

# FACT SHEET:

## Engineered Capping

### Description:

Controlled placement of various materials (e.g., sand, fill, gravel/cobbles, geotextile material, etc.) to physically isolate sediments from the overlying water column. Typical process options include: multi-media cap, sand cap, AquaBlok™, and revetments. Typical cap thicknesses range from 0.5-3 feet.

### Scale of Implementation:

#### Full-Scale

#### Precedence (full-scale):

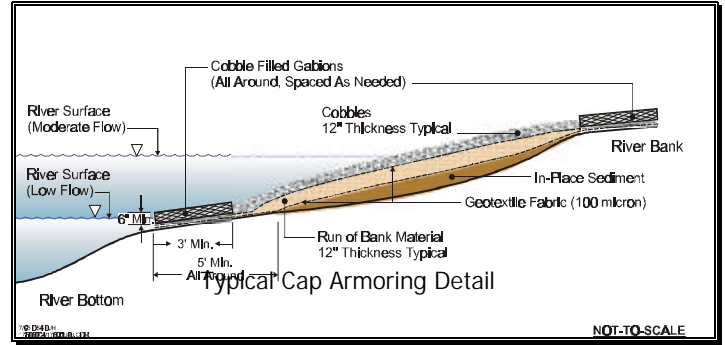
- ✓ Convair Lagoon (CA)
- ✓ Duwamish Waterway (WA)
- ✓ Puget Sound (WA)
- ✓ Hamilton Harbour (Ontario, Canada)
- ✓ St. Lawrence River (NY)
- ✓ Sheboygan River and Harbor (WI)
- ✓ Central Long Island Sound Disposal Site (NY)
- ✓ Mud Dump Site (NY)

#### Documented Effectiveness Toward Risk Reduction:

- ✓ reduces chemical bioavailability
- ✓ reduces water-column chemical concentrations
- ✓ can facilitate conditions conducive to natural degradation processes
- ✓ minimizes downstream migration of contaminated sediment
- ✓ can improve fish habitat areas

#### For More Information:

- ✓ USEPA ARCS Program: *Guidance for In-Situ Subaqueous Capping of Contaminated Sediments*. EPA 905-B96-004. September 1998.
- ✓ Hazardous Substance Research Center and USEPA Great Lakes National Program Office. "Proceedings from: In-Situ Capping of Contaminated Sediments – A Seminar for Decision Makers." Chicago, IL. November 20-21, 1996.



### Critical Engineering Design Issues Influencing Effectiveness:

- ✓ cost/location of capping material source
- ✓ sediment surface topography
- ✓ flooding characteristics
- ✓ ground-water flow
- ✓ benthic activity
- ✓ water depths/velocity
- ✓ navigational traffic
- ✓ access constraints
- ✓ erosion potential
- ✓ sensitive/protective biologic environment

### Short-/Long-Term Issues:

- ✓ chemical remains in-place
- ✓ resuspension and/or mixing of contaminants during placement
- ✓ chemical release in water column during placement
- ✓ benthic community alteration
- ✓ long-term diffusion/advection of chemicals through cap material
- ✓ long-term erosion
- ✓ cap surface recontamination
- ✓ alteration of river hydraulics
- ✓ disruption to recreational and commercial in-shore and near-shore activities
- ✓ placement may be challenging in deeper waters, areas with wave action, boat traffic or large targeted surface area
- ✓ navigational dredging requirements
- ✓ gas generation (sediment decomposition)