LWG
LOWER WILLAMETTE GROUP

Memorandum

To: Jim Anderson, Oregon Department of Environmental Quality

Chip Humphrey, U.S. Environmental Protection Agency, Region 10

Kristine Koch, U.S. Environmental Protection Agency, Region 10

From: Lower Willamette Group (LWG)

Date: June 7, 2012

Re: LWG Responses to DEQ's May 21, 2012 Seven Concerns contained in an Email Regarding "5/10/12 DEQ/EPA/LWG Hot Spots Meeting"

The LWG is providing responses to DEQ's seven questions regarding how Oregon hot spots are addressed in the Portland Harbor draft Feasibility Study (FS) as stated in an email from Jim Anderson dated May 21, 2012. From the May 10 meeting and follow-up DEQ email, the LWG understanding is that DEQ and EPA have not fully reviewed the draft FS or the Risk Assessments, including whether the draft FS adequately satisfies the intent of the Oregon hot spots. As such, the purposes of these responses is to provide further information to DEQ and EPA on how and where the draft FS addresses these questions. Each question stated in DEQ's May 21 email is restated below followed by the LWG information on how and where the draft FS addresses it. After DEQ and EPA further review the Oregon hot spot analysis in the draft FS, the LWG wishes to continue the discussion of how Oregon hot spots are addressed.

1. Oregon Cleanup rules contain a preference for treatment/removal (as opposed to managing the contamination in place with engineering &/or institutional controls) of Hot Spots in soil or sediment. DEQ would not consider simple, engineered, sediment caps to be "treatment"…, there must be some type of component to that cap that treats the contamination. We discussed how clay, carbon, etc could be added to the caps as amendments…, & if effective, those amendments could likely be considered "treatment".

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LWG Response: The LWG agrees that amended or active caps constitute one type of treatment. [1]

- Section 6.2.6 "Active Capping Screening" describes why active caps are a form of treatment
- Section 8 and Section 9.4 "Reduction of Toxicity, Mobility, and Volume through Treatment" evaluate active capping as a type of treatment.

2. DEQ considers potential Hot Spots in either soil or sediment on a point-by-point basis, not a surface-area weighted averaged concentration (SWAC) as the LWG proposes.

   LWG Response: The LWG believes the hot spot analysis can, and in some cases should, be applied on a SWAC basis consistent with the relevant exposure pathway, as ODEQ did at Johnson Lake. Nonetheless, in the Portland Harbor draft FS, the RALs used to define the alternatives are applied on a point-by-point basis. Therefore, a Hot Spot analysis that evaluates the alternatives defined by the RALs, which results in the boundaries of SMAs that encompass areas of higher sediment contaminant concentrations, would in fact be an analysis on a point-by-point basis. The LWG's position is that the Alternative B RALs and associated SMAs adequately encompass any potential Oregon hot spots that may exist, whether defined by SWACs or point-by-point.

   - Sections 4 and 5 describe selection of the RALs and mapping of the SMAs using those RALs, respectively.

3. This next concern deals with what's been described as the "stranded wedge". A stranded wedge is the environmental media (soil & groundwater) that's downgradient to effective upland source-control measure. For example, the stranded wedges that are & have been created by top-of-bank source-control measures to cutoff groundwater contamination flowing to the river. How will the FS address stranded wedges, & the

[1] This is consistent with ORS 465.315(c)(A) which describes "treatment" as a remedial action that "eliminates or reduces the toxicity, mobility or volume of hazardous substances." Reduction in toxicity or mobility is the purpose of any active or amended caps.

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question of whether contamination in the stranded wedges could be considered Hot Spots of contamination.

LWG Response: The draft FS addresses potential groundwater risks including stranded wedges by demonstrating how each action alternative meets the two groundwater RAOs (RAOs 4 and 8) in combination with expected upland groundwater source controls.

- Sections 3.2 and 3.5 discuss the groundwater RAOs and how attainment with those RAOs is assessed through comparisons to water quality criteria and standards at appropriate spatial application points.
- Section 5.6 discusses how potential groundwater advection from either contaminated groundwater or clean groundwater moving through buried contaminated sediments is evaluated to determine appropriate cleanup areas and volumes (i.e., SMAs).
- Section 5.7 discusses how empirical information (TZW concentrations) on potential groundwater impacts to the river is used to develop SMAs.
- Sections 6.2.5 and 6.2.6 discuss how the effectiveness of capping and active capping to contain and control groundwater plumes (particularly stranded wedges after upland source controls are in place) is evaluated and screened through for further use in alternatives development.
- Section 8.2.4.1.3 discusses how the long term effectiveness of remedial alternatives relative to potential groundwater risks is evaluated.
- The overall protection and long term effectiveness subsections of Section 8, Section 9.1.4, and Section 9.3.5 discuss the evaluation of each alternative relative to achievement of the groundwater RAOs.

