Responsiveness Summary

Arkema Inc

Cleanup Site ID: 3405
Facility ID: 1220
Address: 2901 Taylor Way, Tacoma WA
County: Pierce

This report was prepared by:

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Toxics Cleanup Program
Southwest Region Office
Lacey, Washington

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[1] www.ecology.wa.gov/contact

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Public Comment Period Summary

Ecology held a public comment period for the Arkema Inc cleanup project from December 4, 2025, to February 20, 2026. In total, this public comment period was open for 79 days.

Ecology held this public comment period to gather feedback on three documents about an interim (partial) cleanup at the site.

- **Interim Action Work Plan:** A plan to conduct a limited cleanup of the site that will help limit arsenic entering the Hylebos Waterway before a cleanup plan for the entire site is developed.
- **Agreed Order Amendment:** This requires the Port of Tacoma to carry out the partial cleanup. The amendment adds the Interim Action Work Plan and its schedule to a 2011 legal agreement between Ecology and the Port of Tacoma powering cleanup at this site. The Port of Tacoma is the potentially liable party (PLP) responsible for paying for and implementing cleanup at the site.
- **SEPA Determination of Non-Significance:** We determined the proposed cleanup is not likely to cause significant environmental harm. We considered environmental, historical, and cultural factors in this process.

We received three comments during the public comment period.

Ecology review of comments

After the conclusion of this public comment period, Ecology reviewed and considered the public comments received. Based on our review of comments, we found that no significant changes were needed to the Interim Action Work Plan, Agreed Order Amendment, or SEPA Checklist and Determination.

However, Ecology did make four updates to the documents in response to the public comments received. These updates include:

1. Ecology amended the enforcement schedule in the Agreed Order Amendment to reflect the relationship between the proposed interim action and the final remedy. The new schedule will require the Port of Tacoma to submit a Draft Feasibility Study (FS) Report for Ecology's review within 90 days after receiving receipt of Ecology's approval of asphalt cap construction completion report, which is the last deliverable of the interim action.
2. Regarding substantive requirements of exempted permits, Ecology included a document that compiles consultation progress and substantive requirements to this responsiveness summary as an appendix (Appendix B, page 38). The complete substantive requirements will be included in a memorandum that accompanies the 100% design document of the interim action deliverables, which is being prepared by the Port of Tacoma, and the Interim Action Completion Report.

3. Ecology attached the groundwater models to the Final Interim Action Work Plan.
4. A detailed Compliance Monitoring Plan (CMP) is being developed by the Port of Tacoma and will be reviewed by Ecology. In response to the comments, the final Interim Action Work Plan and CMP will be clearer about what "TBD" frequency means for each task.

Cleanup next steps

The Agreed Order Amendment was signed by Ecology on April 14, 2026. The Port of Tacoma will start work on implementing the Interim Action Plan according to the schedule laid out in the plan.

This site is being cleaned up under Washington's cleanup law, the Model Toxics Control Act (MTCA). You can review the steps of Washington's cleanup process in Figure 1 (below). For more information about the MTCA process, visit Ecology's cleanup process webpage.[2]

The work proposed during this comment period is for an interim action. An interim action is a remedial action that only partially addresses the cleanup of a site. The purpose of using an interim action can include reducing urgent threats, correcting problems before they get bigger, or if a PLP needs extra actions to better assess site hazards. This interim action is not designed to clean up the site. Rather, it proposes a way to contain the contamination within the site and prevent future spreading into the Hylebos waterway.

Cleanup planning is still underway to figure out how to deal with all the remaining contamination at the site. Right now, the site is in development for three stages of cleanup: studying the site, considering cleanup options, and planning the cleanup. The Port is still putting together reports that explain what they've found, what options they've considered, and what they plan to do. Ecology and the Port reviewed early drafts of these reports while creating this Interim Action Work Plan. This helps ensure the interim actions taken now won't interfere with future cleanup work. Another public comment period will take place once those cleanup documents are ready for review.

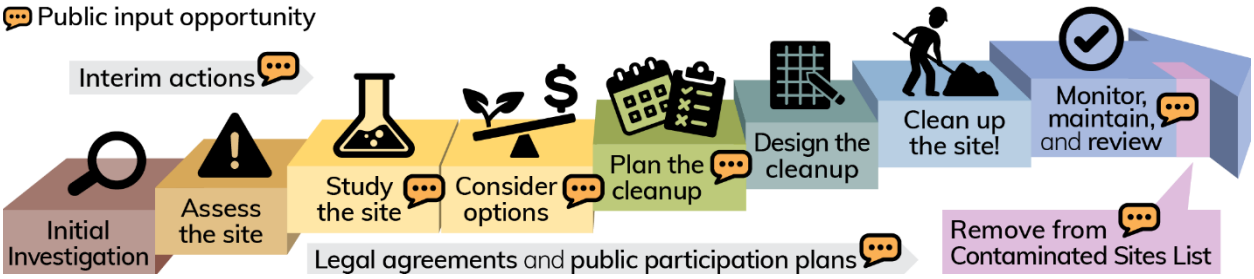

Figure 1: The steps of Washington's cleanup law, the Model Toxics Control Act.

[2] https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-process

Public involvement

Before starting this public comment period, Ecology met with Communities for a Healthy Bay's Policy and Technical Advisory Committee to share information about the Arkema Inc and Superlon Plastics Co Inc cleanup projects.

After that meeting, Ecology received a request from Communities for a Healthy Bay to extend the comment period. Ecology agreed to a comment period extension and added 45-days to the comment period. This extended the close date from January 6, 2026, to February 20, 2026.

A full overview of public involvement during this public comment period, including public notice mailers and the public comment period extension accommodations, are in Appendix A, page 36.

Stay informed

Ecology will keep the public informed as the cleanup progresses.

- Sign up for updates on Ecology's Arkema Inc webpage[3] to receive Ecology updates about the Arkema Inc cleanup. Subscribers receive a weekly automated email whenever there's an open comment period, a new document, or other cleanup news. You can read more about this feature on Ecology's blog.[4]
- Subscribe[5] to Ecology's email list to receive updates on our cleanup work being done in the Tacoma Tideflats/Commencement Bay area.

[3] https://go.ecology.wa.gov/3405
[4] https://ecology.wa.gov/blog/may-2025/updates-on-cleanup-sites-in-your-inbox
[5] https://public.govdelivery.com/accounts/WAECY/subscriber/new?topic_id=WAECY_33

Response to Public Comments

We appreciate the time people took to submit their thoughtful comments during the comment period. We carefully considered each comment while conducting our review.

In the following section are Ecology's responses to the comments received during the comment period. The goal of our responses is to answer questions, provide context, and to document the decisions made following the public comment period.

Table 1: Summary of commenters.

Commenter	Representing	Page Number
Ethan Allen	Self	5
Logan Danzek	Communities for a Healthy Bay	7
Andrew Annanie	Puyallup Tribe of Indians	22

Comment from: Ethan Allen

Sumit date: December 5, 2025
Submit method: Website

We've lived in Pt. Woodworth, across the Hylebos up the hill toward Federal Way, since Pt. Woodworth was developed 25 years ago. So, it's rather astounding that it appears toxic waste has been seeping into the waterway for all this time and is only now starting to be addressed.

Some thoughts: Can we PLEASE keep in mind Climate Change (yes, it's real, science proves it's real, and we have to do everything we can to protect ourselves from FURTHER deterioration). So can we PLEASE include some trees or other appropriate groundcover in the eventual plan (for instance cover the North Boundary Area with trees as well as the Existing Habitat Area next to it).

Secondly, the housing development in which I live is right above the land being cleaned up....and prepared, I suspect, for some eventual industrial use ("future land use goals"). PLEASE keep in mind that there are NO sound barriers between the cleanup project and our Pt. Woodworth housing development (184 homes, I believe). So, no loud night or early morning work on the project. AND, once complete, please don't add a commercial project on the space that will send noise straight up the hill all day and night.

And while I'm at it, how about planting trees wherever possible and feasible down on the tide flats, which at one point was ALL trees. It will add a little to the climate control fight and likely help a little in noise reduction. Seems a reasonable thing to do at not a tremendous cost.

Ecology response to Ethan Allen's comment

Thank you for your comments. The comments include planting trees and other appropriate groundcover plants after the construction and reducing noise during the construction.

Planting

Ecology considers planting opportunities when it is required by zoning and would work with the cleanup plan. Unfortunately, planting is not possible at this cleanup project.

In this case, the land is zoned for maritime industrial use in the City of Tacoma Comprehensive Plan and does not have planting requirements.

Trees and plants with deep roots also would not work with the cleanup action. The remedy includes an asphalt cap, designed to cover contamination and stop people and wildlife from being exposed to contaminated soil. The cap also stops rain and water on the surface from seeping down into the groundwater, bringing contamination with it. Tree and plant roots would damage the paved cap, causing cracks, which would prevent the remedy from working as intended.

This cleanup project does not cover the North Boundary Area and areas with existing habitat. Ecology will consider planting opportunities if future cleanup extends to those areas.

Noise Control

Cleanup construction must follow Tacoma Municipal Code Chapter 8.122, Noise Enforcement.[6]

Under this code, most work in Tacoma happens between 7:00 am and 9:00 pm on weekdays, or between 9:00 am and 9:00 pm on weekends and federal holidays. Any after-hours work must be less than 5 decibels louder than the ambient sound level.

[6] https://cms.cityoftacoma.org/cedd/special%20events/NoiseAbateCode.pdf

Comment from: Logan Danzek, on behalf of Communities for a Healthy Bay

Sumit date: February 20, 2026
Submit method: Website

Dear Washington State Department of Ecology staff,

Please see our attached comment letter on the documents relating to the Arkema Inc. toxics cleanup site.

Thank you very much,

Logan Danzek, Policy Manager

Communities for a Healthy Bay

[Comment continues the following pages. Ecology's response to this comment is on page 16.]

Communities for a Healthy Bay

Washington Department of Ecology
Attn: Sam Meng, Arkema Cleanup Site Manager
PO Box 47775
Olympia, WA 98504-7775

February 20, 2026

Via Ecology's Public Comment Form | *Arkema Inc. (Cleanup Site ID 3405)*

Re: Arkema Inc. | Interim Action Work Plan, Agreed Order, and SEPA DNS

Dear Washington State Department of Ecology,

For over 35 years, Communities for a Healthy Bay (CHB) has been working to engage people in the protection of Commencement Bay, the waters of the South Sound, and the diversity of life they sustain. We are a 501(c)3 nonprofit working with residents, businesses, and governments to offer practical, solutions-based environmental leadership in the Puget Sound area. We strive to mobilize popular support for decisions that make our communities healthier and more vibrant.

I am writing on behalf of CHB and our Policy and Technical Advisory Committee (PTAC) to comment on the Arkema Cleanup Site documents—Draft Interim Action Work Plan (IAWP), Draft Agreed Order, SEPA DNS, and Site Fact Sheet.

First, we would like to say that we appreciate Ecology's comment period extension and for continuing to oversee this cleanup in the Tacoma Tideflats. The Arkema site has a long industrial legacy, with multiple cleanup actions completed since the 1980s under multiple authorities, and yet contaminants remain far above state cleanup levels and could require multiple future MTCA cleanup actions.

While we support prompt action to reduce ongoing contaminant transport into the Hylebos Waterway, the interim action now proposed is a major engineered intervention (barrier wall and extensive caps) that would facilitate future industrial use. It is critical that redevelopment does not serve as the sole end of remediation, does not crowd out better final-cleanup alternatives, and does not shift long-term burdens to shoreline systems and the communities that are affected by cumulative Tideflats impacts. We offer the following comments:

From Current Conditions to Final Cleanup

Existing Contamination

Ecology's fact sheet depicts arsenic-contaminated groundwater associated with the site and identifies plume contours including 50,000 µg/L arsenic groundwater concentrations on the legend (and a 5,000 µg/L contour), underscoring that the remaining groundwater concentrations

addressed by this interim action are orders of magnitude above drinking water benchmarks (e.g., EPA's 10 µg/L arsenic standard for public water systems).

