

Port of Seattle (Jalyn Buckley)

Dear Mr. Nale,

Thank you for the opportunity to review the public comment draft Remedial Investigation (RI) report for the Glacier Northwest Site (Glacier NW Site). On behalf of the Port of Seattle, please find attached our comments and accompanying figures on the Glacier NW Site draft RI report.

Thank you for your time and consideration.

Jalyn Buckley

Thank you for the opportunity to review the public comment draft Remedial Investigation (RI) report for the Glacier Northwest Site (Glacier NW Site), which is located along the western shore of the Lower Duwamish Waterway (LDW), immediately north adjacent to the Port of Seattle’s (Port) Terminal 115 (T-115). The T-115 property encompasses two MTCA cleanup sites – North Terminal 115 (T-115 North) and Terminal 115 Plant 1 (T-115 Plant 1)– both being addressed under separate Agreed Orders (AOs).

The Port is submitting the following comments on the Glacier NW Site draft RI report (draft RI). For Ecology’s reference, figures that present arsenic and pentachlorophenol (PCP) occurrences in shallow and deep groundwater near the Glacier NW and T-115 property line, a cross section and a focused conceptual site model (CSM) that span the property line are attached to accompany our comments.

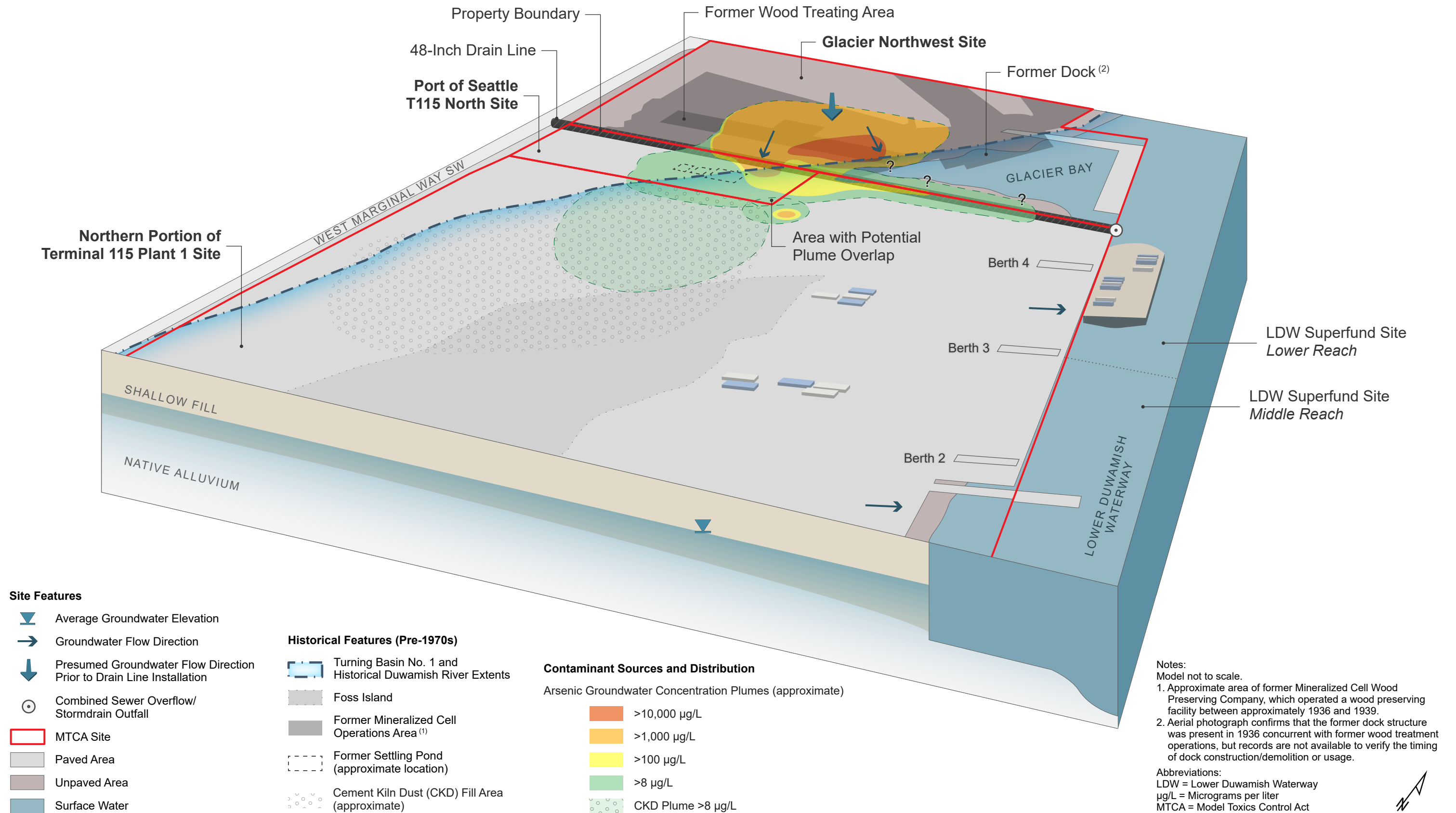
Cmt No.	RI Section	Statement in Draft RI	Port Comment
1	2.2	<i>Although Terminal 115 and North Terminal 115 are separate sites with individual MTCA orders (Order No. 18064 and Order No. 8099, respectively), the two sites will be referred to jointly as “T115” hereon.</i>	Refer to the two T-115 sites separately (note there are multiple references throughout the document). These are two separate Ecology-listed sites with different conceptual site models and administrative processes; therefore, please refer to these sites with specificity to facilitate Ecology’s coordinated oversight of the sites (T-115 North and T-115 Plant 1) to avoid confusion. When referring to the entire T-115 property and south adjacent terminal, please use T-115 property.
2	2.2	<i>Site described as “the geographic extent of contamination caused by the release of hazardous substances at the Site, including upland property, groundwater, the streambank, and adjacent tideflats, and portions of the LDW affected by the release of chemicals from the Site.”