STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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June 25, 2025

Tom Graham
Director EHS, North America
JELD-WEN, Inc.
2645 Silver Crescent Drive
Charlotte, NC 28273 USA

Re: Submitted Disproportionate Cost Analysis for Creosote Area Excavation Depth

Site Name:	Jeld Wen
Site Address:	300 W Marine View Drive, Everett, WA 98201-1030
Cleanup Site ID:	4402
Facility Site ID:	2757
Agreed Order No.	DE 5095

Dear Tom Graham:

The Cleanup Action Plan (CAP) for the Jeld Wen Site dated August 2023 detailed the selected cleanup alternatives for two contaminated upland areas (dioxin/furan area and creosote area) and marine areas. The cleanup alternative for the creosote area included excavation and offsite disposal of hot spot contaminated soils to a depth of nine feet below ground surface (ft bgs), and enhanced *in-situ* bioremediation, including soil vapor extraction (SVE) and air sparging (AS).

Additional characterization of contaminated soils and groundwater in the creosote area took place in 2024 as discussed with the Final Pre-Remedial Design Investigation (PRDI) Data Report – Upland Areas of Jeld Wen Site dated May 30, 2025. Based on data from this additional characterization work, the Jeld Wen team proposed modification to the depth of excavation within the CAP. Ecology requested a disproportionate cost analysis (DCA) for this modification, and a draft DCA was submitted to Ecology on June 6, 2025. Ecology provided comments on the draft DCA on June 9, 2025, and a revised DCA was submitted to Ecology on June 20, 2025.

Ecology concurs with the methods and results of the June 20, 2025 DCA regarding the planned depth of the excavation within the creosote area. The DCA presents a case for the depth of "hot spot" excavation being reduced from nine ft bgs two four ft bgs, with the addition of two feet of clean fill on top of the contaminated area. The DCA also provided an analysis that this change was warranted based on the depth of excavation within the CAP being disproportionate in cost when compared to the relative benefits of a shallower excavation. Ecology concurs with this change based on the following considerations:

1) The excavation to nine ft bgs was discussed within the CAP as "The excavation will address a majority of the high concentration soil impacts at depths where direct

exposure is most likely, will reduce potential exposures through vapor intrusion and worker contact, and will control future groundwater contamination via source removal." Ecology has concluded that a separation six feet between the surface and unexcavated contaminated soil will address the zone where direct contact is most likely. The proposed SVE system will reduce potential exposures through vapor intrusion and worker contact, and the AS system will reduce source mass within the saturated zone, especially of the more mobile contamination fractions.

2) The PRDI found some degree of product saturation in approximately 2% of soil samples at depths of 1-2', 2-3', and 3-4'; 34-38% of soil samples from 5-6', 6-7', and 7-8'; 23% of soil samples from 8-9'; and 16% of soil samples from 9-10'. However, a significant mass of creosote is present deeper, including at a depth of over 40 feet. Although excavation to 9 ft bgs would be expected to remove significantly more contamination mass than excavation to 4 ft bgs, a significant amount of product would remain following excavation to 9 ft bgs.
3) Vapor intrusion with naphthalene is a significant exposure pathway of concern in the creosote area that is discussed within the CAP. The CAP concluded that the planned SVE and AS will address this pathway.
4) The CAP also concluded that potential migration of contaminated groundwater would be mitigated with the enhanced *in-situ* bioremediation (including SVE and AS) system.
5) The primary exposure pathway of concern that drives the need for excavation in this area is the direct contact pathway, such as with utility workers. Based on the depths of existing utilities at the Site, a separation depth of six feet between the surface and potentially product saturated soils is anticipated to be protective for utility workers for most potential worker scenarios. Institutional controls memorialized within an environmental covenant are expected to ensure long-term protection for the direct contact pathway. This will include the requirement to contact Ecology prior to performing intrusive work within this area.
6) The addition of two feet of clean fill on top in this area has potential to reduce risks for direct contact with contaminated soil (note the planned excavation within the CAP was for product-saturated soils, not all soil contamination), while also providing protection of the SVE system from rising groundwater levels. Inundation of the pilot SVE system occurred during operation of a pilot AS well, since groundwater at the Site is quite shallow. Ecology has concluded that the addition of two feet of clean fill in this area is highly advisable for protection of the remedy.
7) Additional (deeper) excavation has potential to result in exposures to cleanup workers, potential odors emanating from the area to neighboring workers or passersby, and additional dump trucks carrying these materials. These additional trucks could result in additional odor nuisance, as well as a risk factor for potential accidents. Although the Model Toxics Control Act (MTCA) prefers permanent solutions, the incremental benefits of the proposed alternative within the DCA appear to outweigh benefits of a higher permanence score from the base alternative (excavation to nine ft bgs).

The above change is not considered to be a significant change to the CAP, but rather a modification of a conceptual design element of the selected remedial alternative. No modification to Agreed Order DE 5095 appears to be warranted at this time.

Ecology requests that the Engineering Design Report (EDR) that is being prepared for the upland areas include the proposed change within the DCA (from an excavation depth of nine feet bgs to four feet bgs plus addition of two feet of clean fill material on top).

Closing

Please let me know if you have any questions regarding this letter. Ecology appreciates the ongoing efforts of the Jeld Wen team to clean up the Site.

Sincerely,

Frank P. Winslow, LHG
Toxics Cleanup Program
Headquarters Section

cc: Chris Kramer, SLR Consulting
Scott Miller, SLR Consulting
Nathan Soccorsy, Anchor QEA, LLC
Josh Morman, Ecology