The Draft IAWP documents the historical severity and persistence of contamination. It states that monitoring well MW 6E1-1 (near former Penite Pit #1) had the highest arsenic groundwater concentration ever measured at the site: 3,670,000 µg/L, and repeatedly exceeded 1,000,000 µg/L through 1993 (Draft IAWP, Summary of Background Information, p. 2-5).

The Draft IAWP further indicates that, while remedial actions have removed substantial arsenic mass and plume behavior is described as stable or declining in portions of the system, "very high dissolved arsenic concentrations remain" in portions of the Upper and Intermediate Aquifers; it also states that "the overwhelming majority of arsenic remaining within the current main arsenic plume resides within the upper portion of First Aquitard soil" (Draft IAWP, Summary of Background Information, p. 2-6).

Accumulation of Toxics

Ecology's site page describes the operational and disposal history that created the contamination problem: chemical manufacturing from 1927 to 1997 including sodium arsenite ("Penite") manufacturing; wastes dumped into pits; arsenic leaching into soil and groundwater and nearby sediments; and a "Taylor Lake" pond complex with some ponds described as highly caustic (high pH), as well as other releases.

Ecology's site page also documents extensive prior cleanup actions and significant spending through February 2021 (approximately $16 million for investigation/evaluation and $66 million for cleanup), including soil/sediment removal and caps, a sheet pile wall, pump-and-treat and in-situ stabilization for the main arsenic plume, and other remedial actions—yet contaminants remain above state cleanup levels.

Given this record, the interim action must be supported by a clear, compelling explanation: ***what is the remaining transport mechanism and why is an additional barrier wall—beyond existing shoreline controls—necessary and expected to materially reduce contaminant discharge to surface water and sediments?*** Ecology's DNS states that the interim action is required (through the Agreed Order Amendment) "to reduce the rate of arsenic entering the Hylebos Waterway through groundwater," but the public record must connect that objective to a performance framework that can be verified, enforced, and adapted.

Efficacy of Interim Action

WAC 173-340-430 is explicit: interim actions "shall not be used to delay or supplant the cleanup process," must not foreclose reasonable final alternatives, must be followed by additional actions unless cleanup standards are confirmed, and Ecology must set appropriate deadlines.

The Draft IAWP states confirmation monitoring is "premature" because cleanup standards and remediation levels have not been established, the feasibility study is still ongoing, and a final cleanup action has not been developed (Draft IAWP, Preliminary (30%) IA Design, p. 4-8). This

reinforces the need for Ecology to embed enforceable interim-to-final milestones into the Agreed Order framework—not only design/construction deadlines for interim infrastructure.

We ask Ecology to: Require an enforceable schedule for completion and public release of the full Remedial Investigation (RI) / Feasibility Study (FS) / Cleanup Action Plan (CAP) package and final remedy selection/implementation, consistent with the "no delay" requirements of WAC 173-340-430.

Critical Areas and Shorelines

Increased Shoreline Hardening

The interim action is explicitly shoreline-protective in its intent—preventing arsenic migration to the waterway—but it relies heavily on engineered containment and extensive capping. Ecology's fact sheet describes (1) an underground barrier wall around the arsenic plume core, (2) a watertight cap over the barrier wall area (geotextile + PVC liner + gravel), and (3) a permanent asphalt cap over roughly 24 acres intended to reduce infiltration, decrease contaminant transport toward the waterway, and support future land use goals.

The Draft IAWP states that the new barrier wall alignment will be placed as close as practicable to the existing sheet pile wall (within three to five feet), "effectively replacing the prior function of the SPW in those areas," and the wall will be keyed into the Second Aquitard (Draft IAWP, Preliminary (30%) IA Design, p. 4-2).

This proposal must be understood in the context of additional shoreline armoring underway nearby. Ecology's published Occidental cleanup responsiveness summary describes a vertical barrier wall adjacent to the Hylebos Waterway to contain shallow groundwater with high pH and other contaminants, approximately 2,200 feet long and 70–75 feet deep, paired with a cover system.

We ask Ecology to: Address the combined effect of (a) Arkema's new shoreline-adjacent containment wall and extensive paving, and (b) the nearby Occidental/OxyChem shoreline barrier wall and integrated asphalt cover, is a continuing pattern of shoreline hardening in a waterway that is already part of the larger Commencement Bay Nearshore/Tideflats Superfund system.

Critical Area and Shoreline Protections

Ecology's fact sheet explains that MTCA excuses cleanup parties from the application process for certain state and local permits, listing exemptions for (among other things) the City of Tacoma Shoreline Substantial Development Permit and WDFW Hydraulic Project Approval, while stating Ecology still requires the Port to follow the rules on relevant permits.

WAC 173-340-710(9) is more specific and more enforceable: while certain remedial actions under an order/agreed order may be exempt from procedural requirements, they must still

comply with substantive requirements; Ecology must consult with agencies/local governments to identify substantive requirements, identify permit exemptions and substantive requirements in the order/work plan, and provide public notice seeking comment on those substantive requirements.

We ask Ecology to: Publish a "Substantive Shoreline/Critical Area Requirements Matrix" that can be used to identify (1) procedurally exempt permit/approval, (2) the substantive standards that would apply, (3) proper consultation, and (4) how each substantive standard would be demonstrated and enforced through interim action design, construction, and long-term O&M.

Habitat and Stormwater Performance Metrics

Because the interim action includes a long-lived paved cap supporting future industrial yard use, stormwater quantity and quality become a primary pathway question, not a secondary design detail. Ecology's fact sheet indicates stormwater outfalls and treatment structures are part of Phase 1 alongside barrier wall installation.

Peer-reviewed evidence demonstrates that engineered green stormwater infrastructure can meaningfully reduce roadway runoff toxicant loading: a field experiment and modeling study published in Environmental Science & Technology Letters found mature bioretention systems can reduce 6PPD-quinone mass loadings by >~90% under typical storm conditions, and emphasizes the urgency of runoff interventions given 6PPD-quinone's acute toxicity to salmonids.

Other peer-reviewed stormwater media work supports evaluating sorptive amendments: an ACS Environmental Au column study found biochar- and regenerated activated carbon–amended engineered media filters removed a suite of co-contaminants including metals, trace organics, and PFAS while maintaining hydraulic conductivity in laboratory conditions.

We ask Ecology to: Require the interim action to include enforceable stormwater performance objectives (with monitoring and maintenance commitments) that address both metals and emerging roadway-derived contaminants likely found in a large paved industrial surface setting, and evaluate high-performance bioretention and sorptive media options (including biochar-amended media) as part of the stormwater treatment train—not just end-of-pipe minimum compliance.

Aquifers and Hydrogeology

Lack of Aquifer Isolation

The Draft IAWP provides detailed hydrogeology that identifies (from shallowest to deepest): Upper Aquifer (in fill), First Aquitard (upper silt), Intermediate Aquifer (intermediate sand), Second Aquitard (lower silt), and Deep Aquifer (lower sand). It notes the First Aquitard is typically 5–10 feet thick but that thin/leaky portions have been identified and are likely

preferential pathways for arsenic transport from the Upper Aquifer to the Intermediate Aquifer (Draft IAWP, Summary of Background Information, p. 2-2).

The Draft IAWP further states that, for the main arsenic plume, groundwater in all three aquifers generally flows east toward the waterway; that the Intermediate and Deep Aquifers are tidally influenced and can experience flow reversals; and that vertical gradients between the Upper and Intermediate Aquifers are downward during both low and high tidal stages, while gradients between Intermediate and Deep Aquifers can be downward and/or upward depending on tidal stage and location (Draft IAWP, Summary of Background Information, p. 2-2).

Interim Design Evaluation

The Draft IAWP's barrier wall design is explicitly intended to address deeper flow pathways. It states that the barrier wall will be keyed into the Second Aquitard, with the depth to the top of the Second Aquitard in PDI borings ranging from 26.5 to 33 feet bgs, and the wall installed up to 3 feet below the top of the Second Aquitard to eliminate Intermediate Aquifer groundwater flow below the wall (Draft IAWP, Preliminary (30%) IA Design, p. 4-2).

Given the documented tide influence and cross-unit gradients, Ecology should require something like a public-facing "Hydrogeologic Defensibility Addendum" that demonstrates: (1) how tidal reversals and vertical gradients were incorporated into performance expectations; (2) how thin/leaky aquitard zones and utility/obstruction conduit risks were evaluated; and (3) how monitoring will detect bypass around/under the wall and along shore interfaces. This is necessary to ensure that "containment" is not a narrative claim but an evidenced performance pathway.

We ask Ecology to: Require the final interim action approval record to include a concise defensibility package (conceptual model + sensitivity framing + monitoring triggers) that explicitly addresses tidal influence, vertical gradients, and preferential leakage pathways—supported by the Draft IAWP's own hydrogeologic characterization.

Contamination Mobility

Arsenic Mobility Affected by pH

The Draft IAWP documents that elevated pH in parts of the main arsenic plume "limit opportunities for sorption and cause reducing conditions (Eh < 0 V) that hamper sorption and limit co-precipitation with metal oxides," which in turn affects dissolved arsenic behavior (Draft IAWP, Summary of Background Information, p. 2-6).

The same section states that favorable attenuation conditions near the shoreline can occur due to mixing of marine surface water with groundwater, including oxidizing conditions, neutral pH, high conductivity, and high iron oxide concentrations, and that such mixing can cause hydraulic tidal dispersion that limits the amount of fresh groundwater discharged (Draft IAWP, Summary of Background Information, p. 2-6).

These concepts are directly tied to whether a barrier wall and caps will reduce harmful discharge in practice, particularly if tidal mixing and redox/pH shifts can either attenuate or mobilize arsenic. The U.S. Geological Survey summarizes that arsenic release and persistence in groundwater depend strongly on arsenic form and geochemical conditions in aquifers, including redox and pH controls.

Additional Barrier Wall

Ecology's fact sheet states that the barrier wall will be "impermeable," preventing groundwater inside the walled area from moving through it, and that caps will minimize infiltration and contaminant transport toward the waterway. The DNS states that this interim action is being required to reduce the rate of arsenic entering the waterway through groundwater.

However, the Draft IAWP also states that existing shoreline controls—including the existing sheet pile wall, intertidal shoreline cap, and subtidal shoreline cap—"help attenuate arsenic concentrations in groundwater prior to discharge" (Draft IAWP, Summary of Background Information, p. 2-6). It also states that the barrier wall will be placed close to and effectively replace the prior function of the existing sheet pile wall in portions of the alignment (Draft IAWP, Preliminary (30%) IA Design, p. 4-2).

This creates the central question for public review: ***If existing shoreline controls already attenuate arsenic, what specific deficiency is the new wall addressing (integrity, depth, alignment, hydraulic short-circuiting, tidal pumping, or preferential leakage), and what measurable performance improvement should the public expect?*** This explanation must be explicit.

Need for Monitoring Triggers

The Draft IAWP states that the interim action Compliance Monitoring Plan will be included with the 90% design submittal and identifies six groundwater monitoring tasks. It specifies monthly static water level monitoring for six months then quarterly for key wells, but it lists the frequencies for dissolved arsenic monitoring (Task 4) and longer-term comprehensive events (Tasks 5–6) as TBD based on ongoing design and modeling work (Draft IAWP, Table 3: Overview of IA GWM Plan).

As discussed earlier, because pH conditions are explicitly linked to arsenic mobility at this site in the Draft IAWP, Ecology should require the final monitoring plan to include numeric action levels and response actions for field parameters and for dissolved arsenic changes—so that monitoring is decision-relevant and protective, not merely descriptive. EPA's arsenic drinking water rule emphasize arsenic's health risks at low levels and the need for protectiveness over long durations—underscoring why monitoring triggers matter when concentrations are orders of magnitude higher in legacy groundwater plumes.

