

Portland Harbor Superfund Site

Presentation

December 4, 2018

Sheryl Bilbrey, USEPA Region 10



Table of Contents

- Decision Tree Technology Selection and Flexibility
- Remedial Action Areas
- Sequencing of Site-Wide Remedial Design
- Remedial Design Investigations
- Horizontal and Vertical Delineation of SMAs During Remedial Design
- Remedial Design Issues
- Capping without Dredging
- Alternative/Other Remedial Technologies
- River Banks
- Remedial Design Administrative Structure

Decision Tree Technology Selection and Flexibility

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Decision Tree Technology Selection and Flexibility

<u>Question</u>	<u>EPA Response</u>
<p>Will the FS decision trees be used moving forward? Or were they superseded by the ROD decision tree (Figure 28)?</p>	<p>The ROD decision tree (ROD Appendix I, Figure 28) supersedes the FS decision trees.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Decision Tree Technology Selection and Flexibility

<u>Question</u>	<u>EPA Response</u>
<p>Where is the flexibility in the ROD decision tree to consider site-specific characteristics in assigning an appropriate technology?</p>	<p>Capping and/or dredging will be used in areas that exceed the RALs for the focused COCs or PTW thresholds (Appendix II, Table 21). The flexibilities related to capping and dredging design requirements are described in ROD Section 14.2.9. Site-specific conditions, such as but not limited to, navigation and land use information, whether structures are present, and what type of slope exists or may result from cleanup will inform technology selection and remedial design in the SMAs.</p>

Remedial Action Areas

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Remedial Action Areas

<u>Question</u>	<u>EPA Response</u>
<p>If the SMAs outlined in the ROD will be revised based on newly collected data, where will remediation occur?</p>	<p>As specified in the ROD and ROD decision tree (Appendix I, Figure 28), capping and/or dredging will occur in SMAs, which are areas exceeding the RALs for the focused COCs or the PTW thresholds (Appendix II, Table 21) as determined through updated sampling and analysis during RD. ENR will occur in areas of Swan Island Lagoon not addressed by dredging or capping, unless those areas have recovered naturally. MNR will be used to achieve the final cleanup levels outside of actively remediated areas.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Remedial Action Areas

<u>Question</u>	<u>EPA Response</u>
<p>If newly collected data indicate that SMAs are different than those presented in the ROD, is an ESD required to complete RD/RA?</p>	<p>An ESD would not be necessary because the ROD anticipated that the horizontal and vertical extent of the SMAs (defined by RAL and PTW exceedances) would be refined based on data collected during RD.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Remedial Action Areas

<u>Question</u>	<u>EPA Response</u>
<p>How many of the 1,774 acres that EPA is allowing to recover naturally are already below cleanup goals?</p>	<p>The 2018 Pre-RD Group PDI and Baseline Sampling data will provide an updated estimate of how many of the 1,774 acres designated for natural recovery are below ROD cleanup levels (Appendix II, Table 17). Future long-term monitoring will be used to monitor the progress of the remedy toward achieving the RAOs established in the ROD.</p>

Sequencing of Site-Wide Remedial Design

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Sequencing of Site-Wide Remedial Design

<u>Question</u>	<u>EPA Response</u>
<p>Do concerns regarding upstream to downstream migration of contaminants suggest that RD of downstream areas should occur after RD/RA of upstream areas?</p>	<p>Remedy sequencing will consider the potential for recontamination of remediated areas by upstream contamination or remedial activities. Areas most prone to potential recontamination are those with the highest degree of proximity and connectedness to un-remediated areas or remedial actions. For example, contaminant migration is more likely to affect neighboring downstream areas and less likely to affect areas across the river channel or of significant distance away. Generally, when areas are in close, direct communication, sequencing will be done in an upstream to downstream manner and/or prioritizing areas with the heaviest contamination. However, concurrent Site-wide RD will not be substantially affected by concerns regarding the migration and redeposition of contaminated sediments as many SMAs are significant distances from each other or located off the main stem of the river (where resuspended contaminants are subject to less downstream flow).</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Sequencing of Site-Wide Remedial Design

