



## TERMINAL 4 EARLY ACTION

**Comments received from EPA Team on the Proposed Sampling and Analysis Plan for Additional Sediment Quality Characterization for Phase I of the Removal Action Port of Portland—Terminal 4 Removal Action and Maintenance Dredging T4 Slip 3**

### **1. Field Operations and Equipment, Pages 3 and 4:**

*Comment: a. In the second paragraph, it indicates sampling depths will be corrected using a compaction correlation factor. Please indicate that the Port will make this correction for all cores for which the depth of penetration is evident, but there may be some penetrations without a clear mudline on the core barrel indicating penetration depth. Also, please indicate use of the compaction correlation factor assumes there is a linear relationship between recovery depth and penetration depth. Even with use of the vibrocore method and 3- or 4-inch diameter cores, the relationship may not be linear however it should be a close approximation for evaluating strata differences.*

**Response: Penetration depth will be determined by measuring the vertical distance that the vibrocore moves, beginning at the mudline and ending at refusal or target depth. The penetration depth will not primarily be determined by mudline marks on the core barrel, however the presence of such marks will be an additional line of evidence of penetration depth. Hence, the depth of penetration will be evident for all cores. The Port acknowledges that the use of the compaction correction factor assumes there is a linear relationship between recovery depth and penetration depth. The Port also acknowledges that the relationship may not be linear.**

*Comment: b. In the third paragraph, indicate what method and equipment will be used to collect positioning information (e.g., total station, mapping-grade GPS, survey-grade kinematic GPS). In the same paragraph/bullet list, indicate what types of descriptions will be made about the sediment samples (e.g., Unified Soil Classification System classifications, visible sheen, smell).*

**Response: Location control will be performed with a DGPS unit onboard the sampling vessel (Model: Trimble TDC2 Asset Surveyor). The Unified Soil Classification System classifications will be used to describe the sediment samples.**

### **2. Sample Handling, Page 4:**

*Comment: a. In the first paragraph, indicate cores will be sectioned in to 1-foot (corrected) intervals. If a compaction correlation factor cannot be calculated for a particular core, how will the Port section that core?*

**Response: A compaction correction factor will be calculated for each core where less than 100% recovery is observed.**

*Comment: b. In the second paragraph, clarify whether subsampling and compositing will occur at the onshore facility (i.e., on site) or at the off-site laboratory.*

**Response: Subsampling and compositing will occur at an onshore facility on site.**

*Comment: c. In the third paragraph, given the projected analyses to be used for disposal characteristics how much sample mass is needed for "sufficient quantity" of sample? Given the use of a 3- or 4-inch vibracore sampler there should be sufficient sample mass available for analyses and archiving. however, if sample recovery is low for a particular vibracore sampler it would be useful for the sampling crew to know the minimum amount needed to ensure the primary needs of the sampling effort are met before reserving sample mass for archiving.*

**Response: The additional disposal characterization testing is a secondary objective to the sediment quality testing for dredge prism design. Hence, all chemical analysis jars will be filled first, followed by the archive jar. The grain size jar will be filled last, sample volume permitting, as specified in the SAP.**

*Comment: d. In addition to TCLP testing, the Port will also need to address any requirements under RCRA, TSCA, State of Oregon laws and regulations, and any additional requirements provided by the disposal facility.*

**Response: Comment noted.**

### **3. Tables**

*Comment: a. Table 2: This table lists nine heavy metals and their detection limit requirements, however the bullet list of analytical parameters on Page 5 only list cadmium, lead, and zinc. Will the lab quantify only the 3 heavy metals from Page 5, or all 9 listed in Table 2?*

**Response: The lab will quantify *only* the 3 heavy metals from Page 5. The additional metals listed in Table 2 were inadvertently included.**