

Portland Harbor Record of Decision Implementation NW Natural Status and Recommendations

NW Natural, headquartered in Portland, Oregon, distributes natural gas to over 700,000 homes and businesses in 107 communities in Oregon and Southwest Washington. Environmental stewardship is one of the Company's core values. Between 2001 and 2016, NW Natural and nine other parties completed a Remedial Investigation and Feasibility Study under EPA consent order at the Portland Harbor Superfund Site. In 2005, NW Natural completed an early removal action at its former manufactured gas plant ("Gasco") within the Portland Harbor site under a separate consent order with EPA. In 2009, NW Natural signed a third consent order with EPA for early remedial design work at Gasco. NW Natural completed a draft Engineering Evaluation and Cost Analysis (EE/CA) under the 2009 Consent Order, but in 2012 EPA suspended work on the Gasco project pending completion of the harborwide RI/FS and issuance of a Record of Decision (ROD) for the Portland Harbor site.

Status of Gasco Remedial Design

NW Natural is currently working with Region 10 to develop a "bridge" that will enable us to utilize the millions of dollars of pre-remedial design work performed specifically for the Gasco sediment site under our separate order and move the project into design. In consultation with EPA, we have developed and submitted for approval a schedule by which NW Natural will prepare a number of Basis of Design Technical Evaluation Memoranda supporting site-specific application of the ROD at Gasco, including technology assignment, water quality best management practices during dredging, remediation waste management, and evaluation of habitat and flooding impacts. We expect the Basis of Design memoranda will document EPA's exercise of the site-specific flexibility allowed by the ROD, allowing NW Natural to move into preparation of preliminary and final design reports.

ROD Errata Correction and Clarifications

The ROD contains errors and ambiguities that result in EPA requiring remediation in large areas of the entire Portland Harbor Superfund site that is unrelated to risks identified in the risk assessment. Examples of particular concern to NW Natural include:

1. *Clam consumption risk in the navigation channel:* The ROD requires large areas of petroleum-contaminated sediments within the federally-authorized navigation channel to be remediated. EPA's justification for requiring this cleanup is that people who harvest and consume clams from within the navigation channel might potentially be exposed to unacceptable risk from carcinogenic PAHs.

The Lower Willamette River at Portland Harbor is characterized by relatively shallow nearshore areas that drop steeply to the authorized navigation channel. Water depths in the navigation channel typically exceed 30 feet. No clam harvesting in the navigation channel was identified during the Remedial Investigation; indeed, shellfish harvesting in water of these depths is impractical, if not physically impossible. During the preparation of the Baseline Human Health Risk Assessment, EPA determined that "an appropriate exposure area should be determined in consideration of water depth (i.e. nearshore areas) and the area over which a sustainable shellfish harvest consistent with the clam consumption is possible"¹ and therefore found no risk to humans from clams harvested in the deep water navigation channel.

EPA's Responsiveness Summary, however, contradicts its own risk assessment: "EPA ... disagrees that the shellfish consumption pathway is not complete for the navigation channel." On this basis, EPA has identified approximately 25 acres of dredging in the navigation channel, estimated to cost in the tens of millions of dollars.

EPA's June 6, 2017 Sampling Plan for Pre-Remedial Design appears to recognize this inconsistency between the risk assessment and the ROD. Table 2 of the Sampling Plan states that tissue for baseline and long term remedy

¹ EPA Comments on Comprehensive Round 2 Site Summary and Data Gaps Analysis Report (January 15, 2008), p. 26.

monitoring of clams should be collected at the same nearshore locations sampled in the RI because these clams “provide[] the basis for human health risk-based cPAH cleanup levels.”

EPA should issue an errata sheet for the Portland Harbor ROD correcting the misapplication of clam consumption cleanup levels to the navigation channel and update associated cleanup designations.

2. *Direct contact exposure to in-water sediment:* The ROD applies a remedial goal developed for cPAH exposure through upland beach use to large areas of shallow sediments, even though the Baseline Human Health Risk Assessment found no risk in many of these areas because of the much lower frequency of direct contact with sediments that are always under water.²

EPA’s errata sheet should clarify that the cPAH beach exposure cleanup level developed in the risk assessment applies in beach areas only, and the cleanup level developed for exposure to in-water sediments applies to sediments that are mostly or always under water.

3. *Benthic risk from petroleum:* The ROD requires cleanup in areas where risk was not identified in the Baseline Ecological Risk Assessment (BERA), which used a multiple lines of evidence approach.³ These cleanup areas are based on numeric remedial goals, including a PAH screening value unrelated to the EPA approved BERA. EPA’s responsiveness summary, however, clarifies that additional lines of evidence (e.g. toxicity testing) may be used to “refine delineation of benthic risk areas in areas that are not driven by risk via another RAO.”⁴

EPA’s errata sheet should clarify that EPA will not apply RALs solely to address benthic risk, and that areas identified for cleanup solely due to benthic risk will be delineated using the multiple lines of evidence approach used in EPA’s ecological risk assessment.

Updated IRIS Toxicity Values for Benzo(a)pyrene

Within days of EPA’s issuance of the Portland Harbor ROD, EPA updated its Integrated Risk Information System (IRIS) human health toxicity values for benzo(a)pyrene (BaP) and associated non-carcinogenic risk and carcinogenic polycyclic aromatic hydrocarbons (cPAH) risk. Using EPA’s updated IRIS values (and making no other changes to the risk assessment), cPAH shellfish consumption risks would decrease by approximately an order of magnitude, and the associated cleanup level would increase from 3,950 parts per billion (ppb) to 108,000 ppb. Sediment concentrations at the exposure scales used by EPA to evaluate clam consumption in the risk assessment do not exceed these concentrations in the navigation channel, and so no cPAH cleanup would be necessary under current EPA toxicity values even if clam consumption were a valid exposure scenario for deep water areas of the river.

Similarly, based upon EPA’s new IRIS toxicity values, direct contact risks would drop precipitously, and the associated cleanup level developed in the EPA FS for direct contact with beach sediments would increase from 12 ppb to 85 ppb. The cleanup level developed in the EPA FS (but abandoned in the ROD) for direct contact with in-water sediments would increase from 106 ppb to 773 ppb.

EPA should make these simple mathematical calculations to update cPAH cleanup levels in the ROD. EPA should not rigidly require cleanups based on outdated toxicology information simply because a ROD that was 16 years in the making beat the finalization of updated toxicity values out the door by less than a month.

² ROD, Table 17; cf. Draft Final Feasibility Study Table, 2.2-1a (RAO 1 cPAH PRGs of 12 µg/kg for beach exposures and 106 µg/kg for in-water sediment exposures).

³ See, e.g., Portland Harbor RI Appendix G, p. 774 (“[u]nacceptable risks to benthic invertebrates are located in approximately 4-8 percent of the Site,”); cf. ROD, Appendix IV, Table 4.2-7 (1289 acres of benthic risk within the 2190 acre Portland Harbor Site, or approximately 59% of the Site).

⁴ ROD, *Responsiveness Summary*, p. 2-218.