action in which cleanup standards of Part 7 of this chapter can be met **without further action being required at the site being cleaned up** or any other site involved with the cleanup action, other than the approved disposal of any residue from the treatment of hazardous substances."

   Since the treatment and isolation capping alternatives identified in the FS will require further action, such as maintenance and potentially replacement, they do not meet the definition of a permanent cleanup action. Therefore, they should be scored substantially lower than the most permanent dredging alternative.

[1] https://semspub.epa.gov/work/10/1231479.pdf
[2] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340-200

b. Long-term effectiveness. Adequate information on the design life of the capping alternatives, demonstrating the long-term effectiveness of the capping alternatives, was not provided. Ecology is particularly concerned that information in the FS on the assimilative/absorptive capacity of the treatment layer does not demonstrate effectiveness to 1) treat NAPL releases in perpetuity (even with maintenance) and 2) prevent horizontal movement of NAPL so it is not released from the edges of the cap. Therefore, the dredging alternative is significantly more effective over the long term than the capping alternatives.

   Long-term effectiveness is a critical criterion for this site to protect vulnerable and overburdened communities (i.e., Yakama Nation), endangered species, and aquatic resources. NAPL that is vulnerable to ebullition needs a protective and permanent remedy with a high degree of certainty that hazardous substances have been eliminated or destroyed.

c. Protectiveness. The ability of the capping alternatives to reduce overall site risk in perpetuity has not been demonstrated. This is due to uncertainties of this remedial technology to either eliminate, reduce, or control NAPL releases via ebullition in perpetuity. Therefore, the degree of improvement in overall environmental quality is significantly less than the most protective dredging alternative.

d. Reasonable Restoration Timeframe. The SMS WAC 173-204-570(5)[3] defines a reasonable restoration timeframe of 10 years and requires preference to be given to alternatives with shorter restoration timeframes, and WAC 173-204-570(5)(c) establishes criteria to determine a reasonable restoration timeframe. The factors that apply to isolation and treatment capping remedial technologies include consideration of:

   i. Potential future use of the site, surrounding areas, and natural resources that may be affected by residual contamination. Tribal fishing resources must be considered, specifically with concern for the release of NAPL to sediment or surface water via ebullition.

   ii. Degree of and ability to control and monitor migration of residual contamination. Specific to this site, the release of NAPL via ebullition is a concern with contained NAPL.

[3] https://app.leg.wa.gov/wac/default.aspx?cite=173-204-570

We must have a high degree of confidence that isolation or treatment capping will remain protective, permanent, and effective. Information on the success of other NAPL sites with ebullition has not been provided to give Ecology confidence that capping alternatives will provide for a reasonable restoration timeframe.

iii. Degree to which natural recovery processes are expected to reduce contamination. There does not appear to be any ability of NAPL at this site to degrade and become immobile or non-toxic, and information to the contrary has not been provided.

Since dredging provides for the shortest restoration time frame, preference should be given to dredging alternatives under the protectiveness, permanence, and long-term effectiveness criteria. We have no assurance that capping will successfully prevent vertical or horizontal releases of NAPL via ebullition; thus, a restoration time frame cannot be accurately determined.

Resolution: If the information Ecology needs is not available, use Ecology's revised scoring of the disproportionate cost analysis (Table 1 in this letter).

3. **Issue: The dredging alternative cost estimate is overestimated.**

The FS included an unrealistic estimate of the time and cost for an archaeologist to observe and screen dredged material for cultural resources. There is an assumption that an archaeologist will be sorting through all of the dredged material—which would not be the case—and this assumption changed the production rate of 350 yd^3/day (23 dredge days) to 50 yd^3/day (164 dredge days).

A more likely scenario will be that an archaeologist located either on the shore or on a viewing platform on the barge will observe the dredging using binoculars or a drone with video. If the archaeologist observes cultural resources within the dredge bucket or barge for a particular dredge pass, a stop-work order may be issued. That dredge pass will then be screened by the archaeologist either within the dredge bucket or barge using the drone or binoculars, or it may be separated to screen upland. This may or may not stop the dredging activity for a substantial amount of time, depending on whether the dredging can continue in another area. However, to comply with health and safety regulations, it is unlikely the archaeologist will screen NAPL-contaminated material. The Yakama Nation will work with Ecology and the project archaeologist to develop a plan that more closely aligns with how this process usually works.