We ask Ecology to: Require the final interim decision documents and design approvals include (1) a clear narrative and quantitative rationale for how the new wall outperforms

existing shoreline controls and why (including addressing pH and tidal effects), and (2) monitoring action levels/triggers tied to clearly defined adaptive responses.

Ongoing Uncertainty

Unresolved Contamination Source
The Draft IAWP acknowledges continuing uncertainty about specific elevated concentration areas: it states the exact cause(s) of elevated arsenic groundwater concentrations at/near and downgradient of shoreline monitoring location 124+00-2 have not yet been determined and continue to be studied as part of the ongoing RTC Data Gaps Investigation, with current suspicion including preferential leakage through the sheet pile wall and thin/leaky First Aquitard locations (Draft IAWP, Summary of Background Information, p. 2-6, footnote 12).

At the same time, the Draft IAWP's monitoring plan leaves key long-term tasks as TBD (Tasks 4–6). If the most decision-relevant monitoring frequency remains TBD through final approval, then the public has no clear assurance that interim action performance will be evaluated promptly enough to trigger corrective action before the site is further hardened and put back into intensive use.

We ask Ecology to: Require that "TBD" monitoring frequencies convert into explicit commitments (with rationale) and to publish a short data-to-decision framework explaining how monitoring results will be interpreted and what thresholds will trigger additional actions or modifications.

Center for Urban Waters Research
Recent monitoring and research across the broader Superfund system highlight that "cleanup completed" does not necessarily mean "contamination pathways closed." A 2025 Puget Sound Institute article reports that despite more than four decades of cleanup in Tacoma's industrial Tideflats, research suggests toxic chemicals such as PCBs and PBDEs may still be entering waterways, and it describes a new project led by Center for Urban Waters affiliates (with Ecology and the Port) to identify contaminant "hotspots," motivated by the troubling possibility of undiscovered sources and pathways.

The related "Commencement Bay Hotspot Studies" project page explains that Commencement Bay has seen improvements and major investment (stating more than $600 million invested in cleanup and restoration), yet recent monitoring shows elevated contaminants in the Hylebos/Blair/Sitcum waterways and in some cases rebound following dredging—raising questions about ongoing sources reintroducing contaminants.

These active studies underscore why Ecology should treat interim actions that harden shorelines and cap large areas as decisions that require high transparency, enforceable performance requirements, and a clear pathway to final cleanup—not simply as near-term construction projects.

Ensuring Alignment and Accountability

The Hylebos Waterway is part of the larger Commencement Bay/Nearshore Tideflats Superfund Site, and federal enforcement history shows that multiple parties and multiple waterways have required extensive sediment cleanups and source controls over decades. Additionally, the newly approved Tideflats Subarea Plan will also play a key role in the development trajectory of any sites remediated to industrial use standards.

Given this context—and the documented ongoing uncertainty and hotspot investigations—Ecology should use the Arkema interim action to set a clear standard for how interim containment is evaluated, monitored, and transitioned to final remedy selection, rather than allowing interim measures to accumulate as piecemeal redevelopment enablers across the shoreline.

Conclusion

We would like to reiterate that the Arkema site is just one of the multiple high-profile contaminated sites along the Hylebos Waterway. Overall, the Tacoma Tideflats face challenges from numerous sources, including: (i) the cumulative impacts of pollution along the Hylebos and Blair (e.g., PBDEs, PCBs, legacy contamination, shipping emissions), (ii) the public health impacts of routine exceedances of fecal coliform in the Foss, (iii) the lack of tree canopy exacerbating the urban heat island effect in the Port of Tacoma, (iv) sea level rise and flooding, and (v) the lack of a comprehensive understanding of how and where contamination is moving through the Tideflats.

While we will always support thorough cleanups of severely contaminated sites, we maintain a healthy skepticism about the efficacy of cleanup actions until active monitoring and review takes place. We also want sites to be remediated to the maximum extent possible to protect habitat and species, despite cost or redevelopment timelines. Given the breach of the current barrier wall and the resulting toxics exposure, we know this site will require specific attention and monitoring.

Communities for a Healthy Bay thanks the Washington State Department of Ecology for the opportunity to comment. We also sincerely appreciate the Ecology staff who kept us informed with presentations and maintained productive communication.

Sincerely,

Logan Danzek, Policy Manager

ldanzek@healthybay.org

Ecology response to Logan Danzek's comment

Thank you for your comment. Below are Ecology's responses to the questions and requests raised in your comment letter.

Enforceable Cleanup Schedule

Communities for a Healthy Bay requested that Ecology: "require an enforceable schedule for completion and public release of the full Remedial Investigation (RI) / Feasibility Study (FS) / Cleanup Action Plan (CAP) package and final remedy selection/implementation, consistent with the "no delay" requirements of WAC 173-340-430."

Ecology Response

An enforceable schedule for the cleanup is in Exhibit C of Agreed Order DE 5668.[7] We hear the concern about the timing, so Ecology decided to amend the Exhibit C schedule after this public comment period in response to the request. The updated schedule now reflects the relationship between the proposed interim action and the final remedy. Please see the new schedule in the Final AO Amendment.[8]

Ecology approval of the asphalt cap construction completion report is the last step in the interim action schedule. After receiving that approval, the Port of Tacoma will have 90 days to submit a draft feasibility study to Ecology. The feasibility study will develop and evaluate cleanup action alternatives to enable the selection of a cleanup action.

Critical Areas and Shorelines Request #1

Communities for a Healthy Bay requested Ecology to: "Address the combined effect of (a) Arkema's new shoreline-adjacent containment wall and extensive paving, and (b) the nearby Occidental/OxyChem shoreline barrier wall and integrated asphalt cover, is a continuing pattern of shoreline hardening in a waterway that is already part of the larger Commencement Bay Nearshore/Tideflats Superfund system."

Ecology Response

When conducting cleanup projects, Ecology considers critical area and shoreline protection when a project may alter the shoreline, impacting habitat. For example, the Occidental Chemical Corp cleanup will include an off-site restoration project to replace lost habitat in the Commencement Bay area, in addition to adding habitat enhancement features to the wall.

During the interim action at Arkema, the only action that may impact wetland plants would be the modification of an existing stormwater outfall. The work at the shoreline will be done in a way of meeting the requirements in the US Army Corps' permit (Permit Reference # NWS-2024-787-WRD), which also considers habitat protection. A cofferdam will be installed abutting the wetlands prior to any excavation and installation work; no impact is expected. If during construction it is determined

[7] https://apps.ecology.wa.gov/cleanupsearch/document/5034 (download link 13.4 MB)
[8] https://apps.ecology.wa.gov/cleanupsearch/document/163627 (download link 616 KB)

that wetland vegetation may be impacted, the impacted vegetation may be removed for the duration of cofferdam use, then restored when the cofferdam is removed after construction.

For the shoreline-adjacent area, soil with concentration above screening levels for human protection (20 microgram per kilogram; MTCA Table 720-1and 745-1)[9] and for avian and mammal protection (43 mg/kg and 46 mg/kg; EPA Ecological Soil Screening Levels for Arsenic)[10] are commonly present throughout the site (Interim Action Work Plan (IAWP); Figure 1 in Appendix E).[11] Both partial and full removal of contaminated soil were considered but not selected, as explained and demonstrated in a Permanent to the Maximum Extent Practicable (PMEP) evaluation (formerly called Disproportionate Cost Analysis) in Appendix E. The proposed asphalt cap will eliminate the exposure of humans and animals to the contaminated soil, in addition to preventing the infiltration of stormwater which leaches contaminants from soil to groundwater and surface water.

Substantive Shoreline / Critical Area Requirements Matrix

Communities for a Healthy Bay requested Ecology to: "Publish a "Substantive Shoreline/Critical Area Requirements Matrix" that can be used to identify (1) procedurally exempt permit/approval, (2) the substantive standards that would apply, (3) proper consultation, and (4) how each substantive standard would be demonstrated and enforced through interim action design, construction, and long-term O&M."

Ecology response

The Washington State cleanup regulation, the Model Toxics Cleanup Act, includes the process for identifying exempt permits/approvals and the substantive requirements of exempted permits/approvals.

Following WAC 173-340-710(9)(b), the Interim Action Work Plan (IAWP) identifies several exempted permits and approvals (Page 5-2; IAWP).[12] The exempted permits and approvals include City of Tacoma's Shoreline Substantial Development Permit and Approval for Critical Area Allowed Activities.

Even though the interim action is exempt from procedural requirements of some laws, it must comply with the substantive requirement of these laws. As required by WAC 173-340-710(9)(d)(i), Ecology's Toxics Cleanup Program and the Port of Tacoma are consulting with Ecology's Shorelands and Environmental Assistance Program and the City of Tacoma to confirm the exemption and to obtain written documentation regarding the substantive requirements. The Port of Tacoma maintains a living document to compile the consultation progress and substantive requirements from state agencies, local governments, and Ecology programs that would normally issue the permits/approvals.

[9] https://apps.ecology.wa.gov/publications/documents/9406.pdf
[10] https://www.epa.gov/risk/ecological-soil-screening-level-eco-ssl-guidance-and-documents
[11] https://apps.ecology.wa.gov/cleanupsearch/document/163632 (download link 58.2 MB)
[12] https://apps.ecology.wa.gov/cleanupsearch/document/163644 (download link 17.1 MB)

In accordance with MTCA, Ecology should also provide an opportunity for comment on the exempted permit requirements during the standard public comment opportunities provided under MTCA, to the extent Ecology knows the requirements. However, this public comment period did not include the exempted permit requirements because the design was still in progress when the public comment period started. The permitting agencies usually require a finalized legal agreement (i.e., the Agreed Order Amendment) and a close-to-final design to understand the scope of work, then decide what permits are applicable but exempt and what the substantive requirements are.

In response to this comment, the document that compiles consultation progress and substantive requirements is included in the responsiveness summary as Appendix B. The document will be finalized as a memorandum, which will accompany the 100% design documentation for Ecology's review.

Ecology will make a final determination on what substantive requirements will apply to the site. This includes situations where permit requirements conflict with remedial action requirements and schedule. Ecology will consult with the affected agencies before deciding.[13] The substantive requirements will be demonstrated by compliance with the deliverables required under the agreed order amendment (e.g. 90% construction plans, 100% construction plans, construction completion reports). The deliverables will be uploaded to Ecology's Arkema Inc webpage.[3]

Stormwater Performance Objectives

Communities for a Healthy Bay requested Ecology: "Require the interim action to include enforceable stormwater performance objectives (with monitoring and maintenance commitments) that address both metals and emerging roadway-derived contaminants likely found in a large paved industrial surface setting, and evaluate high-performance bioretention and sorptive media options (including biochar-amended media) as part of the stormwater treatment train—not just end-of-pipe minimum compliance."

Ecology response

When the proposed interim action is completed, the stormwater to be discharged from the two outfalls will not be considered impacted by the site contamination, as the stormwater will be isolated from the contaminated soil and groundwater. Stormwater discharges from the site will be regulated under the Port's existing MS-4 NPDES Permit.[14] NPDES permits are not exempted for remedial actions under MTCA per RCW 70.105D.090 and WAC 173-340-710.

The Port has designed a stormwater treatment system for this site. This treatment system includes sub-basin treatment vaults (in place of catch basins) that have a pretreatment oil control and gross solids/sediment removal chamber and carbon-based filtration media treatment chamber. Stormwater is treated in each sub-basin separately, then conveyed to a trunk line for discharge to surface water. This provides flexibility to customize the filtration media in each sub-basin, as

[13] https://apps.ecology.wa.gov/publications/documents/1509339.pdf
[14] https://fortress.wa.gov/ecy/ezshare/wq/permits/MS4_2024_Phase%20I_FinalPermit.pdf

necessary, if the site is used for industrial operations in the future. A future change in land use may also trigger additional stormwater treatment requirements as provided for in Tacoma Municipal Code (TMC) 12.08A.040.

