

Technical Memorandum



To: Frank Winslow, LHG
From: Scott Miller, P.E.
Company: Department of Ecology, Toxics Cleanup Program
SLR International Corp.
cc: Tom Graham, JELD-WEN, Inc.
Chris Kramer, SLR
Date: October 30, 2025
Project No. 108.020778.00001

RE: Ecology Comments on Marine Engineering Design Report, Jeld Wen Site dated June 2025, regarding Upland CSM

JELD-WEN received initial comments on the draft Marine Engineering Design Report (EDR) for the Jeld Wen Site from the Washington Department of Ecology (Ecology) on June 30, 2025. Additional comments to the Marine EDR were received from Ecology on July 3, 2025. Following a meeting held with the Tulalip Tribe, Ecology received their comments on the Marine EDR on August 22, 2025. Based on the comments provided by the Tulalip Tribe, Ecology sent a final comment letter with additional feedback dated September 10, 2025¹.

One particular comment, Tulalip Tribes Comment #6, addresses the upland Conceptual Site Model (CSM); therefore, SLR International Corp. (SLR) has prepared a response to this comment per Ecology's request, on behalf of JELD-WEN and Anchor QEA.

This memo provides a copy of the comment, followed by the JELD-WEN team's response.

Tulalip Tribes Comment #6

ii) Carefully assess the potential for lateral migration of contaminants from under uplands, or from under capped areas.

Ecology Response:

With respect to the question of lateral migration from contaminants from under uplands or from under capped areas (Comment #6ii) Ecology requests an analysis of the soil-to-groundwater-to-surface water pathway for the contamination that is to remain at the Site following completion of cleanup work. This analysis can be provided as a standalone brief technical memorandum that should provide discussion and evidence on why this pathway will not result in recontamination of the marine environment following the sediments cleanup work. The analysis should include contaminant fate and transport analyses and discussion for site contaminants, and groundwater data that supports this assertion.

Jeld-Wen Team Response:

Conceptual Site Model

A conceptual site model (CSM) including discussion of suspected points of release, contaminant fate and transport, and exposure pathways for the Woodlife Area and associated polychlorinated dibenzo-p-dioxins and dibenzofurans (hereto referred to as "DFs") contamination is provided

¹ Washington Department of Ecology (Ecology) letter to JELD-WEN, Inc. Re: Jeld Wen – Ecology Comments on Marine EDR. September 10, 2025.

below. Portions of this discussion have previously been presented in several site documents, including the Pre-Remedial Design Investigation (PRDI) Work Plan².

Contaminant Source

Characterization data and history indicates that the primary source of DFs in soil and groundwater in the Woodlife Area is attributed to an approximately 10,000-gallon aboveground storage tank (AST) containing Woodlife wood treatment solution (which contained pentachlorophenol [PCP]) that was formerly located northeast of the main manufacturing building, associated underground piping from the AST, and the former dip tank located within the main manufacturing building. Use of the Woodlife AST was discontinued prior to JELD-WEN's purchase of the Site in 1986, and the AST was removed in 1991.

Additional characterization of DFs concentrations in shoreline-adjacent soils was requested by Ecology.³ The documents were presented to Ecology via email⁴, and Ecology responded to JELD-WEN via letter⁵ stating:

“The DFs in shallow soil appear to be highly variable spatially, and no clear spatial trend was found. The DFs in shallow soil are believed to originate from atmospheric deposition of DFs that resulted from historical burning of salt-laden wood waste materials. Such burning reportedly occurred at multiple locations, hence identifying specific sources for DFs in soil in a given area can be challenging.”

It should be noted that concentrations measured in the shoreline assessment soils were orders of magnitude below the maximum soil concentrations measured in the Woodlife Area.

Contaminant Fate and Transport

Soil

DFs have relatively high partitioning coefficients and migrate slowly in soil through natural processes including density-driven flow, capillary draw, advection, and diffusion into the subsurface. Remedial Investigation (RI) data indicates that the migration pathway from soil to groundwater is complete (due to the presence of DFs in each media); however, as discussed below, additional transport associated with groundwater flow through contaminated soil is limited.

Groundwater

Groundwater sampling data has demonstrated that elevated DFs impacts to soil and groundwater are localized around the former operation areas in the Woodlife Area. Given the substantive groundwater data available for the Site, the distance between the areas of impact and surface water, and the passage of time since these former operations, groundwater migration/seepage to surface water does not appear to be a significant release mechanism for DFs impacts in the Woodlife Area. DFs have a low solubility and tend to bind to soil particles making it comparatively less mobile than other contaminants.

Surface Water and Stormwater

² SLR International Corp. (SLR). Final Pre-Remedial Design Investigation Work Plan – Upland Areas of Jeld Wen Site. April 3, 2024.

³ Ecology letter to JELD-WEN Re: Request for soil sampling. March 11, 2025.

⁴ SLR email to Ecology Re: Draft Shoreline Assessment Summary Documents. May 30, 2025.

⁵ Ecology letter to JELD-WEN Re: Definition of the Jeld Wen Site and Site Boundaries. June 12, 2025.



DFs impacts in the Woodlife Area are located beneath buildings or pavement; therefore, overland transport/surface runoff is not considered a significant release mechanism for the DFs impacts in the Woodlife Area. Historical stormwater discharges from the North Truck Dock (NTD) sump, surface flow from off-site properties (including West Marine View Drive), and infiltration of groundwater into the NTD sump and/or drainage from the sump to the subsurface via the apparent sump weep holes were assessed during the Source Control Evaluation (SCE).