Resolution. Use Ecology's estimated 5 additional dredge days from the original 23-day estimate to account for any inadvertent discovery and screening of cultural resources. See Ecology's revised scoring of the disproportionate cost analysis (Table 1 in this letter).

4. **Issue: The capping alternatives' cost estimates are underestimated.**

The long-term monitoring does not include visual monitoring. Considering these alternatives include containment in place, the presence of sheens should be a sentinel observation that triggers additional actions. In addition, the costs appear to only include cap maintenance with no cap replacement. Unless Ecology is provided with adequate information that the treatment cap layer will never reach adsorption capacity, we must assume the treatment layer—at a minimum—will need to be replaced. This is a substantive additional cost, which was not included in Ecology's revised scoring of the disproportionate cost analysis (Table 1 in this letter).

Resolution: Include visual monitoring on an annual basis at a minimum, and visual monitoring after each storm event or any type of event that could disturb the cap. Ecology estimated a cost of $2,200,000, based on the $20,000/year visual monitoring costs in Table CS-2, visual monitoring after a severe storm event (every 10 years), and a timeframe of 100 years to be consistent with the FS for comparison purposes. This is likely an underestimate of actual costs since costs will be on an in-perpetuity basis. See Ecology's revised scoring of the disproportionate cost analysis (Table 1 in this letter).

5. **Issue: There is a lack of detail and analysis to demonstrate that monitored natural recovery is an effective remedial technology for the WSMA.**

The monitored natural recovery remedial technology for WSMA is not adequately described in terms of what is expected to occur. For sediment, monitored natural recovery typically includes deposition of clean sediment or breakdown of contamination into inert and non-toxic substances over time. However, data and analysis are not provided to show if monitored natural recovery will be successful.

Resolution. Adequate data must be collected and analyzed to understand sediment transport (i.e., sediment deposition rate, erosion potential, hydrodynamics) to inform whether monitored natural recovery will be effective.

6. **Issue: There is a lack of analysis of erosion potential for the capping alternatives for the ESMA.**

It is critical to have a clear understanding of the erosion potential of the capping alternatives to inform the effectiveness of this remedial technology.

Resolution. Erosion potential of the cap in ESMA should be assessed to inform the effectiveness of the capping alternatives and cap maintenance and/or replacement schedules in Tables CS-2 through 4 of the FS.

7. **Issue: Monitoring for dredging, capping, and monitored natural recovery alternatives is inadequate.**

The WSMA does not include chemical monitoring, which is important to verify NAPL is not migrating. The ESMA capping alternatives only include bathymetry and should include visual monitoring (see Issue #4) and chemical monitoring. The ESMA dredging alternative does not need as much monitoring as listed, which overestimates costs for the dredging alternative.

Resolution. Below are Ecology's proposed revised monitoring schedules, which are subject to change based on further discussions:

> For the WSMA Years 1, 5, 10, include chemical monitoring of surface sediment and surface water. If at Year 10, cleanup levels and surface water quality standards are met, then chemical monitoring can be discontinued. We should further discuss the need for visual monitoring and better understand the goals for bathymetry, triggers for contingency actions, and anticipated future response actions. This can be the same for all alternatives.
>
> For the ESMA dredging alternative, include visual monitoring for Years 1, 2, and 3, chemical monitoring or surface sediment and surface water for Year 1, and bathymetry for Years 1 and 5. If, after Year 5, cleanup levels and surface water quality standards are met, no sheen has been observed, and bathymetry has not changed, monitoring can be discontinued.
>
> For the ESMA capping alternatives, include bathymetry as listed in the FS, and for Years 1, 2, 3, 5 include:
>
> - Chemical monitoring of sediment within, on top of, and surrounding the cap.
> - Monitoring of surface water above the cap.
> - Visual monitoring on an annual basis starting immediately after construction. Additional monitoring should be done after a storm event or a physical event such as anchoring, grounding of vessels, construction, etc.
> - If at Year 5, cleanup levels and surface water quality standards are met, no sheens have been observed, and bathymetry has not changed, then chemical sediment and surface water monitoring can be delayed to Year 10.

- If at Year 10, cleanup levels and surface water quality standards are met, no sheens have been observed, and bathymetry has not changed, then chemical sediment and surface water monitoring can be done every decade.
- If at Years 5 or 10 monitoring results show cleanup levels or surface water quality standards are not met, or sheens are observed, or bathymetry has changed, Ecology may require further remedial actions or monitoring.

