

FACT SHEET:

Particle Broadcasting

Description:

Placement of a thin layer (generally several inches) of clean material (e.g., clean sediment, sand, topsoil, or mixture thereof) to mitigate chemical flux to the water column and enhance natural attenuation processes.

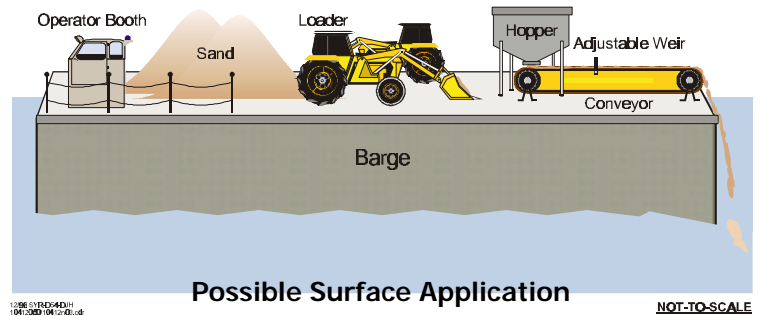
Can be placed via surface or subsurface application.

Scale of Implementation:

Proposed as a remedial option at Ward Cove (AK). Limited precedence for use as defined above; however, similar application techniques used full scale at several engineered capping sites including Hamilton Harbor (Ontario, Canada), Eagle Harbor (WA), and Pier 64 (WA).

Documented Effectiveness Toward Risk Reduction:

- ✓ accelerated reduction of chemical concentration in sediment, biota and water column
- ✓ limits negative effects on benthic community
- ✓ less intrusive to the environment
- ✓ retardation of dissolved chemical flux to water column
- ✓ translocation of bioturbation zone upward and out of contaminated sediment



Critical Engineering Design Issues Influencing Effectiveness:

- ✓ water depth
- ✓ water velocity
- ✓ sediment type
- ✓ navigational traffic
- ✓ flood frequency
- ✓ ground-water flow
- ✓ constraints on access
- ✓ sediment surface topography
- ✓ erosion potential
- ✓ placement technique
- ✓ cap material availability

Short-/Long-Term Issues:

- ✓ chemical remains in-place
- ✓ limited precedence for use
- ✓ accurate placement of cap material
- ✓ cap erosion
- ✓ navigational dredging requirements
- ✓ resuspension and/or mixing of existing sediments during installation
- ✓ challenging to implement in deep water and/or over a large surface area
- ✓ will require greater volume of material to achieve nominal depth

For More Information:

- ✓ 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
- ✓ Hazardous Substance Research Center. "Capping Contaminated Sediment In-Situ." CENTERPOINT, Vol. 2 No. 2, 1995.