Interim Action Justification

Several comments asked for a clear explanation of why existing shoreline controls are insufficient, the mechanism of contaminant transport, what specific deficiencies the new wall will address, and measurable performance improvement the public can expect. Communities for a Healthy Bay also requested this rationale be included in Ecology's approval records associated with the interim action.

Ecology Response

Existing Shoreline Controls

Existing shoreline controls do not prevent contamination from entering the Hylebos Waterway. While there has been previous cleanup work at the site, including removal of sodium arsenite (Penite), the remedial investigation[15] shows that arsenic level and pH are still elevated, particularly in the soil and groundwater in the former manufacturing area. The contaminated soil is acting as a persistent source that releases contaminants to the groundwater.

Existing shoreline controls, which are the sheet pile wall along the shoreline and sediment caps at certain intertidal and subtidal areas, are apparently insufficient to prevent contaminated groundwater from migrating outside the existing sheet pile wall. Water samples collected from outside the sheet pile wall show up to up to 90,000 micrograms per liter (µg/L) arsenic in the groundwater and up to 550 µg/L arsenic in sediment pore water, exceeding the preliminary screening level for groundwater and surface water.

Contaminant Transport Pathways

A conceptual site model is presented in Feasibility Study Data Gap Investigation Report[16] (PIONEER July 2019), and is summarized in Section 2.8 of the IAWP.[12] All conceptual site models are iterative and living documents, and the conceptual site model for this site will be updated as necessary as new data and information are obtained.

Current mechanisms of arsenic transportation include:

1. The existing steel sheet-pile wall (SPW) was installed in 1990, repaired in 2004, and is nearly 40 years old. The potential leakage through the SPW joints was measured by comparing groundwater tidal fluctuations in monitoring wells on the seaward and landward sides of the SPW (Feasibility Study Data Gap Investigation Report, July 2019, PIONEER). The hydraulic conductivity through the SPW joints was estimated to be on the order of 2.8×10^{-7}

[15] https://apps.ecology.wa.gov/cleanupsearch/document/25283 (download link 79.7 MB)
[16] https://apps.ecology.wa.gov/cleanupsearch/document/86180 (download link 49.4 MB)

cm/s. There also could be localized damage (bends or fractures) that occurred during the installation as the sheet piles were inserted into the ground.

2. The contaminated groundwater may bypass the SPW at the bottom. The sheet piles are not inserted into the second aquitard, which underlies the intermediate aquifer where the arsenic levels are high (Figure 5-32b; Remedial Investigation Report 2013).[15]
3. Locations where the first aquitard is thin or leaky could provide a preferential pathway for arsenic migration from the upper aquifer to the intermediate aquifer.
4. The sediment caps could eliminate the exposure of aquatic life to the arsenic-impacted sediment but can't stop the migration of arsenic when it is in the water phase.

Current arsenic release mechanisms #1, #2, and #3 are due to the deficiency of the existing SPW (integrity, depth, and length). The proposed interim action components will outperform the existing SPW by targeting the three mechanisms to reduce contaminant discharge to surface water and sediments.

Interim Action Design

The proposed interim action has three components:

- a barrier wall underground around the arsenic groundwater plume core
- a water-tight cap over the barrier wall area, and
- a permanent asphalt cap over a roughly 24-acre area.

The barrier wall will be inserted into the second aquitard that separates the intermediate aquifer and deep aquifer. Unlike the existing SPW, which could be bypassed by water from both sides and the bottom, the barrier wall, the second aquitard, and the water-tight cap form a low permeability box. The box will: reduce the amount of water entering the source area through groundwater movement, stormwater infiltration, and tidal pumping (i.e. less arsenic will be leached out of the soil). The box will also reduce the amount of contaminated groundwater migrating to the rest of the site, including the surface water.

Groundwater model estimates that the barrier wall and the water-tight cap over will reduce the arsenic discharge to Hylebos waterway from 9.9 kilograms per year (kg/yr) to 2.4 kg/yr. The asphalt cap would further decrease the arsenic mass discharge to the Hylebos Waterway by 34% compared to a non-capped situation.

In response to the requests, the groundwater models will be attached to the final IAWP (Attachment 1 of Appendix E).[11] The public can expect less arsenic and more neutral pH water discharge to the Hylebos Waterway, demonstrated by lower levels of arsenic and neutral pH levels in the groundwater outside the barrier wall and sediment pore water. This data will be available in the monitoring reports and incorporated into the Feasibility Study Report, in which the final cleanup alternatives will be developed.

Ongoing uncertainty

Communities for a Healthy Bay requested Ecology: "Require that "TBD" monitoring frequencies convert into explicit commitments (with rationale) and to publish a short data-to-decision

framework explaining how monitoring results will be interpreted and what thresholds will trigger additional actions or modifications."

Ecology Response

Ecology anticipates an iterative process for developing performance monitoring criteria to manage performance of the proposed barrier wall and water-tight cap adaptively. Although groundwater models were used to estimate the results of the interim action, a confirmation monitoring program, as described in Section 4.7.3 of the IAWP,[12] will be conducted to evaluate the effectiveness of the interim action. There will be several sets of parameters to be analyzed and monitored for six objectives, which are designed to inform the evaluation (Table 3; IAWP).[12] The frequencies of the monitoring events vary due to the goal of the specific objective. "TBD" means that the frequency of the monitoring task, rather than the starting date, is to be determined; the frequency will be depending on the results of previous tasks.

The completion of barrier wall and water-tight cap installation will trigger Tasks 2 through 5 (Table 3; IAWP).[12] The frequencies of monitoring needed for Task 4 and Task 5 could be quarterly but will be based on the results of the previous tasks, particularly Task 3. For example, if the Task 3 results suggest a less fluctuated water level inside the barrier (i.e. good hydraulic isolation), the quarterly Task 4 and Task 5 monitoring could be less frequent (e.g., semi-annually or annually). Task 6 will be triggered by the completion of the sitewide asphalt cap installation. The frequency of Task 6 could happen quarterly to provide enough information for the final cleanup, but it could also be adjusted based on the results from previous tasks. The IAWP only presents the concept of monitoring activities. A detailed Compliance Monitoring Plan (CMP) is being developed by the Port of Tacoma and reviewed by Ecology.

In response to the comments, the final IAWP and CMP will be clearer about what "TBD" frequency means for each task. The CMP will be uploaded to Ecology's Arkema cleanup site webpage.[3] The monitoring tasks will start sequentially as soon as the barrier and water-tight cap are constructed.

Comment from: Andrew Annanie, on behalf of the Puyallup Tribe of Indians

Sumit date: February 20, 2026
Submit method: Email

Hi Sam,

I am submitting the attached comment letter on behalf of the Puyallup Tribe of Indians for the Arkema Inc Cleanup Site SEPA Determination of Non-Significant, Draft Interim Action Plan, and Draft Agreed Order Amendment. Unfortunately, we were not able to review the proposal as thoroughly as we would have liked, given the number of other proposals we have been reviewing lately. Could we request a technical meeting with you to discuss the project in more detail please? Thank you.

All the best,

Andrew Annanie

Puyallup Tribe of Indians

Fisheries Department

Environmental Permit Reviewer & Coordinator

Cell: 253-778-0565

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Andrew.Annanie@PuyallupTribe-nsn.gov

[Comment continues the following pages. Ecology's response to this comment is on page 29.]

PUYALLUP TRIBE OF INDIANS

FISHERIES DEPARTMENT

February 20, 2026

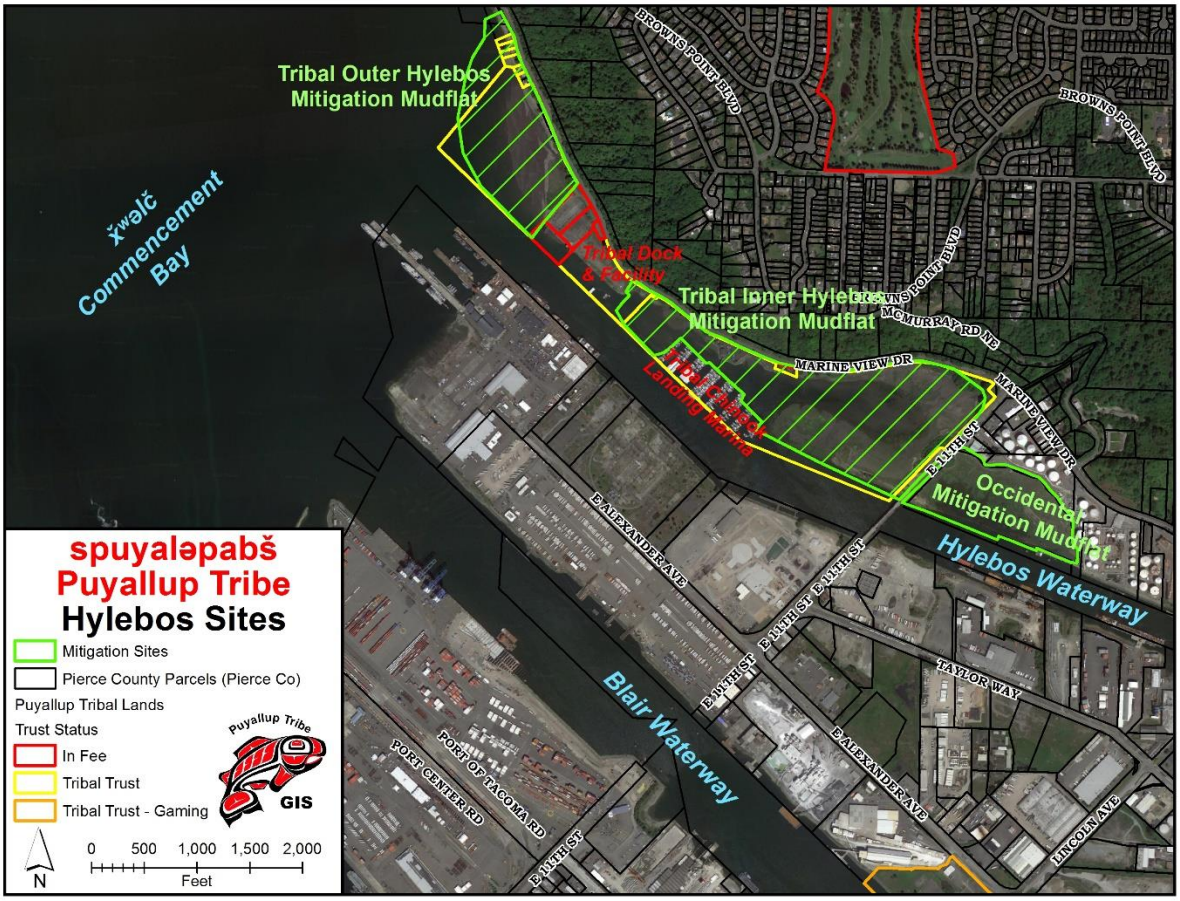
Sam Meng, Cleanup Project Manager/Environmental Engineer
Toxics Cleanup Program, Southwest Region, Washington Department of Ecology
PO Box 47775
Olympia, WA 98504-7775

Re: Arkema Inc. Cleanup Site (Facility/Site ID No. 1220, Cleanup Site ID No. 3405)
Determination of Non-Significance, Draft Interim Action Plan, and Draft Agreed Order Amendment (No. DE 5668)

The Puyallup Tribe of Indians ("Puyallup Tribe" or "Tribe") submits the following comments regarding the Arkema Inc. Cleanup Site SEPA Determination of Non-Significant, Draft Interim Action Plan, and Draft Agreed Order Amendment.