Table 1. Ecology's disproportionate cost analysis scoring.

Criteria	Alternative 2	Alternatives 3A-C	Alternative 4
Protectiveness	10	6	5
Permanence	10	6	6
Long-Term Effectiveness	10	5	5
Short Term Risks	8	9	6
Technical Implementability	8	9	5
Total Weighted Benefits	9.6	6.6	5.4
Total Cost ($millions)	8.42[a]	6.35[b]	7.53
Ratio of Cost to Benefit ($million/benefit)	**0.88**	**0.96**	**1.39**

a. Includes costs based on 28 dredge days (23 dredge days + 5 days for inadvertent discovery of cultural resources vs. the 164 dredge days and using the $7.02 million cost in the 1st draft Feasibility Study).

b. Average of capping alternatives 3A-3C ($3.7, $4.4, $4.9) and includes an estimated minimum of $2,200,000 in visual long-term monitoring costs (to year 100 for comparison purposes to the 2nd draft Feasibility Study). This does not include the costs to conduct Ecology's recommended additional chemical monitoring, as well as chemical and visual monitoring in perpetuity. Therefore, the costs are underestimated.

Weighting Factors:

- Protectiveness 30%: This is weighted to reflect the usual and accustomed fishing area for the Yakama Nation, which is critically important for cultural and natural resources.
- Permanence 25%
- Long-Term Effectiveness 25%
- Short-Term Risks 10%
- Technical Implementability 10%

Additional comments

The following calls out additional comments. Note that the full comments are available on the PDF version of the revised draft, and that version should be reviewed as well.

8. Issue: Tribal input for selection of the preferred alternative.

The revised draft FS refers to vulnerable populations and overburdened communities only in a general sense with regard to the remedy selection criteria. Yet, the draft FS must incorporate tribal input since their communities will likely be disproportionately affected by the impairment of habitat that is critical to threatened and endangered aquatic species. This holds true regardless of whether the current in-water portion of the site was once terrestrial. For the past 68 years, this in-water portion should have been considered to be critical habitat, rather than a migratory waypoint, and it will continue to serve as an important resource to tribal entities into the indefinite future.

We note that an Ecology-supervised cleanup must consider tribal rights and interests under WAC 173-340-620[4] when evaluating and weighing the benefits of cleanup action alternatives. Ecology pursued tribal engagement through tribal consultation, which resulted in the letter issued by the Yakama Nation, which was addressed to Ecology Director Casey Sixkiller, TCP Director Nhi Irwin, and the Central Region Toxics Cleanup Program. Their letter describes the rights and interests of the Yakama Nation in regard to the Site's location. It also describes their legal, cultural, and historical context of the Yakama Nation's rights and interests.
In relation to that, BNSF's response letter directed to Director Sixkiller stated that the site impacts are all below the biologically active zone. Yet, we note that Ecology's Sediment Cleanup User's Manual refers to situations that require more scrutiny, e.g., Section 4.4.5 states, "…contamination of sediment at depths below the biologically active zone can be a concern if there is a risk of exposure to humans or aquatic life.

[4] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340-620

For example, if vessels in the area have the potential to redistribute contaminated sediments from below the biologically active zone, if contamination can become mobile (e.g., NAPL), or contamination has the potential to interact with groundwater, particularly in rivers with losing reaches."

Under these conditions, we possess an insufficient level of confidence that any future condition of the Site or of the site's setting will not pose a risk to receptors by exposure to contaminated media, including surface water, if remedies that rely on long-term containment or monitored natural recovery are implemented.

Resolution. Account for and incorporate tribal input in the scoring of the remedy selection criteria. Per Section 620, the draft FS must be revised to describe how Ecology considered tribal rights and interests in the PMEP evaluation. Add text to explain how such concerns were considered when ranking, scoring, or weighing each of the benefit criteria. Also, assess and explain how those considerations may have affected the outcome of the PMEP evaluation.

Issue: Explain and account for the NAPL expression shown in the area covered by LIF logs: G000-A-SC, G000-TG, and G020-SC.

