

## MEMORANDUM

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**To:** Barry Rogowski, Kathy Taylor, Adam Harris,  
and Pete Adolphson, Washington State  
Department of Ecology

**Date:** March 27, 2014

**From:** Clay Patmont and Nathan Soccorsy,  
Anchor QEA, LLC

**Project:** 120909-01.01

**cc:** Dwayne Arino and Diane Keith, Jeld-Wen  
Scott Miller, SLR International

**Re:** JELD-WEN Former Nord Door Site Sediment Third Quality Assurance Project  
Plan Addendum – Remedial Investigation/Feasibility Study Data Gaps

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This third addendum to the *Quality Assurance Project Plan Marine and Maulsby Marsh Sediments Characterization* (QAPP; Anchor QEA 2012) describes the procedures to collect and analyze clam tissue and/or surficial sediments adjacent to JELD-WEN's Former Nord Door Facility (Site) located in Everett, Washington. As discussed in Section 10.2.2 of the Draft Remedial Investigation/Feasibility Study (Anchor QEA and SLR 2013), additional sampling is necessary to refine site-specific biota/sediment accumulation factors (BSAFs), which are used in turn to develop site-specific sediment cleanup levels. The results of this sample collection and analysis will be incorporated into the draft Cleanup Action Plan (CAP) for review by the Washington State Department of Ecology (Ecology).

Marine clams collected in 2012 and 2013 were analyzed in accordance with the Ecology-approved QAPP (Anchor QEA 2012). Additional clam tissue samples will be collected and analyzed in the southern intertidal portion of the Site to augment existing BSAF data available for this area (i.e., at Station JW-EA-10; see Figure 1). Final site-specific BSAF calculations will be performed using linear regression methods as generally described in Section 9.3.3.7.2 of the current Sediment Cleanup User's Manual (SCUM II), and consistent with Ecology's direction.

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## Marine Clam Tissue Sampling and Analysis

The target clam species is *Mya arenaria*. Collected clams must be at least 1-inch in diameter to be included in the sample. The annual reproductive cycle of *M. arenaria* was studied at Skagit Bay in northern Puget Sound, Washington in 1970 and 1972 (Porter, 1974). Spawning in *M. arenaria* was found to occur from late May to early September. Therefore, clams will be collected by hand during the daytime low tides after April 1, 2014 and before May 15, 2014 to avoid the spawning season for *M. arenaria*.

Proposed clam tissue sample locations are depicted in Figure 1 and with central target coordinates included in Table 1. Ecology calculated mean area weighted surface sediment PCB concentrations, based on their inverse distance weighted data model, and communicated them to JELD-WEN on March 19, 2014. Clams will be collected following the procedures described in the Ecology-approved QAPP (Anchor QEA 2012). The clams will then be depurated for approximately 24 hours. After depuration, the whole clams will then be rinsed, wrapped in aluminum foil (dull side), placed in watertight plastic bags, and placed in coolers with ice for shipment to the laboratory using sample chain-of-custody and shipping protocols described in the QAPP. Approximately 20 to 40 clams will be collected from each sample location and individuals from each location will be combined to create separate sample composites for each location. Clam samples will be sent to the laboratory where they will be shucked and homogenized prior to analysis.

Tissue samples will be analyzed for percent lipids and PCB congeners. Data quality objectives (DQOs), parameters for analysis, appropriate analytical methods, and practical quantitation limits (PQLs) for the clam tissues collected at the Site are described QAPP Tables 1 and 3 (Anchor QEA, 2012). Table 8 of the QAPP describes the laboratory quality control sample analysis summary.

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**Table 1**  
**Clam Tissue Sample Station Coordinates**

Sample ID	Sample Type	Latitude	Longitude
JW-Tissue-01 <sup>a</sup>	Clam Tissue	48.012198	-122.212962
JW-Tissue-02 <sup>b</sup>	Clam Tissue	48.011243	-122.212934
JW-Tissue-03 <sup>c</sup>	Clam Tissue	48.012458	-122.213988

Notes:

<sup>a</sup> Center of target area that represents 100 µg/kg dry weight mean cell concentration

<sup>b</sup> Center of target area that represents 50 µg/kg dry weight mean cell concentration

<sup>c</sup> Center of target area that represents 25 µg/kg dry weight mean cell concentration

1. Secondary and/or tertiary targets have also been provided by Ecology, for each mean cell concentration, as shown on Figure 1. Secondary and/or tertiary targets will be occupied sequentially, if necessary.

### Contingent Surface Sediment Sampling and Analysis

If clams are not present within the primary, secondary or tertiary target areas depicted on Figure 1, the sample site will be adjusted to the nearest location where clams are present. This relocation will also require the collection of a co-located surficial sediment sample. If required, surficial sediments will be collected from the 0-10 cm sediment interval consistent with the methods described in the Ecology-approved QAPP (Anchor QEA, 2012). Surface sediment samples will be submitted for analysis of PCB congeners, total solids (TS), and total organic carbon (TOC). DQOs, parameters for analysis, appropriate analytical methods, and PQLs for surface sediment samples collected at the Site are described in QAPP Tables 1 and 2. Table 8 of the QAPP describes the laboratory quality control sample analysis summary.

### Reporting

Anchor QEA will upload the data to Ecology's Electronic Information Management system as the chemical testing is completed and the chemical test results are validated. The results will be incorporated into the draft CAP review by Ecology.

## REFERENCE

Anchor QEA, LLC, 2012. *Quality Assurance Project Plan Marine and Maulsby Marsh Sediments Characterization, Jeld-Wen Former Nord Door Site*. Prepared for Jeld-Wen, Inc. May 2012.

Porter, R.G, 1974. Reproductive cycle of the Soft-Shell Clam, *Mya Arenaria*, at Skagit Bay, Washington. Fisheries Bulletin, Vol. 72. No. 3. 1974. Pp. 648-652.

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FIGURE

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