- Although the tribe is supportive of the installation of the slurry wall as soon as possible, our chief concern is protecting tribal lands, the membership who harvest crab in the area, and salmonids that use the waterway year-round from repeated exposure to toxic contaminants discharged into groundwater and surface water from the Arkema site. The figure below shows just some of the tribal lands and mitigation sites in the vicinity of the mouth of the waterway. The Commencement Bay Trustees which include NOAA, USFWS, Ecology, the Puyallup Tribe, and the Muckleshoot Tribe have worked since 1998 to restore over several hundred acres of habitat throughout the Puyallup River Watershed, including along the Hylebos waterway. An interactive map published by Earthcorps (https://earthcorps.maps.arcgis.com/apps/Viewer/index.html?appid=4fd46c77ffab4c8cb3d9e01dad0c1b16) depicts the numerous habitat restoration sites that must be protected. These include Mowitch, Hauff, Parsons, and Jordan

restoration sites near the Hylebos turning basin, as well as other restoration sites near the mouth of the waterway. We recognize and acknowledge this is an interim action and does not represent the final cleanup plan and suite of remedies. We are very supportive of WDOE expediting installation of the final cleanup plan at the site. With tidal inundation, the waterway acts like a semi-enclosed system where salmonids, shellfish and benthic organisms may be exposed to Arkema contaminants repeatedly and for extended duration. Thus, we are keenly interested in having a technical discussion with you to better understand the installation and expected performance of the slurry wall to fully contain the suite of toxic pollutants identified at the site and reported in the Interim Action Plan.



- We are concerned about the level of disturbance and duration required to install the slurry wall? How does the vibratory method work? Can DOE provide a video demonstration or other media demonstration of how this method is used to install

the slurry wall? Does this have the potential to further compromise the thin and/or leaky portions of the First Aquitard? We request working with our fisheries biologists as to timing of install of the slurry wall to minimize disturbance to the maximum extent possible.

- Has the mix of clay, slag, and water that is planned to comprise the slurry wall been implemented at other sites? If so, how has the slurry wall performed? What methods are you planning to use to prevent the slurry from spilling into ground or surface waters as the forms cure? How will you ensure that there is no leakage between the slurry panels when installing the wall? Are there circumstances where conditions would be such that vertical leakage could occur? What are these circumstances and what contingencies are planned? Can you provide more detail as to how the slurry wall's permeability and success as a barrier containment may be affected by differing reducing or oxidizing conditions or exposure to significantly elevated pH at the site? What is the top elevation of the slurry wall? With storm surges and king tides, are the elevations at the top of the wall sufficient to prevent marine water from getting inside the confines of the area where storm water is being treated and pumped via twin outfalls to the Hylebos? What is the expected life of the slurry wall?
- A stormwater collection, conveyance, and treatment system will be installed in conjunction with the asphalt cap. Stormwater will be directed to seven new stormwater treatment vaults. These shallow vaults will treat stormwater at the point of collection and convey stormwater to two outfalls discharging to the Hylebos Waterway. Treatment rate is 1 GPM/SF. There are a host of toxics that will be discharged to the Hylebos Waterway. In addition to dissolved arsenic at incredibly high concentrations, site COCs include dissolved copper, dissolved nickel, dissolved mercury, PCE, TCE, VC, and CF. What is the media filtration mix contemplated for each of the 7 vaults? What is the media filtration mixes' removal efficiencies for each of the COCs and what is the plan for ensuring pumping rates that don't exceed the vault ratings so that we get bypasses of untreated or partially untreated storm water discharged into the Hylebos? What is the O&M plan for changing out the media regularly? The tribe respectfully requests no mixing zone is granted by the WDOE NPDES permit for any of the COC's that will be discharged to the Hylebos. We would also like to be notified

early in the process of developing the NPDES permit for this site. Is it possible to maintain hydraulic controls at the site so that groundwater levels are lower inside the slurry wall than outside, thereby ensuring water flows into the cell instead of outside the containment system and to the Hylebos Waterway?

- It is mentioned in the Draft Interim Action Plan that key exposure pathways for the purposes of the IAWP are those related to potential SW and sediment exposures, including absorption by marine aquatic organisms and bioaccumulation by marine aquatic organisms. Would the proposed long-term monitoring plan to assess the effectiveness of the barrier wall, barrier wall containment area cap, and approximately 24-acre asphalt cap include marine organism tissue sampling in the area directly adjacent to the site?
- The Draft Interim Action Plan identifies several locations seaward of the SPW that have particularly elevated concentrations of dissolved arsenic GW and PW, including:
    - The 2017 and 2018 concentrations in 124+00-2 (on the order of 50,000 ug/L) were one to four orders of magnitude higher than concentrations in the other Intermediate Aquifer vertical shoreline MWs and the Upper Aquifer vertical shoreline MWs.
    - One Upper Aquifer Angled Shoreline MW (125+50-0) and three Intermediate Aquifer PPS locations (120+75-ST1, 123+25-ST1, and 128+50-ST1) exceeded 36 ug/L in 2017 or 2018.
    - One Upper Aquifer PW NSDS location (125+50-0-DS) and two Intermediate Aquifer PW NSDS locations (123+25-ST1-DS and 125+00-ST1-DS) exceeded 36 ug/L in 2017 or 2018.
    - One PW NSDS location exceeded 360 ug/L in 2017 or 2018 (550 ug/L in 123+25-ST1-DS).

  Additionally, Figure 2 of the Draft Interim Action Plan shows a section of the main plume with a dissolved arsenic groundwater isoconcentration of 500 ug/L extending beyond the boundary of the proposed barrier wall near MW's 5B1-1/2R, 5C16-1/2R, 4C1/2-1, and 4D1/2-1. How will these areas be addressed given that they will not be confined by the barrier wall?
- Figures 6-11 and 6-12 of the 2019 Feasibility Study Data Gap Investigation Report show the area in the vicinity of MW 124+00-2 (which is outside the

bounds of SPW and the proposed barrier wall) exhibiting arsenic concentrations that appear to be increasing (i.e., potential post-2004 rebound). Is this still the case or has this changed in the time since this report was published?

- According to the final RI report, the area behind the SPW, encompassing the arsenic plume, exhibits a consistent downward gradient between the intermediate and deep aquifers. The magnitude of the gradient in this area is the highest among all the monitoring wells across the entire site. Additionally, during low tide, the horizontal groundwater gradient occurs in the direction of the Hylebos Waterway. 2017 dissolved arsenic concentrations of up to 230 µg/L were detected in the deep aquifer (monitoring well 6E7-3). While this is considerably lower than the levels detected in the upper and intermediate aquifers, it is still approximately 33 times greater than the maximum average background groundwater arsenic concentration for the region (4.2-6.8 µg/L) as reported by the Department of Ecology in their Natural Background Groundwater Arsenic Concentrations in Washington State study (Publication No. 14-09-044). As the proposed barrier wall will only be driven as deep as the top of the second aquitard (and the deep aquifer extends below the existing subtidal shoreline cap), how will arsenic migration into the Hylebos Waterway via the deep aquifer be addressed? Will the downward vertical gradient between the intermediate and deep aquifers cause arsenic concentrations in the deep aquifer to increase in the future? It is noted in the Draft Interim Action Plan that “the SPW decreased arsenic GW transport to the Hylebos Waterway, and increased vertical GW transport from the Upper Aquifer to the Intermediate Aquifer as well as northerly and southerly GW transport towards the SPW wings.” Do you anticipate that the installation of the barrier wall will further increase vertical GW transport?
- Figures C1.1-C1.2 of Appendix G show the approximate bottom of the barrier wall coming right down to the very bottom of the second aquitard in several locations (near stationing points 0+00, 8+75, 17+00, and 21+60), almost to the point that it enters the deep aquifer. What is the potential for the second aquitard to be breached in the process of installing the barrier wall? How do you intend to ensure this doesn’t occur and how do you intend to address it if it does occur? Conversely, Figure 3-7 of the Final RI Report shows a gap between the bottom of the SPW and the top of the second aquitard. How will you ensure that no such

gaps are unintentionally left in the barrier wall and how do you intend to address it if this does happen?

- Do you intend to implement any wetland habitat restoration/enhancement efforts for any of the wetland areas (A-F) identified by Grete Associates as part of your project related mitigation efforts? If not, is that something we can request?
- As noted in the Northwest Seaport Alliance Vulnerability Assessment, the Port of Tacoma has a relatively high earthquake risk rating based on the National Risk Index. The Arkema site is mapped as having high liquefaction susceptibility and a seismic design category of D1. Section 4.7.3 of the Draft Interim Action states that an asphalt cap inspection will be performed if there is an earthquake with a magnitude of 6.0 or greater within 50 miles of the site. Will there also be any confirmation monitoring of the barrier wall as well as the surrounding area to determine if seismic activity has compromised the structural integrity of the wall or altered the physical characteristics of the plume such that additional containment efforts are required?
- It is mentioned in the Draft Interim Action Plan that site-specific climate change resilience measures already exist, including shoreline stabilization intended to help protect the barrier wall and asphalt cap from inundation, flooding, and severe storm events. What sort of shoreline stabilization measures were implemented? Is it too late to request the inclusion of some form of bioengineered design elements/ habitat enhancement features?

Ecology's response to Andrew Annanie's comment

Thank you for your comment and questions. Below are our responses to the questions by category of concern.

Installation method (vibratory beam)

The Tribe asked about the level of disturbance and duration required to install the slurry wall. They asked if Ecology could provide a video demonstration or other media demonstration of how this method is used to install the slurry wall. They also asked if the installation method has the potential to further compromise the thin and/or leaky portions of the First Aquitard.

The Tribe also requested Ecology work with the Tribe's fisheries biologists on the timing of installation of this slurry wall to minimize disturbance to the maximum extent possible.

Ecology Response

The slurry wall is approximately 2200 feet long and will be installed to an approximate depth of 35-40 feet. The width of the installation trench is approximately 2 feet, and the installed wall will be approximately 6 inches. The total installation time is estimated to take 4 months based on standard industry production rates.

This YouTube video[17] demonstrates how this the vibratory beam method is used to install the slurry wall.

The segment aligned with the shoreline measures about 550 feet in length and is expected to be completed in 18 days. The minimum distance between the wall and the Ordinary High Water mark is 15 feet. Ecology does not anticipate in-water disturbance or impacts that would impact fish. No surface water disturbance is anticipated because of wall installation. If the Tribe's biologist believes the fish will be impacted, please let us know by providing us with additional information. Ecology could have more discussions with the PLP and Puyallup Tribe's biologists.

The installation method will not further compromise the first aquitard. Even if there was unanticipated increased groundwater transport from the Upper Aquifer to the Intermediate Aquifer from the installation method, the barrier wall will contain contamination in both the Upper Aquifer and the Intermediate Aquifer.

Slurry wall mixture

The Tribe had several questions about the slurry wall mixture.

Question: Has the mix of clay, slag, and water that is planned to comprise the slurry wall been implemented at other sites?

> **Ecology Response:** A similar mixture was used during barrier wall installation projects in the Pacific Northwest although the ratios may vary. This type of wall was implemented at

[17] https://www.youtube.com/watch?v=E1pY_dy8fp0

the Ecology Burlington Environmental Georgetown Site[18] in Seattle and the EPA Former Rhone Poulenc Site in Tukwila.[19]

Question: How has the slurry wall performed?

Ecology Response: Other installations in the Pacific Northwest (two sites listed above) continue to function as designed. Both walls were completed over 20 years ago, 2003 and 2004.

Question: What methods are you planning to use to prevent the slurry from spilling into ground or surface waters as the forms cure?

Ecology Response: Section 4.1.3 of the interim action work plan (IAWP) includes three preventive measures to prevent slurry loss and transportation to the surface water: 1) surface runoff will be prevented by containment berms, 2) manmade conduits will be disconnected, and 3) if rock obstructions or gravels containing less than 15 percent sand or fines are encountered during construction, these materials will be removed and replaced with a low-permeability material such as bentonite.

