

Multnomah County Drainage District: Successful Programmatic Adaptive Management for Sediment Cleanup Projects through Collaborative Agency Interaction

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Background/Objectives. Multnomah County Drainage District (MCDD) is a flood control district located in Portland, Oregon, that protects lives and property from flooding by operating a flood management system for over 1,200 acres of urban industrial land along the lower Columbia River and Columbia Slough. These systems include: 27 miles of levee, 13 pump stations, and 45 miles of ditches, sloughs, streams, and culverts. A crucial part of our operations is to perform maintenance dredging in ditches and tributaries of the Columbia Slough that contains widespread contamination in sediments. Because of the contaminated sediment remedial action requirement and the needs of the flood management system, MCDD, Oregon Department of Environmental Quality, the State of Oregon, and USACE have worked collaboratively on programmatic permitting that enables MCDD to complete dredging in an environmentally responsible and economically viable processes.

Approach/Activities. The presentation will focus on MCDD's programmatic adaptive management approach, with focus on a recent successful example of applying this approach was a dredging operation completed within a ditch critical to stormwater conveyance within the interior drainage system. MCDD needed to remove a dredge prism of approximately 2.6 feet of sediment to re-establish the hydraulic cross section. For the dredge sediment, the contaminants of concern were cadmium, copper, lead, zinc, and polychlorinated biphenyls (PCBs).

MCDD worked with the regulatory agencies to evaluate chemical concentrations in sediment derived from samples collected during the dredging operation to find the most cost effective and environmentally beneficial solution. With these real-time sampling results, MCDD could limit the area requiring overdredging and cap to the downstream areas with screening level exceedances of 200% or more. Based on the limited exceedances of historic dredge sediment sample concentrations upstream and recognizing that there would be some degree of dredge sediment mixing/residuals, it was collaboratively concluded that no leave surface action (i.e. no overdredge or cap) was required for the upstream portion of the ditch.

Results/Lessons Learned. Using an adaptive management approach in collaboration with regulatory agency partners, MCDD has managed contaminated dredge prism sediment and design new sediment surfaces during maintenance dredging to cost-effectively maintain interior levee drainage within the flood control system. In the maintenance dredging case study presented, this approach resulted in completion of the project underbudget and within the project timeline. Based on the successful implementation, this adaptive management strategy will be used for future dredging operations, allowing decisions to be made based on actual field condition and providing flexibility during the dredging project planning and implementation. A key component of the success of this approach is MCDD's strong collaborative relationship with DEQ. Without regulatory cooperation and support, this approach may not be as effective.