

Alternative Remedy Implementation at the Contaminated Sediment Ashland/NSP Superfund Site

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Background/Objectives. The Ashland/NSP Superfund Site (Site), located on the shore of Lake Superior's Chequamegon Bay, is the site of a former manufactured gas plant that was placed on the National Priorities List in 2002. In 2009 a Record of Decision (ROD) was released by United States Environmental Protection Agency (USEPA). For contaminated sediments the ROD selected a hybrid approach, whereby near shore sediment would be excavated in the dry with construction of steel sheet piling to enclose the areas to be excavated with subsequent dewatering of Chequamegon Bay surface waters within those areas. The ROD then called for less contaminated sediment, further from shore, to be removed using dredging technologies such as mechanical or hydraulic dredging equipment.

The ROD also presented an Alternative Remedy which allowed for the demonstration of a Pilot Test. If the Pilot Test was successful in removing contaminated sediment with mechanical and/or hydraulic dredging equipment, the entire Site could be implemented with a full dredge remedy. The ROD-selected hybrid remedy was shown to be significantly more costly and also presented Site safety concerns associated with both sheet pile to dewater sections of Chequamegon Bay and from the underlying instability of the sediment bed. Given the current request for flexibility in contaminated sediment Proposed Remedial Action Plans (PRAPs) and RODs across the United States, the execution of the Alternative Remedy and ROD flexibility helps to further instruct contaminated sediment remedies at other sites.

Approach/Activities. The Pilot Test design included removal of approximately 10,000 cubic yards of contaminated sediment using both mechanical and hydraulic dredging equipment. A key ROD Performance Standard for the Alternative Remedy/Pilot Test was the requirement, during active dredging, to attain surface water chemistry standards at compliance points that conform to State of Wisconsin surface water concentrations for polycyclic aromatic hydrocarbons (PAHs). Another key Pilot Performance Standard that was achieved was the attainment of a post-dredge surface weighted average concentration (SWAC) over the dredged Pilot Test area of 9.5 ppm total PAHs (tPAH) and no sample to exceed 22 ppm tPAH ("not-to-exceed threshold"). Adaptive Management approaches and collaboration between the agencies and the design and field teams were critical to the success of the Pilot Project.

Results/Lessons Learned. This presentation will focus on the importance of flexibility in PRAPs and RODs for contaminated sediment sites. Description and results of the Pilot Test project will be presented with respect to the ROD Performance Standards, A cost and schedule comparison between the originally selected hybrid remedy by USEPA compared to the Alternative Remedy highlights the importance of including flexibility in RODs. The successful Alternative Remedy/ Pilot Test was followed by a full-scale dredge remedy which incorporated both design and field construction lessons learned from the Pilot Test.