Question: How will you ensure that there is no leakage between the slurry panels when installing the wall?

Ecology Response: A trench will be created by inserting a flange beam into the subsurface using the vibratory hammer/beam. As the flange beam is riven down and pulled up, the slurry will be injected to the trench at the tip of the beam. The slurry will be thick enough to keep the trench open. Each beam insertion will overlap with the last one to ensure there won't be leakage.

Question: Are there circumstances where conditions would be such that vertical leakage could occur?

Ecology Response: Vertical leakage is not anticipated. Construction of the wall in overlapping sections generates a uniform and homogeneous wall at construction completion.

Question: Can you provide more detail as to how the slurry wall's permeability and success as a barrier containment may be affected by differing reducing or oxidizing conditions or exposure to significantly elevated pH at the site?

Ecology Response: The low permeability design could minimize the penetration of water, oxygen, and harmful substances. The design slurry is more durable under the high pH environment.

[18] https://apps.ecology.wa.gov/cleanupsearch/site/2622
[19] https://19january2021snapshot.epa.gov/hwcorrectiveactionsites/hazardous-waste-cleanup-former-rhone-poulenc-facility-tukwila-washington_.html

Question: What is the top elevation of the slurry wall?

> **Ecology Response:** The top elevation will be close to the existing ground surface. The top of slurry wall will not be less than +15.0 Mean Low Low Water (MLLW) or higher than +20.0 MLLW.

Question: With storm surges and king tides, are the elevations at the top of the wall sufficient to prevent marine water from getting inside the confines of the area where storm water is being treated and pumped via twin outfalls to the Hylebos?

> **Ecology Response:** When the proposed interim action is completed, the stormwater to be discharged from the two outfalls will not be considered impacted by the site contamination, as the stormwater will be isolated from the contaminated soil and groundwater. The water-tight cap and asphalt cap will prevent the infiltration of stormwater during storm events, and marine water getting inside during storm surges and king tides.

Question: What is the expected life of the slurry wall?

> **Ecology Response:** The slurry wall is permanent and extremely durable. It should be noted that performance could be compromised by a seismic event. The subsurface damage could be evaluated by groundwater monitoring data from well pairs to be installed inside and outside the wall. Based on assessment of damage, repairs to the wall are feasible using similar methods to original installation.

Stormwater

Question: What is the media filtration mix contemplated for each of the 7 vaults?

> **Ecology Response:** The specified media mix consists of 30% pea gravel, 35 % biochar and 35% oyster shells.

Question: What is the media filtration mixes' removal efficiencies for each of the COCs and what is the plan for ensuring pumping rates that don't exceed the vault ratings so that we get bypasses of untreated or partially untreated storm water discharged into the Hylebos?

> **Ecology Response:** The media mix has performed well for the Port in previous projects. This media mix is the same media mix that was used at the Port's Parcel 77 Auto Import Facility project located at 3400 Taylor Way, Tacoma. No pumps are proposed. A gravity system is proposed. The treatment vaults are designed to meet current City of Tacoma and DOE WWHM stormwater quality modeling requirements. Storm events whose rainfall intensity is greater than a stormwater quality event will overflow inside of the vault. This is an industry standard practice and consistent with City of Tacoma and Ecology requirements.

Question: What is the O&M plan for changing out the media regularly?

> **Ecology Response:** The Port will be required to test and monitor the vault stormwater effluent monthly during construction. Maintenance is subject to monitoring results. The

Port will conduct annual inspections as required under the MS4 permit[14] and conduct maintenance and media replacement as needed. The Port assumes media replacement every 3-5 years based on potential future tenant uses.

Question: Is it possible to maintain hydraulic controls at the site so that groundwater levels are lower inside the slurry wall than outside, thereby ensuring water flows into the cell instead of outside the containment system and to the Hylebos Waterway?

Ecology Response: The purpose of the slurry wall, with a water-tight cap, is to prevent stormwater and groundwater from being in contact with the contaminated soil, contain contaminated groundwater, and lower groundwater levels inside the slurry wall. In addition, the slurry wall will reduce arsenic discharge from the plume core towards the Hylebos Waterway.

Request: "We would also like to be notified early in the process of developing the NPDES permit for this site."

Ecology Response: The site will fall under the Port's existing MS4 General NPDES permit[14] until a customer takes over the facility. This permit was issued on July 1, 2024. Its effective date is August 1, 2024, and its expiration date is July 31, 2029.

However, a future change in land use may trigger additional stormwater treatment requirements as provided for in Tacoma Municipal Code (TMC) 12.08A.040. SEPA and Public notice are required for Industrial Stormwater Permit coverage issued by Ecology's Water Quality program. We will share this request with the Water Quality program.

Downward gradient

Question: As the proposed barrier wall will only be driven as deep as the top of the second aquitard (and the deep aquifer extends below the existing subtidal shoreline cap), how will arsenic migration into the Hylebos Waterway via the deep aquifer be addressed?

Ecology Response: There isn't data showing arsenic migration into the Hylebos Waterway via the deep aquifer. The interim action elements will further slow down potential arsenic migration from the Intermediate Aquifer to the Deep Aquifer. It is possible that there may be some slight increases in arsenic groundwater concentrations in the Deep Aquifer underneath the arsenic plume core. However, it is not expected that there will be any increased arsenic migration from the Deep Aquifer to the Hylebos Waterway. Groundwater sampling in the Deep Aquifer and surface water sampling will be conducted pursuant to the Interim Action Compliance Monitoring Plan to ensure there is not increased arsenic migration to the Hylebos Waterway. If there is migration found, it will be evaluated and stopped during the final cleanup.

Question: Will the downward vertical gradient between the intermediate and deep aquifers cause arsenic concentrations in the deep aquifer to increase in the future?

Ecology Response: Due to the reduction in the amount of water input to the upper and intermediate aquifers, the downward gradient will be reduced, as well as the amount of

arsenic could migrate from the Intermediate Aquifer to the Deep Aquifer. See response above.

Question: Do you anticipate that the installation of the barrier wall will further increase vertical groundwater transport?

Ecology Response: No. The barrier wall will reduce the vertical groundwater gradient.

Wetland/habitat

Question: Do you intend to implement any wetland habitat restoration/enhancement efforts for any of the wetland areas (A-F) identified by Grete Associates as part of your project related mitigation efforts? If not, is that something we can request?

Ecology Response: The only interim action shoreline work is the installation/modification of two stormwater outfalls. The project has been designed to avoid and minimize wetland impacts as noted in the plan and Corps permit (NWS-2024-787-WRD). No additional habitat restoration/enhancement is proposed as part of the interim action.

Question: What sort of shoreline stabilization measures were implemented? Is it too late to request the inclusion of some form of bioengineered design elements/ habitat enhancement features?

Ecology Response: No shoreline enhancements or stabilization is proposed other than work directly associated with the two outfalls.

Miscellaneous

Question: Would the proposed long-term monitoring plan to assess the effectiveness of the barrier wall, barrier wall containment area cap, and approximately 24-acre asphalt cap include marine organism tissue sampling in the area directly adjacent to the site?

Ecology Response: Sediment in the Hylebos Waterway adjacent to the site was cleaned up 20 years ago as part of the Commencement Bay / Nearshore Tideflats Superfund Site. PCBs were the contaminants that drove the Hylebos Waterway cleanup. Periodic monitoring of arsenic in Hylebos Waterway sediment along the Site shoreline is ongoing. Arsenic concentrations in sediment along the site shoreline are protective of marine organisms, and the interim action will further reduce arsenic transport towards the Hylebos Waterway. Accordingly, marine organism tissue sampling is not necessary.

Also, the monitoring plan in the IAWP is a short-term monitoring plan (focused on groundwater plume changes immediately adjacent to the barrier wall and asphalt cap) that will only be used until the final remedy is selected for the site.

Question: How will these areas be addressed given that they will not be confined by the barrier wall?

Ecology Response: It is assumed that the arsenic in the groundwater is primarily due to the soil with high arsenic levels in the former Penite manufacturing area, where Penite waste

was placed in pits. The arsenic is released from the soil to the groundwater. Then the contaminated groundwater migrates to the rest of the site. Although arsenic in the soil outside the barrier wall could also contribute to arsenic in the groundwater, the contribution is minimum as the concentration in the soil outside the slurry wall footprint in much lower (4,535 mg/kg as the highest outside the wall vs. 165,000 mg/kg as the highest inside the wall). The rest of the site will be capped so the infiltration of stormwater will be eliminated.

Question: "Figures 6-11 and 6-12 of the 2019 Feasibility Study Data Gap Investigation Report show the area in the vicinity of MW 124+00-2 (which is outside the bounds of SPW and the proposed barrier wall) exhibiting arsenic concentrations that appear to be increasing (i.e., potential post-2004 rebound). Is this still the case or has this changed in the time since this report was published?"

Ecology Response: The dissolved arsenic concentrations in the one sample collected from MW 124+00-2 since the 2019 Feasibility Study Data Gap Investigation Report is slightly higher than the previous 2018 sample (i.e., 90,000 ug/L in the 2024 sample compared to 76,000 ug/L in the 2018 sample). It is expected that the barrier wall and asphalt cap will decrease arsenic concentrations at MW 124+00-2 over time. If not, the Port and Ecology will assess other cleanup action alternatives to address arsenic concentrations at 124+00-2 in the FS Report.

Question: “What is the potential for the second aquitard to be breached in the process of installing the barrier wall?” and “How do you intend to ensure this doesn’t occur and how do you intend to address it if it does occur?”

Ecology Response: The potential for the second aquitard to be breached during the construction of the barrier wall is low. During the design, a field exploration was conducted to confirm the presence and thickness of the second aquitard. The slurry wall will be installed approximately 2 to 3 feet below the top of the second aquitard. The thickness of the aquitard is at least 2.5 feet thick across the entire barrier wall alignment, and typically thicker than 5 feet. Slurry mixture will be injected during driving and removal of the flange beam. When it is cured, the permeability will be lower than the aquitard.

Question: "Conversely, Figure 3-7 of the Final RI Report shows a gap between the bottom of the SPW and the top of the second aquitard. How will you ensure that no such gaps are unintentionally left in the barrier wall and how do you intend to address it if this does happen?"

Ecology Response: During the design, a field exploration was conducted to confirm the presence of the second aquitard along the barrier wall alignment. If the barrier wall alignment has to adjust due to the presence of obstacles during the installation, additional exploration will be required by Ecology to confirm that the wall be inserted into the second aquitard.

Question: Will there also be any confirmation monitoring of the barrier wall as well as the surrounding area to determine if seismic activity has compromised the structural integrity of the wall or altered the physical characteristics of the plume such that additional containment efforts are required?

> **Ecology Response:** The monitoring program is not designed to evaluate the damage to the wall due to seismic activity specifically. However, the well pairs at the inside and outside wall, screened in different aquifers, will be able to detect changes in groundwater gradient after seismic activities, if the wells are not damaged. If there are signs (significant fracture, holes, etc.) that the wall is potentially damaged as observed after an earthquake, and there isn't a functioning well pair in the vicinity, the damage will be accessed to understand the impact to the remedy by different measures, including installing groundwater wells at the location where the wall is potentially damaged.

Appendix A:

Summary of Outreach

Ecology's public involvement activities related to this comment period (December 4, 2025 - February 20, 2026) included:

Fact Sheet and Postcard

Mailed Notices:

- Ecology sent a fact sheet mailer to 284 nearby addresses, including homes and businesses. This mailer summarized the site, documents available for comment, and how to submit comments.
- Ecology also sent a postcard about the comment period extension to the same mailing list as the fact sheet mailer.

Email Notices:

- Ecology emailed the fact sheet and comment period to 821 people using Ecology's Tacoma Tideflats/Commencement Bay interested parties email list. [20]
- Ecology also emailed notice of the comment period extension to 830 people using Ecology's Tacoma Tideflats/Commencement Bay email list.