</i>	Add a definition/description in the RI that more explicitly describes the Glacier NW Site boundary based on the nature and extent of contamination from former operations on the Glacier NW Site, including a figure that clearly depicts the “Site”. A key element of a RI is defining the “Site.” The draft RI does not discuss or depict the proposed Site boundaries more specifically with respect to where one or more contaminants of potential concern (COPCs) have been detected in impacted media at concentrations greater than proposed CULs, as required by MTCA. Per WAC 173-340-200, “Site” means the same as “facility,” which is defined as “any site or area where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed of, or placed, or otherwise come to be located.” Per WAC 173-340-350(5)(g)(ii)(C) the RI Report must include the “proposed site boundaries, as defined by where hazardous substances exceed the proposed cleanup levels [CULs].” The draft RI acknowledges (and Port investigations at T-115 North and T-115 Plant 1 have also confirmed) that contamination from the Glacier NW Site has migrated onto and continues to be located on the Port’s T-115 property. For example: • Arsenic is a primary COPC for the Glacier NW Site present in groundwater at concentrations more than three orders of magnitude greater than the proposed CULs due to releases from former Mineralized Cell wood preservation operations conducted along the southern portion of the Glacier NW property between 1936 and 1939 (as described in Section 2.6.4 of the draft RI). Section 5.2.1.1 of the draft RI states “on the Port of Seattle property, arsenic in groundwater exceeding the SL [screening level] is laterally delineated to the east and west, but not to the south.” This statement acknowledges that the arsenic plume from the Glacier NW Site has migrated onto Port property. ○ Figure 5-12 of the draft RI shows arsenic in shallow groundwater on T-115 property at concentrations greater than the SLs (term used as surrogate for proposed CUL as proposed CULs are not defined in the draft RI), which shows that arsenic in groundwater has migrated south from the Glacier NW site onto the T-115 property. These findings are consistent with data collected as part of separate RIs conducted for both the T-115 North and the T-115 Plant 1 cleanup sites (see attached arsenic figures). • Similarly, PCP is present at concentrations greater than SLs in shallow groundwater on the T-115 North Site, which likely originated from former Reichold operations on the Glacier NW property from 1946 to 1961 (Section 2.6.6 of the draft RI). PCP concentrations in shallow groundwater on the Glacier NW property are generally one or more orders of magnitude higher than PCP concentrations detected on the T-115 North Site. ○ Section 5.2.4.1 of the draft RI states: “PCP SL exceedances occur in shallow groundwater on the Port of Seattle property in monitoring wells MW-15, MW-16, and MW-10, and are bounded by monitoring wells MW-4, MW-3, MW-6,