<u>Question</u>	<u>EPA Response</u>
<p>Will areas of the Site exceeding RALs be able to delay RD until more contaminated upstream areas are successfully remediated?</p>	<p>EPA believes it is important for all areas to initiate the RD process and begin collecting the higher-density, site-specific remedial design data. While it is recognized that the dynamic character of the Willamette River may change surface sediment contaminant concentrations over time, it is less likely that the contamination at depth will change substantially. The completion of concurrent Site-wide RD will allow for effective sequencing of cap and dredge construction to minimize recontamination of these constructed areas.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Sequencing of Site-Wide Remedial Design

<u>Question</u>	<u>EPA Response</u>
<p>Will areas of the Site exceeding RALs be able to perform data gaps sampling to assess MNR without completing the full RD process?</p>	<p>As specified in the ROD and ROD decision tree (Appendix I, Figure 28), capping and/or dredging will occur in all areas exceeding RALs or PTW thresholds (Appendix II, Table 21). Generally, EPA expects these areas within the Site will need to undergo the full RD process. Natural recovery of surface sediment COCs will be monitored in the future by replicating the 2018 non-biased sediment sampling program.</p>

Remedial Design Investigations

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Remedial Design Investigations

<u>Question</u>	<u>EPA Response</u>
<p>Will the 2018 Pre-RD Group PDI and Baseline Sampling data be considered during RD?</p>	<p>Yes, the 2018 Pre-RD Group PDI and Baseline Sampling data will be considered in RD and should be used to inform additional site-specific data collection needs during the full RD process.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Remedial Design Investigations

<u>Question</u>	<u>EPA Response</u>
<p>Will additional characterization be needed beyond the 2018 Pre-RD Group sampling?</p>	<p>Data needs in any given area are a site-specific determination. For example, areas may need higher resolution sampling of the horizontal and vertical extent of contamination, and additional information on current and anticipated future land/waterway use, structures, habitat, and flood storage.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Remedial Design Investigations

<u>Question</u>	<u>EPA Response</u>
<p>How will RD incorporate the source control status of an adjacent upland property?</p>	<p>EPA is working with Oregon DEQ to ensure that issues with source control are addressed prior to and during the RD process. During design, EPA will require a source control sufficiency assessment to evaluate whether potential sources of recontamination have been adequately investigated and controlled or considered such that the remedial action can proceed. The sufficiency assessment will include an upland evaluation of pathways to the river through direct discharges, groundwater, river bank, and overwater to ensure that upland sources have been controlled. The assessment will also evaluate potential in-water sources of recontamination including the resuspension of bedded sediments.</p>

**Horizontal and Vertical
Delineation of SMAs During
Remedial Design**

Horizontal and Vertical Delineation of SMAs During Remedial Design

<u>Question</u>	<u>EPA Response</u>
<p>The first decision box on Figure 28: Technology Application Decision Tree requires a determination of whether one is “Within SMA (See Note 1)”. Note 1 states “Contamination is defined in three dimensions.” In this context, what does it mean that contamination is defined in three dimensions?</p>	<p>The extent of sediment concentrations exceeding RALs for the ROD focused COCs must be defined laterally and vertically throughout the area of contamination. This three-dimensional information is used to define the extent of the SMAs and for application of the decision tree to guide the assignment of capping and dredging technologies. Data gaps on the lateral and vertical extent of contamination will be addressed during site-specific design investigations.</p>

Horizontal and Vertical Delineation of SMAs During Remedial Design

<u>Question</u>	<u>EPA Response</u>
<p>How will the vertical extent of contamination be determined?</p>	<p>The vertical extent of contamination will be determined by collecting subsurface sediment cores and sampling them in 1-foot intervals. Previously collected data and the conceptual site model will be used to determine the depth of sediment cores required. The 1-foot intervals will allow for finer resolution of the contamination that is present, which will reduce the uncertainty of the vertical extent of COCs above RALs, improving technology selection and design.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Horizontal and Vertical Delineation of SMAs During Remedial Design

<u>Question</u>	<u>EPA Response</u>
<p>If surface sediment concentrations are below RALs, but there are RAL exceedances at depth, is one within an SMA or not?</p>	<p>Whether an area is within an SMA is dependent on the depth of RAL exceedances. Site-specific conditions based on data collected during RD will be considered to refine dredging and cap design. For a protective cleanup, this determination must consider the long-term potential for exposure to subsurface sediment contamination.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Horizontal and Vertical Delineation of SMAs During Remedial Design