Site Register

Ecology published seven notices in the Contaminated Site Register.

- **Comment Period Notices:**
  - Contaminated Site Register for – December 11, 2025
  - Contaminated Site Register for – December 24, 2025
  - Contaminated Site Register for – January 8, 2026
  - Contaminated Site Register for – January 22, 2026
  - Contaminated Site Register for – February 5, 2026
  - Contaminated Site Register for – February 19, 2026
- **Response Summary Notice:**
  - Contaminated Site Register for – May 28, 2026

Visit Ecology's Contaminated Site Register website[21] to download PDFs.

[20] https://public.govdelivery.com/accounts/WAECY/subscriber/new?topic_id=WAECY_33
[21] https://apps.ecology.wa.gov/publications/UIPages/PublicationList.aspx?IndexTypeName=Program&NameValue=Toxics+Cleanup&DocumentTypeName=Newsletter

Legal Notice

Online publication of one paid legal ad in *The Tacoma News Tribune* to announce the public comment period, dated December 4, 2025.

Print publication of one paid legal ad in *The Tacoma News Tribune* to announce the public comment period extension, dated December 31, 2025.

Outreach Meetings

On December 3, 2025, Ecology presented information about the Arkema Inc and Superlon Plastics Co Inc. cleanup sites to a local organization, Communities for a Healthy Bay.

On April 13, 2026, Ecology presented information about the interim action plan to the Puyallup Tribe of Indians.

Websites

Ecology updated its Arkema Inc cleanup website with information about the public comment period and downloadable materials (the fact sheet, postcard, and documents available for public review). We also listed the comment period on Ecology's Public Inputs & Events webpage.[22]

Document Repositories

Print documents were available for public review during the comment period at two document repositories:

- **Tacoma Public Library, Main Branch**: 1102 Tacoma Avenue Tacoma, WA 98402
- **Ecology Lacey Office** *(by appointment only)*: 300 Desmond Drive SE Lacey, WA 98503; PublicDisclosureSWRO@ecy.wa.gov or 360-407-6365.

Documents are available online on Ecology's Arkema Inc webpage.[3]

[22] https://ecology.wa.gov/Events/Search/Listing

Appendix B:

Substantive Requirements Consultation Progress

City of Tacoma – Arkema Manufacturing Substantive Review Comment Response Table

Arkema Manufacturing Facility - 2901 Taylor Way

Topic	Comment Number	City of Tacoma Consultation	Port of Tacoma Response	Ecology Concurrence
Flood Hazard Review	1	The City of Tacoma adopts the Puyallup Levee Overtopping data layer established by the 2007 FEMA Region 10 Flood Insurance Study and the accompanying rate map for Pierce County.	Comment noted.	
Flood Hazard Review	2	GIS data is available to download which includes the FEMA-identified Special Flood Hazard Areas (SFHA) mapped on the project site. https://gisdata-piercecowa.opendata.arcgis.com/search?tags=regulated%2520flood%2520data	Comment noted.	
Flood Hazard Review	3	This project is proposing new development within a regulated FEMA-identified SFHA mapped as Zone AE with a Base Flood Elevation (BFE) of 12.0 feet (NAVD88). This project requires compliance with NFIP requirements for all site improvements located within the SFHA.	Outfall installation is the only project work proposed in the flood zone. The NFIP requirements are that outfalls will be secured and not be damaged by flood forces or the structures impede flood flows. Outfalls will be anchored and supported by piling and will not restrict flood flows. The project work will comply with NFIP requirements.	
Flood Hazard Review	4	Be advised, the east end of the project site includes a FEMA-identified Special Flood Hazard Area, mapped as Zone A, where a BFE has not been determined. The Zone A SFHA is located outside the project area.	Comment noted.	
Flood Hazard Review	5	List the BFE and indicate the SFHA boundary on all civil plans.	90% and 100% construction plans will depict the BFE of 12' NAVD88 (14.5± MLLW datum).	
Flood Hazard Review	6	Provide buoyancy calculations for all structures outside a building footprint, such as utilities, that are located within the SFHA and below the BFE. Applicant may choose to either submit a separate memo, or include information in the site SSP.	These calculations are complete and uploaded to the City of Tacoma permit portal on 3/11/26	
Flood Hazard Review	7	The project does not appear to propose any new buildings within the existing SFHA. There will be fill in the SFHA boundary, however there are no proposed building structures within the new anticipated SFHA boundary. Thus, unless the project has a need (funding or otherwise) to pursue a revision to the published Flood Insurance Rate Maps (FIRM) to address the move in the SFHA boundary and fill on-site, then application to FEMA is not required. If the project does have a need for revision to existing FIRM maps, then application to FEMA for a LOMR-F after construction of the permit would be required per CFR 65.5. See 44 CFR 65.5 for NFIP requirements for map changes with no change in the BFE, including revisions to SFHA boundaries with no change to base flood elevation determinations.	The project does not include new buildings alterations to the SFHA boundary and so revisions to existing FIRM maps are not needed.	
General Comments	1	It appears this project is nearing the Public Comment Period for a draft Interim Action Plan, per WAC 173-340-430(6)(a). The Applicant has provided copies of the draft Interim Action Plan (AIP) as well as the draft Construction Plans and Specifications presumably developed to address the requirements of WAC 173-340-430(7). The city understands that this outreach by the Applicant is intended to identify procedures, permits and timelines related to the overall project schedule, to aid project development. It appears this outreach is intended as formal consultation with the local permitting agency per WAC 173-340-710(9)(d)(i). If not, please also advise when the project intends to request formal consultation.	This project is an interim action to be implemented under the proposed amendment to Agreed Order No. DE 5668. The Port's outreach to the City of Tacoma is part of the Port's continuing obligation to identify permits or substantive requirements to implement the interim action as is required under WAC 173-340-710 (8).	

City of Tacoma – Arkema Manufacturing Substantive Review Comment Response Table

Arkema Manufacturing Facility - 2901 Taylor Way

Topic	Comment Number	City of Tacoma Consultation	Port of Tacoma Response	Ecology Concurrence
General Comments	2	The city's typical process for providing consultation regarding substantive requirements for project under an Approved MTCA order includes Applicant submittal of draft Construction Plans and Specifications under a Preapplication Review (PRE), which the Applicant has done under this record, PRE24-0140. As part of the standard PRE process, the city is providing these Scoping-level comments to indicate the requirements that would be applicable to the development project if otherwise required to obtain local permitting.	Comment noted.	
General Comments	3	It is expected that the Applicant identify all permits exempted under RCW 70A.305.090 or provide a copy of the Interim Action Plan that provides this information, which the Applicant has done under this record, PRE24-0140, and can be found in Section 5.4.1 of the draft IAP. The city concurs that, based on the proposed SOW, the following local permits are exempt for the project: • City of Tacoma Site Development Permit • City of Tacoma Shoreline Substantial Development Permit (including Conditional Use Permit) • City of Tacoma Building Permit	Comment noted.	
General Comments	4	It is expected that the Applicant identify any proposed work that is outside the scope of work (SOW) necessary to implement the remedial action identified in the IAP. The Applicant is responsible for obtaining city permits for any external SOW proposed. The draft IAP indicates in Section 5.4.2 that none of the improvements are outside-of-scope work and, therefore, no local permitting is required. The city does not concur and is hereby advising that the project is subject to local permitting for all work located in the ROW including: • Removal and replacement of existing driveway approaches If the project plans are revised to include removal of only one existing driveway approach, for the purpose of accommodating an appropriate construction entrance then the work, including restoration of the driveway approach and ROW after construction, may be considered exempt. The project would still be subject to application for a Pavement Cut Moratorium Variance and the conditions of approval imposed by the city, if approved.	The Port understands that permanent site access improvements (e.g. removal and replacement of existing driveway approaches beyond the implementation needs of the interim action) will require permits from the COT. The Port anticipates submittal of a SDEV in 2027 submittal for 2028 construction, following standard process to permit ROW work.	
General Comments	5	When the publication of the Public Comment Period is made, the city asks that the Applicant submit the publication along with the draft IAP and Construction Plans and Specifications under a Site Development (SDEV) permit. The city will then provide formal comments and redlines notes on the plans to document any additional substantive requirements that may be identified based on the published draft IAP.	This was the formal submittal and request for comments per General Comment 1 above. Draft IAWP was submitted with 70% site drawings to the City. The Ecology public comment period opened on December 4, 2025 and was originally scheduled to end on January 6, 2026. Ecology extended the comment period by an additional 45-days until February 20, 2026 in response to a request from Communities for a Healthy Bay.	
General Comments	6	Combo Permit advisory Note: Submittal of a combination SDEV/WO permit shall clearly differentiate public and private infrastructure utilities. The Civil Plan set shall have a dedicated sheet for public utility installations. Utilities shall be labeled as public or private on all sheets and private streets shall be clearly labeled.	The Port of Tacoma will submit Work Order drawings for utilities and driveways.	

City of Tacoma – Arkema Manufacturing Substantive Review Comment Response Table

Arkema Manufacturing Facility - 2901 Taylor Way

Topic	Comment Number	City of Tacoma Consultation	Port of Tacoma Response	Ecology Concurrence
General Comments	7	The City of Tacoma was affected by the Tacoma Smelter Plume, we recommend the following: • Search Ecology's interactive map to find out if your property is in the plume, or view sites with other known contaminations: Toxics Cleanup Map. • Read the Tacoma Smelter Plume Model Remedies Guidance to learn more about how to test soil for arsenic and lead contamination and complete cleanup, if needed. • If the sampling results show contamination on your property, consider joining the Voluntary Cleanup Program (VCP). The VCP provides technical assistance and a written opinion. Getting written approvals via the VCP is free for projects with Tacoma smelter plume contamination. For more information, see https://ecology.wa.gov/spills-cleanup/contamination-cleanup/cleanup-sites/tacoma-smelter.	The Arkema Manufacturing site has been thoroughly investigated under the oversight of the Washington State Department of Ecology. Potential contributions from ASARCO Tacoma Smelter Plume are not significant.	
Stormwater Management	1	The City is currently in the process of updating the City of Tacoma Stormwater Management Manual (SWMM). The next SWMM is planned to be effective on July 1, 2026. All complete applications submitted after July 1, 2026 will be subject to the new standards contained within the 2026 SWMM.	The site will discharge stormwater through Port of Tacoma outfalls under the Port's MS4 permit. No use of the City system is proposed as part of this work.	
Stormwater Management	2	The complete project scope at full build-out shall be used when determining which SWMM Minimum Requirements apply. This includes projects that are implemented in incremental stages or phases as part of a common plan of development or sale.	Comment noted. The project has been assessed from this standpoint.	
Stormwater Management	3	It appears this project will disturb one or more acre of land or is part of a larger common plan of development or sale that has disturbed or ultimately will disturb one or more acres of land; and discharge stormwater from the site. Coverage under a Washington State Department of Ecology (Ecology) NPDES Stormwater Construction General Permit (CSWGP) may be required. • For assistance with the CSWGP contact the Ecology Southwest Region Pierce County Permit Administrator: (360) 407-7451. • For Information about the Construction Stormwater General Permit and requirements, visit Ecology's ISWGP webpage: https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Construction-stormwater-permit. • To submit a Notice of Intent (NOI) for coverage under the CSWGP apply online through Ecology's WQWebPortal: https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance/WQWebPortal-guidance. Regulatory Citation: Washington NPDES Phase 1 Municipal Stormwater Permit	The Port is in the process of obtaining this permit currently. **Arkema Interim Action – Phase 1 Containment Wall** project, application number **57279.**	
Stormwater Management	4	If the project proposes infiltration for managing stormwater, the infiltration facility may be regulated under the Washington State Department of Ecology's Underground Injection Control (UIC) well program. Registration of the UIC Well may be required. Registration and program information is available at: https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Underground-injection-control-program or by calling (360) 407-6143. This requirement typically applies to all infiltration trenches regardless of the size of the system, except single family facilities that receive only roof runoff. Be advised, construction of the UIC may not begin until UIC registration approval is received from Ecology, or 60 days after submittal of the UIC registration, whichever comes first.	The project does not include stormwater management through infiltration and a UIC permit will not be necessary. The Port is coordinating with Ecology.	