Groundwater Seeps

In 2018, SCE activities were performed to assess data gaps for completion of the RI/FS⁶. This evaluation included DFs during the further characterization of contaminant concentrations in groundwater seeps. Near-shore groundwater seep sampling was completed as a source control evaluation tool. An assessment of groundwater seeps observed discharging into Port Gardner Bay on the northern, western, and southern side of the Site was completed to identify potential impacts to surface water and sediment via groundwater seep drainage from the Site. The groundwater seep assessment consisted of identification of observed seeps during low tidal conditions, visual observations from identified seeps, and groundwater seep sampling of select groundwater seep locations along the shoreline of the Site.

DFs Toxic Equivalency (TEQ) values using Toxicity Equivalent Factors (TEFs) from Model Toxics Control Act (MTCA) Table 708-1 and substituting $\frac{1}{2}$ x laboratory detection limit for non-detect values (ND=1/2DL) were measured below the applicable Preliminary Cleanup Levels (PCL) at the seep locations selected for DFs analysis.

Trend Analysis

To support the CSM that shows that the soil-groundwater-surface water pathway for DFs contamination is incomplete, historical data from co-located soil, groundwater, and groundwater seep sample locations were plotted to evaluate evidence of significant trends or direct correlation. Data clusters included: SSB-6, MW-6, and Seep-N-2; SSB-2, MW-1, and Seep-S-14; and SSB.4, MW-15, and Seep-S-1 (see Figure 1).

Data used for the evaluation was provided in the RI report⁷ and includes use of the highest reported value for DFs in groundwater monitoring wells throughout the RI process, as well as use of the TEQ (ND=1/2DL) value.

As shown on the attached graphs, there is no significant positive correlation; rather, the strongest relationship identified is an inverse (decreasing) trend between soil concentrations and co-located groundwater.

Conclusion

The analysis presented in this document shows that, following cleanup, the DFs in surface soils throughout the peninsula will not result in recontamination of the marine sediments. Specifically, considering the soil-to-groundwater-to-surface water pathway and the site background concentrations of DFs in surface soils throughout the peninsula will not result in recontamination of the marine environment following the sediments cleanup work. Other pathways, including direct deposition of surface soils via shoreline erosion, are being addressed by other proposed elements of the CAP (i.e., shoreline armoring).

⁶ SLR. Summary of Source Control Evaluation to Assess Data Gaps for Completion of RI/FS – Former E.A. Nord Door Site. January 2019.

⁷ SLR and Anchor QEA. Final Remedial Investigation / Feasibility Study – Jeld Wen / Former Nord Door Facility. December 2021.

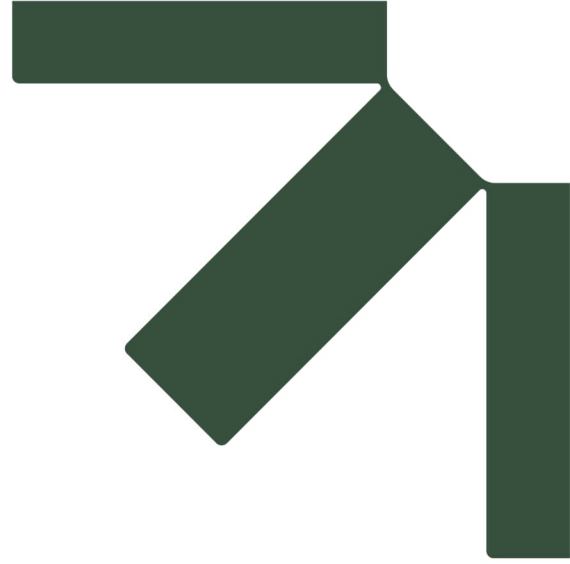


Attachments

Figure 1

Data Trend Analysis Graphs





Figures

Drawing path: N:\Portland\Projects\JELD-WEN\JELD-WEN NORD DOOR\108_V20689.00001_2024 PRD\Activities\Figures\New CADD\2024_Nord.dwg



LEGEND

APPROXIMATE PROPERTY BOUNDARY

UPLAND SHORELINE GEOPROBE BORINGS

SEEP LOCATION AND DESIGNATION

GROUNDWATER MONITORING WELL



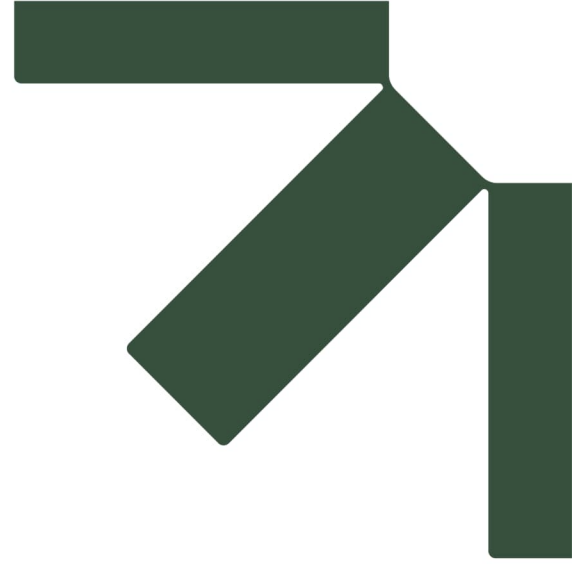
JELD WEN SITE
300 WEST MARINE VIEW DRIVE
EVERETT, WASHINGTON

Report
TECHNICAL MEMORANDUM - MARINE EDR
RESPONSE TO COMMENT

Figure
SAMPLE LOCATIONS USED IN TREND ANALYSIS

Date	October 9, 2025	Scale	AS SHOWN	Figure No.
File Name	2024_Nord	Project No.	108.020778.00001	1





Graphs

Data Trend Analysis
Soil-GW-SW Pathway
Jeld Wen Site