Cmt No.	RI Section	Statement in Draft RI	Port Comment
			MW-5, and MW-18 on the Port of Seattle property (Figure 5-18). According to aerial photographs, regular filling activities were observed in the 1930s, 1940s, 1950s, 1960s, and the early 1970s (see also Section 2.7.2). The eastern portion of the Port of Seattle property was filled between 1963 and 1970 with gravel, sand, silt, concrete, bricks, coal, wood, garbage, and other miscellaneous materials (SES 2011) when the Port of Seattle owned both T-115 and the Property (the uplands and Embayment). These filling activities could have transported COPCs, such as PCP, from the Property onto T-115.” The rationale for PCP occurrences in shallow groundwater on T-115 are speculative at best. Figure 5-17 of the draft RI (not Figure 5-18 as referred to in the draft RI) clearly shows PCP at high concentrations on the Glacier NW Site that extend continuously southward onto T-115 North, consistent with the trajectory of the arsenic plume. Also, there are no records or evidence that PCP was used on T-115 North Site. The Port acknowledges that there are separate localized sources of arsenic in groundwater in the northern portion of the T115, including the cement kiln dust (CKD) used as fill and elevated pH from the former settling ponds associated with former detinning operations. However, the arsenic concentrations attributed to these other sources are several orders of magnitude less than the arsenic plume concentrations associated with former Mineralized Cell wood treatment operations on the Glacier NW Site. Arsenic in the deeper groundwater also follows the same pattern as the shallow arsenic plume which is an additional line of evidence supporting that the arsenic from Glacier NW has migrated onto both T-115 North and T-115 Plant 1 sites.
3	2.6.1	<i>1911/1912 to September 17, 1973: Port of Seattle owned the Embayment. Before 1922, the Port of Seattle filled a large portion of the Property with material dredged from the LDW.</i>	Factual correction: The Port did not own the Embayment from 1911/1912 to September 17, 1973. Please double-check this claim for accuracy and provide reference(s) to support the accuracy of the assertion. Similarly, the Port did not fill a portion of the [Glacier NW] Property with material dredged from the LDW. Please check for accuracy (e.g., perhaps some other entity did such filling, e.g., Commercial Waterway District No. 1 of King County or the U.S. Army Corps of Engineers?) and provide appropriate supporting references for an accurate statement.
4	2.6.1	<i>Between April 19, 1960, and December 11, 1964, the Port of Seattle allowed DSI to moor vessels and store logs in the Embayment pursuant to the terms of a real estate contract.</i>	Factual correction: The Port contests the accuracy of this statement and has no records that support it. Please provide a reference to support this assertion or otherwise delete it. The Port did not own the Embayment in 1960.
5	2.6.1	<i>June 2, 1964, to September 17, 1973: The Port of Seattle, and all subsequent owners, owned the Property (both the uplands and Embayment). Between approximately 1967 and 1970, fill was placed along the eastern and southern shorelines of the Property to create the Embayment. The Port of Seattle leased the Property to Kaiser for construction and operation of a cement distribution terminal. Kaiser demolished the existing structures and built the new terminal.</i>	Factual correction/clarification: It is not clear what is meant by “all subsequent owners” here – please clarify this sentence. Use active voice and specify which party or parties placed the fill as referenced between 1967-1970 – there should be an Army Corps of Engineers permit for this.