City of Tacoma – Arkema Manufacturing Substantive Review Comment Response Table

Arkema Manufacturing Facility - 2901 Taylor Way

Topic	Comment Number	City of Tacoma Consultation	Port of Tacoma Response	Ecology Concurrence
Stormwater Management	5	The installation of stormwater pipes greater than 12" in diameter require compliance with the State Environmental Policy Act (SEPA). See the SEPA Tip Sheet available at tacomapermits.org for additional information.	The SEPA has been completed with Ecology for the Interim Action.	
Stormwater Management	6	This project is located on property owned by Port of Tacoma. Please review the Port's website for tenants which includes information on Tenant Improvements to Port property: https://www.portoftacoma.com/business/real-estate/tenants. The Port of Tacoma contact is: Anita Fichthorn, afichthorn@nwseaportalliance.com, 253-209-1412.	Noted. This is a Port lead project and Anita Fichthorn is part of the project team.	
Stormwater Management	7	If, during development of the site plans, an outfall that is not part of the City of Tacoma or another municipality's stormwater system is identified as the outfall for surface flows the project may require a National Pollutant Discharge Elimination System (NPDES) permit and/or additional best management practices (BMPs) per the Washington State Department of Ecology (Ecology). Contact Ecology's Office of Regulatory Assistance at 1-800-917-0043 to determine if any additional requirements are necessary. Regulatory Citation: EPA Clean Water Act	Noted. The Port maintains an NPDES permit, under which discharge from this project will occur.	
Stormwater Management	8	This project appears to be a Redevelopment project, which will affect the Applicability of the Minimum Requirements and Additional Protective Measures. Minimum requirement apply to the entire project which includes the portion of a property, properties, and right-of-way subject to land disturbing activities, new hard surfaces, or replaced hard surfaces. On-site and off-site improvements shall be added together when determining which Minimum Requirement apply. Based on the information provided, Minimum Requirements applicable to this project are: #1 Preparation of a Stormwater Site Plans #2 Construction Stormwater Pollution Prevention #3 Source Control #4 Preserving Drainage Patterns and Outfalls #5 Onsite Stormwater Management #6 Stormwater Treatment #7 Flow Control #8 Wetlands Protection #9 Operation and Maintenance Additional Protective Measure: Infrastructure Protection Regulatory Citation: SWMM Volume 1 Chapter 1	Noted. The project team is aware of the requirements and have designed to meet the standards.	
Stormwater Management	9	Minimum Requirement #5 shall be satisfied by implementing feasible BMPs from List #3 or complying with the LID performance standard AND BMP L613 - Post Construction Soil Quality and Depth. Design of onsite stormwater systems may require a soil analysis prepared by a qualified soils professional. Regulatory Citation: SWMM Volume 1 Section 1.4.5, and Table 1-1	Noted. The project team is aware of the requirements and have designed to meet the standards.	

City of Tacoma – Arkema Manufacturing Substantive Review Comment Response Table

Arkema Manufacturing Facility - 2901 Taylor Way

Topic	Comment Number	City of Tacoma Consultation	Port of Tacoma Response	Ecology Concurrence
Stormwater Management	10	Minimum Requirement #6 will likely need to be evaluated for this project. Each Threshold Discharge Area (TDA) within a project that triggers Minimum Requirement #6 must be reviewed to determine if Stormwater Treatment BMPs are required for the TDA. Separate stormwater treatment facilities shall be provided for on-site and off-site areas that require stormwater treatment. Utility cuts related to new and redevelopment projects are not considered exempt surfaces for this requirement. Regulatory Citation: SWMM Volume 1 Section 1.4.6	Noted. The project team is aware of the requirements and have designed to meet the standards.	
Stormwater Management	11	Minimum Requirement #7 will likely need to be evaluated for this project. Each Threshold Discharge Area (TDA) within a project that triggers Minimum Requirement #7 must be reviewed to determine if Flow Control BMPs are required for the TDA. Separate flow control facilities shall be provided for on-site and off-site areas that require flow control. This project is in the NE Tacoma watershed. Regulatory Citation: SWMM Volume 1 Section 1.4.7, Volume 4, Section 3	Noted. The project team is aware of the requirements and have designed to meet the standards.	
Stormwater Management	12	Where the City of Tacoma Curb Ramp Installation Matrix or other departmental review or requirements require a new curb ramp, a replacement of a curb ramp, or an upgrade to a curb ramp, mitigation shall be provided to ensure stormwater does not flow across the curb ramp. This may require installation of new catch basins, removal and replacement of existing catch basins, other revisions to the stormwater system, re-grading of the street section, or calculations to show that the stormwater will not affect use of the curb ramp.	The Port will be submitting a SDEV/Work Order package in 2027 to address these requirements.	
Utilities (Sanitary Sewer, Power, Water, Fire)	1	Each abandoned side sewer, or part thereof, that will not be reused shall be plugged or capped at the public sanitary sewer main to eliminate the potential for infiltration of groundwater and dirt into the public sanitary sewer system via the abandoned side sewer. The side sewer shall be abandoned in the presence of the site inspector. Regulatory Citation: Side Sewer & Sanitary Sewer Availability Manual, Sec 3.2.M	No abandonments are proposed as part of the scope of work.	
Traffic Flow, Parking, Street Improvements	1	This project does not propose any buildings that would trigger off-site improvement requirements outlined in TMC 2.22.040. However, if the project requires a Traffic Impact Study or Analysis, offsite improvements may be conditioned as part of SEPA review.	The Port will be submitting a SDEV/Work Order package in 2027 to address these requirements.	
Traffic Flow, Parking, Street Improvements	2	The type, width, and location of all driveway approaches serving the site(s) shall be approved by the City Engineer. It appears that a Type 1 per Standard Plan No. SU-07A is appropriate for this project. Regulatory Citation: TMC 10.14, ROW Design Manual Section 4.6.6	The Port will be submitting a SDEV/Work Order package in 2027 to address these requirements.	
Traffic Flow, Parking, Street Improvements	3	Any utility cuts or damage to the pavement in Taylor Way fronting the property shall be restored in accordance with the Right-of-Way Restoration Policy. Restoration shall be in accordance with Tacoma Standard Plan No. SU-14C. Regulatory Citation: Right-of-Way Restoration Policy, ROW Design Manual Section 4.7.3	The Port will be submitting a SDEV/Work Order package in 2027 to address these requirements.	
Traffic Flow, Parking, Street Improvements	4	This project appears to be proposing work within Taylor Way ROW, which is under construction moratorium per the City of Tacoma Public Works Department Right-of-Way Restoration Policy. Submit a ROW Variance Request with the ROW Permit Application. Include a proposed restoration that meets, at minimum, the requirements of the ROW Restoration Policy. Regulatory Citation: Right-of-Way Restoration Policy, ROW Design Manual Section 1.1.5	A variance request will be part of the 2027 SDEV/Work Order package.	

City of Tacoma – Arkema Manufacturing Substantive Review Comment Response Table

Arkema Manufacturing Facility - 2901 Taylor Way

Topic	Comment Number	City of Tacoma Consultation	Port of Tacoma Response	Ecology Concurrence
Traffic Flow, Parking, Street Improvements	5	Work around, on, or over Tacoma Rail infrastructure must be permitted with both Tacoma Rail and the city's ROW Permit process. The applicant shall coordinate with both agencies directly.	Comment noted.	
Land Use	1	This project is not subject to specific Land Use permitting review per the following: Agreed Order Amendment: This is an addition to the 2011 legal agreement that powers the site's cleanup. This agreement is between Ecology and the Port of Tacoma, who is conducting the cleanup. The amendment adds the Interim Action Work Plan and its schedule to the Port's scope of cleanup requirements. Port of Tacoma issued a SEPA Determination of Non-Significance: Under which it was determined the proposed cleanup is not likely to cause significant environmental harm. That process considered environmental, historical, and cultural factors in its determination. So there are no further or specific comments relating to the public comment to be made at this time. Just a advisory note on any future applications for minor related work on this site to the city of Tacoma for minor work order, site development, or possibly building permits please include a strong narrative outlining the Notice of Interim Action Cleanup that gives a site history, outlines the work plan, the phases of cleanup, the AoA/SEPA, etc. this will help alleviate any ambiguity or confusion.	Comment noted. The SEPA checklist was included in Ecology's comment period for the interim action plan and amendment to Agreed Order No. DE 5668, which closed on February 20, 2026. Ecology's SEPA determination is pending.	
Critical Areas	1	Project includes barrier wall installation. The barrier wall appears to run along the shoreline landward of the OHWM and extends South into the uplands.	Comment noted. The barrier wall is landward of the OHWM and the existing sheet pile wall.	
Critical Areas	2	Known Critical Areas onsite include the 50ft marine buffer that extends inland 50 feet from the OHWM along the shoreline of parcel #0321351053. There is also a known category II wetland located on the SE side of parcel #0321351053. This wetland would have a buffer of 100 feet.	Comment noted. The referenced wetland is the feature located at the south end of parcel #0321351053 (between parcel #0321351053 and parcel #0321362046) is known as the Kaiser Ditch. The Kaiser Ditch is over 700 LF from the Project Site and will not be part of the proposed interim action.	
Critical Areas	3	The IAWP indicates future development of the site (see Figure 3 of the IAWP, Hylebos Barge Terminal Concept). Please note that future development of the site is not exempt under TMC 19 and would require City review and permitting.	Comment noted.	

Topic	Comment Number	City of Tacoma Consultation	Port of Tacoma Response	Ecology Concurrence
Critical Areas	4	The IAWP indicates that vegetation is on the site that must be removed, but the vegetation is not characterized nor whether the vegetation is being removed from the marine buffer or another critical area or buffer. Please note that substantive review includes complying with buffer standards and completing the work in a way to allow the possibility of having a vegetated buffer, wherever feasible. The marine buffer at the site is measured inland 50 feet from the OHWM. Any vegetation removed from this area should be calculated for mitigation.	The Site is a former chemical manufacturing facility that operated from 1928 to 1997; most of the infrastructure has since been removed. The upland property consists of a disturbed, partially paved lot that spans the entirety of the Site to the HTL/OHWM. The upland vegetation onsite is moderate to sparse and consists of various grasses and small patches of other vegetation. The cleanup project includes caping contamination and isolating and treating stormwater before discharge to the Hylebos Waterway. No mitigation is proposed as the cleanup project is a substantial environmental benefit to prevent existing contamination from migrating to the waterway. NMFS, USFWS, Corps, and WDFW are not requiring mitigation because of the environmental benefits associated with this MTCA cleanup.	
Critical Areas	5	It is unclear whether alternatives have been considered to allow for a subsurface cap that allows clean soils to support vegetation or marine buffer plantings. If viable, shallow-rooted vegetation that do not compromise the integrity of the cap and offer environmental benefits is preferred. The intent is to ensure that onsite alternatives meeting substantive requirements are being thoroughly evaluated and appropriately ruled out. A good example of a project that has effectively incorporated a subsurface cap design that allows for vegetation planting is Point Ruston.	Comment noted. The IAWP includes a hard cap with stormwater infrastructure to prevent direct contact, minimize stormwater infiltration and decrease arsenic mass flux in groundwater towards the Hylebos Waterway. The hard cap is also compatible with the future land use of the site and surrounding area as long-term water-dependent Port Maritime Industrial use. We expect that future institutional controls and operation, maintenance and compliance monitoring to ensure the long-term integrity of the hard cap. The hard cap can be readily inspected and repaired, in contrast to a sub-surface cap where damage or deterioration is not apparent.	