Given that stranded wedges and subsurface groundwater contamination in general do not constitute risks at the point of exposure (in surface sediments and surface water), groundwater concentrations under the river are not independently evaluated as potential Oregon hot spots. Rather, Section 5.5 evaluates the potential for Oregon hot spots where the risks occur in surface sediments (see high concentration criteria evaluation) and surface water (see highly mobile criteria evaluation).

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4. In the LWG's 5/4/12 "Background Document: Hot Spots in the Portland Harbor FS" & in our discussions…, the LWG states that a higher cost remedy is only preferable if it provides proportionately greater protection. DEQ considers "protection" to be a threshold & absolute criterion…, & that a remedy is protective or is not protective…, & we don't try to differentiate degrees of protection. However, our state rules discuss how consideration of a higher cost remedy should be based factors like effectiveness, implementability, reliability, & short-term implementation risk.

   LWG Response: The LWG agrees that protectiveness is a threshold criteria and that a higher cost remedy is only preferable if it provides greater long and short term effectiveness (defined by ORS 465.315(d)(A) as "effectiveness of the remedy in achieving protection"), implementability and/or reliability or lower short term risks. The LWG used relative "protectiveness" in the 5/4/12 Background Document as shorthand to describe the results of an evaluation comparing the effectiveness in achieving protection. The draft FS concludes that Alternatives B through F are protective. However, some alternatives result in less short term risk during implementation and are more implementable, more reliable, and more effective in the long term.

   - The "Compliance with ARARs, Location Specific ARARs" subsections of Section 8 and Section 9.2.2.1 discuss this issue.
   - Section 10.3.1 summarizes draft FS findings with regards to protectiveness.

5. The draft FS concludes that there are no "high concentration" Hot Spots in Portland Harbor. Given the occurrence of very high concentrations of sediment contamination & even product (all-be-it localized) in Portland Harbor, I find it difficult to accept the previous sentence. A more accurate statement would be that the LWG found it difficult to identify "high concentration" Hot Spots.

   LWG Response: The draft FS does conclude there are no high concentration hot spots for the reasons stated in the draft FS. The LWG also agrees, however, that we found it difficult and problematic to modify our alternatives to address higher concentration areas in ways different than already identified through the use of RALs. As stated in the

response to No. 2 above, the LWG's position is that the Alternative B RALs and associated SMAs adequately address the intent of the Oregon hot spot rule.

As noted in the draft FS, we acknowledge the presence of product in sediments adjacent to the Gasco facility. Consistent with the AOC for the Gasco sediments site, areas of sediment with substantial product have been evaluated with a preference for physical removal. See the May 11, 2012 Gasco Sediments Site Draft EE/CA.

6. The LWG argues that there's no legal basis for applying water-quality standards (WQS) to pore water (i.e., transition zone water). We agree that applying WQS to pore water may not be "applicable", but given how WQS were used in the Portland Harbor Baseline Eco Risk Assessment (BERA), WQS are likely "relevant & appropriate".

   LWG Response: The matter at issue is applying ODEQ's hot spot rule as an ARAR. To do that, it needs to be applied *as DEQ would apply it under its own program,* including looking at how DEQ has historically applied the hot spot rule and how its hot spot Guidance directs that it should be applied (including the direction in the Guidance to treat transition zone water as part of the bulk sediment). That is how the draft FS approaches its hot spot analysis in section 5.5.1.1. As explained there, although the analysis is complicated by the fact that the risk assessments were conducted under EPA guidance and direction, rather than under Oregon risk assessment rules, that section attempts to apply the Oregon hot spot rule as it would be applied if this issue were arising at a DEQ-lead site.

   The question whether WQS (either federal or state) are applied to transition zone water is a separate question. Based on discussions between EPA and LWG, that question was resolved by applying the WQS to transition zone water for screening purposes in the BERA, not as ARARs. This was carried through to the draft FS, which uses WQS for screening purposes (see Section 5.7), consistent with the agreement with EPA. The draft FS indicates the LWG disagrees such comparisons are applicable or relevant and appropriate (see p. 3-13 and p. 5-30).

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7. In the LWG's 5/4/12 "Background Document: Hot Spots in the Portland Harbor FS" & in our discussions…, the LWG argues that the risk from certain organic classes of compounds such as PCBs should be evaluated…, with respect to identifying potential Hot Spots…, based on individual congeners, rather than the total concentration of that chemical class. DEQ generally…, with some acknowledged exceptions like Johnson Lake…, considers risk & the identification of Hot Spots based chemical classes with similar chemical & toxicological properties. For example, the LWG used total PCBs in the Portland Harbor risk assessments.

LWG Response: The LWG used total PCBs in our risk assessments because we conducted them under federal rule and guidance. These procedures conflict with the specific language of the State's hot spot rule (OAR 340-122-0115(32)(b)(A)), defining high concentration hot spots based on "each individual carcinogen," "each individual noncarcinogen,"or "each individual hazardous substance." Given this conflict, we believe the hot spot analysis in the Johnson Lake ROD is a good precedent for Portland Harbor. Section 5.5 of the draft FS discusses our analyses with regards to this conflict.

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