The Dakota Technologies report in the Sediment RI report states that the sample exhibited a fuel odor even though it showed an H1 waveform. The Dakota report also states that one explanation is that the soil did contain enough fuel impacts to impart an odor, but not enough NAPL to out-fluoresce the naturally fluorescent organics or to be recognizable as NAPL visually. However, note on page 12, the report states that the OHMH1 "***fluorescence commingled to some degree with heavier versions of NAPL fluorescence, so teasing this out from more degraded or heavier NAPLs isn't feasible, even with non-negative least squares (NNLS)***." Note that Table Dl-2 shows that the G000 samples exhibited media that had organics, were black or gray, and had a fuel odor. Other samples with LIF signatures that were plotted in the H1 cluster plot location include G020 and G200 samples. Notably, the G020 sample showed discreet NAPL and a positive odor of tar. Sample I160 was also plotted in the H1 cluster plot location. This sample was found in media that is described as wood fragments together with tar-like materials having a tar odor.

All of this information indicates that the OHMH1 category cannot be described solely as non-petroleum hydrocarbon organics. The graphic expression on these logs strongly suggests that we are seeing either lesser petroleum deposition events following the massive deposition event or ebullition-based redistribution of petroleum impacts vertically upwards in previously uncontaminated sediment.

Resolution. The area near these LIF logs should be designated separately from the WSMA and treated differently regarding the proposed remediation in the WSMA. Alternatively, the WSMA should incorporate additional remedial actions in this specific area.

Issue: Lack of reference to critical habitats in the FS, including the designated uses of the Columbia River and listing of the endangered and threatened aquatic species.

The revised draft FS does not mention critical habitat except for a minor inclusion of the term in Table A-3, nor does the draft FS discuss the role of critical habitat. The draft FS also does not state a list of the endangered and threatened species or the designated uses of the Columbia River.

Resolution. Incorporate discussion of critical habitat in the revised draft. This is an important consideration that should be addressed in the report in reference to federally endangered and threatened aquatic species. Add a table that lists the federally endangered and threatened species.

Also, list the designated uses of the Columbia River and state that remedial actions must address the protection, enhancement, and/or restoration of aquatic life uses. Refer to the Sediments RI Work Plan for the list of species and the designated uses of the surface water.

9. **Issue: Expression of Washington state's regulatory authority.**

The state's regulatory authority is described in MTCA, WAC 173-340-130(9).[5] Ecology retains all authority to determine compliance with state cleanup law requirements, as stated in that subsection. This authority is further described in the public comment version of Ecology's publication #25-09-059 "Guidance for Determining if a Cleanup Action uses Permanent Solutions to the Maximum Extent Practicable using Disproportionate Cost Analysis."[6] As explained in Section 9.4 of the guidance, Ecology may use its Best Professional Judgement (BPJ) to determine if the baseline alternative is practicable and whether any selected remedy is permanent to the maximum extent practicable. Ecology's BPJ extends to the following:

1. Weighting of the benefit criteria,
2. Estimating the costs and benefits of each alternative,
3. Favoring or disfavoring qualitative benefit and cost estimates in the analysis,
4. For each iteration of the DCA in Step 4 of the PMEP evaluation, determine whether the baseline alternative is practicable (more cost-effective) compared to the next most permanent alternative on the ranked list.

[5] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340-130
[6] This guidance is expected to be finalized in the 3rd or 4th quarter of 2025.

Note that the basis for SMS is rooted in our state's antidegradation policy together with its designated use policy, as described in WAC 173-204-120.[7] SMS shares these underlying policies in common with the federal Clean Water Act and Chapter 173-201A WAC[8] (Water quality standards for surface waters of the state of Washington). We further note that the Columbia River at Wishram is part of the Columbia River National Scenic Area. Chapter 173-204-120(1)(b) states that no degradation of existing sediment quality shall be allowed in water constituting an outstanding national resource, including scenic and recreation areas.

Resolution. Comment stands as-is.

You can reach me at (509) 731-9613 or john.mefford@ecy.wa.gov to schedule a meeting to discuss the comments after your team has had time to review.

Sincerely,

John Mefford
Cleanup Project Manager/Hydrogeologist
Toxics Cleanup Program
Central Region Office

Enclosures by electronic submittal only:

1. Ecology comments on the marked-up Adobe PDF version of the revised draft Sediment Feasibility Study
2. Ecology's revised scoring of draft DCA
3. Yakama Nation Fisheries comments in letter dated 1/21/2025

cc: Chance Asher, Department of Ecology, Toxics Cleanup Program
Elena Ramirez Groszowski, Yakama Nation Fisheries

[7] https://app.leg.wa.gov/WAC/default.aspx/default.aspx?cite=173-204-120
[8] https://app.leg.wa.gov/wac/default.aspx?cite=173-201A