

## **Boeing Plant 2 Sediment Remediation: Post Remedy Monitoring and the Search for Long-Term Success**

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**Background/Objectives.** Remediation and habitat restoration at the Boeing Plant 2 on the Lower Duwamish Waterway (LDW) in Seattle, Washington was completed in 2015. As one of six early Action Areas within the LDW Superfund Site, the Boeing Plant 2 Early Action Area presented multiple challenges and implementation risks. Located at the upstream end of the Superfund site, the Plant 2 Early Action Area contained some of the more broadly elevated concentrations of PCBs within the LDW. A series of Remedial Dredging Methods were developed and implemented to increase certainty of remedial action success while managing risks associated with re-suspension, releases and residuals. These methods resulted in a very successful project with no measured post dredging residuals.

**Approach/Activities.** Monitoring of the remediated area has been performed routinely since that time, tracking sediment deposition thickness and PCB concentration of the newly deposited material. While the project demonstrated that residuals and releases from mechanical dredging can be significantly reduced through the application of Remediation Dredging Methods, post remediation monitoring documented significant recontamination of the remediated area and loss of benefits of the cleanup action. Post remedy monitoring of the remediated area has produced a unique data set characterizing the thickness and PCB concentrations of newly deposited sediment within the remediated area. In many of the areas monitored, newly deposited sediment thickness has exceeded the 10 cm depth, the point of compliance for remedial action, typically considered the biologically active depth and depth of a standard surface sediment sample within Puget Sound. PCB concentrations in the newly deposited sediment are on the order of 10x greater than the cleanup level set by EPA for the LDW.

**Results/Lessons Learned.** This talk will present the ongoing monitoring results for depositional material thickness and PCB concentrations. This unique monitoring data provides information on time history of surface status within the remediated area for several years following remedy implementation. There remain questions and uncertainties regarding source control, contaminant recycling within the watershed and long term effectiveness of the remedy. These factors, on a watershed basis, may negatively impact the ability of active remedial actions to meet sediment cleanup criteria promulgated by agencies on behalf of other stakeholders, creating a situation of unachievable goals.