

FULL SCALE SEDIMENT DECONTAMINATION APPLICATIONS NEW YORK/NEW JERSEY HARBOR

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Sediments in the Port of New York and New Jersey are widely contaminated with organic and inorganic compounds. These compounds such as Dioxins/Furans, PCBs, chlorinated pesticides, PAHs, and heavy metals have severely restricted the placement options for contaminated dredged material. In addition, future waterfront development opportunities are being adversely impacted by the presence of these sediments. As part of an overall alternative management planning program, the U.S. Environmental Protection Agency (EPA), U.S. Army Corps of Engineers, Brookhaven National Laboratory, and the New Jersey Department of Transportation have designed and implemented a program to evaluate the efficacy of sediment decontamination technologies to manage contaminated sediments on a full and commercial-scale level utilizing an integrated treatment train systems approach. Technologies in the program include thermal destruction (rotary-kiln, plasma-arc vitrification), sediment washing, and stabilization with chemical oxidation. All technologies generate from the post-treatment process a beneficial use product such as manufactured topsoil, construction-grade cement, light-weight aggregate, composite bricks, tiles and structural fill. These products and the economic benefits derived from their manufacture may in turn serve as an economic driver for the re-development of impacted waterways, ports and harbors, and adjacent brownfield communities. Besides its application in navigational dredging projects, the future of sediment decontamination technologies needs to be integrated into other programs that includes environmental/economic restoration in order to have enough flow-through capacity for these technologies to succeed economically on a large-scale. Cross-program applications that would benefit from a sediment decontamination program include brownfield, aquatic Superfund, and contaminated sediment programs, integration with renewable confined/aquatic disposal facilities, hot spot removals, and environmental sustainability programs in developing countries. Data will be presented on a full-scale demonstration of a thermo-chemical rotary kiln process, and commercial-scale demonstration of a sediment washing system which will be underway in 2004-05 at a material processing site in New Jersey. A full-scale demonstration using an existing rotary kiln for light weight aggregate manufacturing is also in preparation at this site. Programmatic integration of a sediment decontamination demonstration with EPA Superfund on the Passaic River, New Jersey planned for the summer of 2005 will also be discussed. Technical transfer of this program to other regions nationally as well as internationally has translated into a sediment washing technology demonstration in the Port of Venice, Italy in 2004. This collaboration will also be presented.

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