<u>Question</u>	<u>EPA Response</u>
<p>Is there a minimum depth of sediment with concentrations below RALs which would make exceedances at depth irrelevant? For example, if there are two feet of clean sediment over sediment exceeding RALs, is dredging still prescribed? Five feet?</p>	<p>Site-specific information developed during RD will be required to determine whether it is reasonable to anticipate that contamination at depth will not be exposed in the future and therefore, can be left in place.</p>

Remedial Design Issues

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Remedial Design Issues

<u>Question</u>	<u>EPA Response</u>
<p>Dredging may generate slope failure. Do the design requirements in Section 14.2.9 allow for consideration of the slope of the sediment bed in dredging design?</p>	<p>Slope stability analyses will need to be performed to address these site-specific conditions.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Remedial Design Issues

<u>Question</u>	<u>EPA Response</u>
<p>Do the design requirements in Section 14.2.9 allow for consideration of whether an area is depositional in assigning an appropriate technology? Will deposition be considered in RD?</p>	<p>As specified in the ROD and ROD decision tree (Appendix I, Figure 28), capping and/or dredging will occur in all areas exceeding RALs or PTW thresholds (Appendix II, Table 21). However, sediment deposition as well as but not limited to impacts from propwash scour, extreme flood events, and wind- and vessel-generated waves will be considered during RD. These data will inform cap design and future cap monitoring.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Remedial Design Issues

<u>Question</u>	<u>EPA Response</u>
<p>Do the design requirements in Section 14.2.9 allow for consideration of the presence of rock/cobble/bedrock in assigning an appropriate technology? Will the presence of hard substrate bottoms be considered in RD?</p>	<p>Physical characteristics of the sediment bed, including the presence of rock/cobble/bedrock, will be considered in technology selection and RD.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Remedial Design Issues

<u>Question</u>	<u>EPA Response</u>
<p>Do the design requirements in Section 14.2.9 allow for consideration of the impact of dredging on habitat areas?</p>	<p>As stated in ROD Section 14.2.9.1, additional requirements may be determined during RD and in coordination with NMFS and USFWS to comply with ARARs.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Remedial Design Issues

<u>Question</u>	<u>EPA Response</u>
<p>The definition of structures in Figure 28 does not appear to be very flexible and is not particularly consistent with dock ownership and uses at various properties. How are such site-specific uses to be addressed given the ROD Figure 28 decision tree's lack of recognition of such issues?</p>	<p>Additional factors regarding site structures may be considered in the RD information, as appropriate. Current and future land uses, ownership, flood storage/rise, habitat creation, and the vertical extent of contamination all need to be considered in the RD.</p>

Capping without Dredging

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Capping without Dredging

<u>Question</u>	<u>EPA Response</u>
<p>Under what scenario would capping without pre-dredging be allowed in the intermediate depth region?</p>	<p>Current and future land uses, flood storage/rise, habitat creation, slope stability, and the vertical extent of contamination all need to be considered to determine whether capping without pre-dredging will be allowed in the intermediate depth region.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Capping without Dredging

<u>Question</u>	<u>EPA Response</u>
<p>ROD Section 14.2.3 states that, “the elevation of the top of the cap or residual layer will be no higher than the pre-design elevation” which appears to preclude the option of increasing the valuable shallow water habitat as part of remedial action. Is that EPA’s intent?</p>	<p>It is not EPA’s intent to limit shallow water habitat; however, avoiding or minimizing impacts to the floodway need to be considered in conjunction with habitat creation. Furthermore, site-specific cap designs will require review by NMFS, USFWS, and others and may be modified to improve aquatic habitat.</p>

Alternative/Other Remedial Technologies

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Alternative/Other Remedial Technologies

<u>Question</u>	<u>EPA Response</u>
<p>Why are alternative/other remedial technologies, such as in-situ treatment and ENR, not included for potential use within SMAs on the Technology Application Decision Tree (Figure 28)?</p>	<p>Capping and dredging were determined during the FS to achieve the greatest and most permanent risk reductions for the most contaminated sediments, which are in SMAs. Therefore, the use of alternative remedial technologies can only be applied in areas below RALs and PTW thresholds.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Alternative/Other Remedial Technologies