Cmt No.	RI Section	Statement in Draft RI	Port Comment
6	2.6.7	<i>DSI used the Embayment for log and vessel mooring between 1960 and 1964. The Port of Seattle owned the Embayment at that time.</i>	Factual Correction: The Port did not own the Embayment from 1960-1964. Please delete this sentence.
7	2.7.2	<i>The Port of Seattle owns a nearly 100-acre parcel of property that borders the Property to the south and is operated as T115. The Port of Seattle property is situated on the western shore of the LDW between RM 1.6 and RM 2.1 and is currently occupied by several tenants, including seafood facilities, cargo storage and transfer operations, vehicle maintenance facilities, and a commercial fleet vehicle refueling station (SES 2011). Gene Summy Lumber Company and Commercial Fence Group currently occupy 3.2 acres of T115.</i>	Gene Summy Lumber Company currently occupies the western portion of the 3.2 acres of T-115 North. Commercial Fence Group is no longer a tenant on the Port's terminal.
8	2.10.2.1	<i>General: SPU 48-inch diameter drainage pipe</i> <i>Groundwater elevation data indicate the presence of a depression in the groundwater table in the southeastern portion of the Site, which is caused by the 48-inch-diameter SPU stormwater line that runs parallel to and south of the Site (Figure 2-22)</i> <i>Groundwater immediately surrounding the SPU stormwater line has not been sampled, but groundwater data from nearby shallow monitoring wells MW-3S, MW-26S, and MW-27S, located on the Property and MW-14, located on the Port of Seattle property are indicative of the quality of groundwater discharging to the bedding material of the SPU stormwater line."</i>	Given the relevance of the 48-inch SPU drainage pipe to the CSM (see Comment 11), it would be beneficial to include a stand-alone section in Section 2.5 of the draft RI about this pipe, including construction details. The pipe, which is located on both the Glacier NW and T-115 properties, is described in Section 2.10.2.1 as a preferential flow pathway for shallow groundwater that affects groundwater flow patterns at the Glacier NW, T-115 North and T-115 Plant 1 sites. Since the pipe installation in 1972, groundwater that was previously assumed to flow toward the historical LDW shoreline has been locally redirected toward the drainage pipe and a portion of the flow discharges to the pipe bedding as it traverses the property line.
9	3.1.3	<i>LDW sediment data</i>	Update this section to include more recent data – the sediment data appears to only date to 2006, but there has been extensive sampling and reported data since 2006.
10	5.2.4.1	<i>Description of site history and filling activities.</i>	Factual correction: Section 5.2.4.1 incorrectly implies that 1960s filling activities at the Glacier NW property and the T115 property were related, such that the “filling activities could have transported COPCs . . . from the [Glacier] Property onto T-115.” These filling events were in fact distinct projects completed by different parties, as shown in the photos in Appendix A1: (1) the T-115 North Site (complete by approximately 1963), (2) Kaiser’s development of a cement terminal on the Glacier NW property (complete by 1968), and

