Application of a Technology Assignment Process at the Hunters Point Naval Shipyard Site

Eric Blischke (blischkee@cdmsmith.com) (CDM Smith, Helena, MT, USA)
Sharon Ohannessian (sharon.ohannessian.ctr@navy.mil) (U.S. Navy, Washington, DC, USA)
Danielle Janda (danielle.janda@navy.mil) (U.S. Navy, San Diego, CA, USA)
Melissa Harclerode (harclerodema@cdmsmith.com) (CDM Smith, Edison, NJ, USA)
Tamzen Macbeth (macbethtw@cdmsmith.com) (CDM Smith, Helena, MT, USA)
Mitra Fattahipour (mfattahipour@ieeci.com) (ECC-Insite, San Diego, CA, USA)

Background/Objectives. The Hunters Point Naval Shipyard Site (HPNS Site) is located in San Francisco, California. Historical activities at the Shipyard have resulted in contamination of offshore sediments with polychlorinated biphenyls (PCBs), copper, lead and mercury. In 2008, a feasibility study was prepared for sediment remedial unit (Parcel F) of the HPNS Site. Since the 2008 FS was completed, new information regarding the effectiveness of in situ treatment using carbon-based amendments has become available (Patmont et al., 2014) and two pilot studies that evaluate in situ sediment treatment using activated carbon were completed at the site between 2005 and 2018. In addition, advances in our understanding of sediment remediation success factors allows for application of a formalized process for optimizing remedial alternatives consistent with the recent sediment guidance developed by the Interstate Technology and Regulatory Committee (ITRC, 2014).

Approach/Activities. Five site-specific factors were evaluated to aid in the development of an optimized remedial alternative and to refine the active remedial footprint based on information presented in the 2008 FS. The site-specific factors are: contaminant of concern (COC) sediment concentration, water depth, hydrodynamics, natural recovery rate, and constructability. COC sediment concentrations were evaluated against both not-to-exceed threshold concentrations protective of wildlife that consume fish and shellfish, and long-term background based preliminary remedial goals (PRGs) protective of humans that consume fish and shellfish. Water depth, hydrodynamic characteristics, natural recovery rate and constructability were used to assess the implementability and long-term effectiveness of applicable remedial technologies comprising a multi-component remedy. The remedial footprint of each technology component was developed based on the technology assignment framework and a global information system (GIS) model that assigned post construction estimates of sediment concentration on a Thiessen polygon basis.

Results/Lessons Learned. The optimized remedial alternative incorporates in situ treatment of contaminated sediments to a larger degree in conjunction with other remedial technologies. The optimized alternative removes intertidal sediments above not-to exceed PRGs where in situ treatment may not be effective due to the presence of metals and the potential for wave induced erosion. Intertidal sediments will be removed to a depth of one foot and covered with backfill designed to both resist erosion and improve nearshore habitat. Subtidal sediments with PCB contamination too high for in situ treatment to be effective (12,400 µg/kg) will be also be removed. Subtidal sediments above 1,240 µg/kg but below the 12,400 µg/kg removal threshold will be remediated through in situ treatment. Sediments with PCBs below the not-to exceed PRG of 1,240 µg/kg will be remediated through MNR. The optimized alternative was evaluated against the NCP evaluation criteria and identified as the preferred remedial alternative in the Proposed Plan for Parcel F sediments at the HPNS Site. This alternative is expected to effectively reduce site risks by removing significant amounts of COCs and safely contain or treat the remaining contaminants.