<u>Question</u>	<u>EPA Response</u>
<p>If supported by available data, will EPA accept alternate technologies specified in the ROD design requirements for areas exceeding RALs but below PTW thresholds? If there is a lot of deposition, can one make the demonstration that partial dredge and cap, ENR, or MNR is appropriate for an area exceeding RALs – would this be acceptable?</p>	<p>As specified in the ROD and ROD decision tree (Appendix I, Figure 28), capping and/or dredging will occur in all areas exceeding RALs or PTW thresholds (Appendix II, Table 21). However, alternate technologies such as in-situ treatment and ENR may be considered for use in areas below RALs on a site-specific basis.</p>

River Banks

EPA Portland Harbor Superfund Site

Remedial Design FAQ



River Banks

<u>Question</u>	<u>EPA Response</u>
<p>How is the top of bank defined (elevation, abrupt change in slope angle, other)?</p>	<p>Defining the top of the bank is site-specific and is visually determined based on the angle of the slope towards the river. Additional guidance will be provided in a river bank guidance document that EPA is developing.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



River Banks

<u>Question</u>	<u>EPA Response</u>
<p>Does the ROD allow flexibility for river bank capping with materials other than vegetation with beach mix?</p>	<p>Selection of river bank cap materials will be based on site-specific considerations addressed under design. River bank source control and containment to meet the RAOs will be considered on a site-specific basis during RD.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



River Banks

<u>Question</u>	<u>EPA Response</u>
<p>Does the ROD allow for flexibility to consider the net benefit to overall habitat and function resulting from combined river bank remediation and shallow region in-water remediation? For example, would EPA consider relaxing the shallow region requirement that “the elevation of the top of the cap or residual layer will be no higher than the pre-design elevation” if concurrent river bank remediation would result in a net benefit to habitat?</p>	<p>The question is hypothetical and needs to be supported by site-specific design data. Habitat elements of the design will be determined in coordination with NMFS, USFWS, and others. Based on site-specific factors, it may not be possible to obtain the optimal river bank. However, it might be possible to fill in some areas without affecting the floodway. Primary concerns include not affecting or mitigating impacts to the floodway due to habitat creation.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



River Banks

<u>Question</u>	<u>EPA Response</u>
<p>Is river bank remediation required throughout all river bank areas shown on Figure 9?</p>	<p>The need for river bank remediation will depend on design sampling data and site-specific conditions (e.g., nature of the bank, land and waterway use, etc.). Additional guidance will be provided in a river bank guidance document that EPA is developing.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



River Banks

<u>Question</u>	<u>EPA Response</u>
<p>Would river bank remediation be required if source control measures such as erosion and storm water control are in place?</p>	<p>This is a hypothetical question that depends on what is developed and presented in the design package for a specific area. The status of source control measures to address bank erosion and stormwater discharges relative to the RAOs will be considered during design. During design, EPA will require a source control sufficiency assessment to evaluate whether potential sources of recontamination have been adequately investigated and controlled or considered such that the remedial action can proceed.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



River Banks

<u>Question</u>	<u>EPA Response</u>
<p>Can additional sampling and analysis (e.g., chemical testing, slope stability, etc.) be performed to modify the areas targeted for river bank remediation on ROD Figure 9?</p>	<p>Additional sampling and analysis are a component of design and would provide information as part of an overall design package that could possibly modify the area targeted for remediation on ROD Figure 9. Additional guidance will be provided in a river bank guidance document that EPA is developing.</p>

Remedial Design Administrative Structure

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Remedial Design Administrative Structure

<u>Question</u>	<u>EPA Response</u>
<p>Is RD directly coupled with RA through a consent agreement with EPA?</p>	<p>Under the Superfund statute, when parties perform RA it must be done under a judicial consent decree or unilateral administrative order. RD can be done under one of these mechanisms also or under an administrative settlement and order on consent. Generally, EPA likes to combine RD and RA under a consent decree.</p>

EPA Portland Harbor Superfund Site

Remedial Design FAQ



Remedial Design Administrative Structure

<u>Question</u>	<u>EPA Response</u>
<p>What is the agreement/consent structure that EPA is seeking to perform RD?</p>	<p>EPA has agreed to postpone issuance of Special Notice Letters to initiate Consent Decree negotiations until December 2019 to allow for completion of the allocation process. However, in the interim, EPA is looking for RD to move forward Site-wide through administrative settlements. Currently, RD is occurring under administrative settlements and orders on consent at the GASCO, River Mile 11E, and Port of Portland Terminal 4 Project Areas. EPA would like to be moving RD forward on all the SMA areas.</p>