Cmt No.	RI Section	Statement in Draft RI	Port Comment
			(3) T-115 Plant 1 areas east of T-115 North (not begun until 1969 or 1970).
11	7.5.2.2	<i>General: Preferential Migration Pathways</i> <i>As discussed in Section 2.10.2.1, groundwater in the southern portion of the Site and under the Port of Seattle property appears to be influenced by a preferential pathway along the 48-inch diameter SPU stormwater line located south of the Site.</i>	The focused CSM figure attached illustrates how the arsenic groundwater plume migrated from the Glacier NW property toward the historical shoreline and onto the T-115 property. After filling the eastern portion of T-115 North, plume migration continued into those areas. After installation of the SPU drainage pipe in 1972 (see Comment 9), localized groundwater flow shifted toward the pipe. Pipe bedding, which is at the same elevation as shallow groundwater, provides a preferential pathway for groundwater contaminants (i.e., arsenic) to be intercepted and flow towards the LDW, while the rest of the plume continues to migrate onto T-115 property. Elevated arsenic concentrations in shallow groundwater near the drainpipe confirm migration onto the T-115 property (refer to arsenic figures and cross section). The CSM in the draft RI should be updated to also include preferential migration of contaminated groundwater along the pipe bedding and onto T-115 property. Also, considering its immediate downgradient location from the former arsenic source area, include an analysis of the pipe’s effects on the arsenic groundwater migration as part of the CSM, including how the pipe bedding and tidal flushing along the pipe bedding affect arsenic plume migration. This information is important and will help inform the Glacier NW Site Feasibility Study and later design documents.
12	7.4.1.5	<i>[Discussion of Former Facility Demolition and Redevelopment]</i>	Factual correction/clarification: This section states highly speculative conclusions as fact (e.g., aerial photos from 1960s indicate soils with elevated COPC concentrations were relocated within the site). Aerial photos cannot demonstrate COPC concentrations. Please revise this section to clarify what is fact (and provide specific supporting references) and what is speculation.
13	7.4.2.1	<i>Between approximately 1963 and 1998 (Figures 7-6 and 7-8), a tin reclamation facility formerly located in the northwest corner of the Port of Seattle property discharged industrial wastewater and stormwater to the Embayment via the surface drainage ditch on the southern portion of the Site. Aerial photographs of the Site in 1965, 1966, 1967, 1969, and 1970 (Appendix A) show a light-colored plume of accumulated sediment and/or liquid discharges emanating from the in reclamation facility</i>	Factual correction: The tin reclamation facility did not discharge industrial wastewater via a surface drainage ditch; it was collected and retained in lagoons to reclaim valuable metal content. Delete or revise this sentence to remove reference to industrial wastewater and clarify this is speculative; the referenced aerial photos only show discoloration and do not conclusively demonstrate the source or composition of the light color (including whether it is the result of a liquid discharge or simply soil erosion). Delete the phrase “emanating from the tin reclamation facility” as speculative; the drainage ditch runs along the property boundary and likely drains multiple sources. It is not possible to identify the source of the “light-colored plume” based on historical aerial photos. Beginning in 1972, the tin reclamation facility discharged to the King County combined sewer system, including newly installed storm sewers and sanitary sewer. Suggested revision: Suggested revision: <u>“Aerial photographs of the Site in 1965, 1966, 1967, 1969, and 1970 (Appendix A) show a light-colored plume of accumulated sediment and/or liquid discharges emanating from the tin reclamation facility. Between approximately 1963 and 1998 (Figures 7-6 and 7-8), a tin reclamation facility formerly operated on North T-115. It is possible that stormwater from the facility area ran as surface flow to the drainage ditch and from there reached the Embayment prior to 1972 when the facility connected to the King County sanitary and combined sewer systems.”</u>

Cmt No.	RI Section	Statement in Draft RI	Port Comment
14	7.6.2	<i>Exposure Pathways-various</i>	This section describes the various exposure pathways that are specifically described as “on-Site”. For example, “On-Site construction workers are potential human receptors for contaminated groundwater for the same reasons stated for saturated zone soil (Section 7.6.2.2).” As described in Comment 2, the “site” is not specifically defined in the draft RI; therefore, it is unclear where these potential exposures apply.
15	N/A	<i>General Comment</i>	A significant reduction of source area arsenic concentrations in groundwater at the Glacier NW Site is observed over time as evidenced in a recent June 2026 FS Data Gaps Report (e.g., GMW-45S). Conversely, arsenic data on the T-115 North Site indicates increasing trends (e.g., MW-9) along the SPU drainage pipe, suggesting continued migration of the plume to the east along the pipe. The recent data gaps data were collected after the Glacier NW RI was completed and are therefore not included in the draft RI. The nature and extent and CSM discussion in the draft RI report should include more specific details regarding the changes of the arsenic plume over time and specific discharge locations. Current and historical mass loading or flux from the Glacier NW Site and off the property should be discussed in the RI and considered as part of the FS. The Port recommends incorporation of the recent data gaps investigation findings into the RI. The RI should be revised to include the more recent data and relevant updates to the CSM.



Focus Area Conceptual Site Model

