



Anchorage

## NEWS RELEASE

**CONTACT:** Susan Kemp  
[susan.kemp@hartcrowser.com](mailto:susan.kemp@hartcrowser.com)  
Public Relations  
Hart Crowser, Inc.  
(206) 324-9530

**FOR IMMEDIATE RELEASE**

Edmonds

Denver

### MIDDLE WATERWAY RESTORATION SUCCESS

#### Two New Technology Applications Smooth the Way

Philadelphia

Seattle, WA (November 22, 2004)—Hart Crowser had been involved in many contaminated-sediment remediation projects, but Middle Waterway Area C was unusual. One of the last original tideflats in Commencement Bay, it had mucky, quicksand-like sediment that complicated the work in a sensitive habitat environment. The Department of Natural Resources (DNR), the Department of Ecology, and the City of Tacoma agreed with EPA that the best long-term solution was to remove the toxic sediments. This strategy exceeded the U.S. Environmental Protection Agency's (EPA's) requirement to simply place a cap of clean silty sand over the contaminated sediments in this area. The sediment consistency would also make it challenging to bring in heavy machinery.

Portland

Seattle

Hart Crowser and KPFF Consulting Engineers developed a design for DNR (the project lead) to get equipment out onto the mudflats from the land, and divide the areas for digging using large steel divider plates to isolate bullpen-sized cells. A backhoe was used to excavate the contaminated sediment from a single cell, and then fill the cell with clean sand. The backhoe



then could be driven onto the newly filled, sturdy cell for work to begin on the next cell. The divider plates kept the contaminated, mucky sediment from backsliding into the excavation.

Removing the sediment at low tide had the additional benefit of preventing contamination from spreading through the waterway. The team sometimes worked in the middle of the night to accommodate the tide schedules.

Another goal of the project was to place a layer of fine-grain sand and silt over the site to create habitat for worms, shrimp, and other benthic life (organisms that live at the sea bottom). The layer, or cap, would also help encourage natural recovery in areas where sediment excavation was not necessary. And they wanted to avoid disturbing habitat in areas that were not part of the earlier excavation. Although a barge is traditionally used to place materials for capping through the water column, shallow water and shifting tides made this strategy time-consuming and expensive. The team needed a better method that would give them more control over the cap's location and thickness.

The team used Air Resource Technology (ART), a pneumatic blower system resembling an oversized fire hose that gently spreads dry sand and silt. ART had previously been used to move grain, coal, soils, and other materials, but had not been used as an environmental remediation tool. Using ART eliminated the need for barges and greatly reduced the areas where heavy equipment was needed to place the cap, which meant less disruption to benthic habitat. ART also simplified logistics, since the hose could easily be moved to different areas of the site.



Other project participants were NRC Environmental Services and their excavation subcontractor, Quigg Brothers, Inc. The ART methodology was developed by EnSenTech Corporation.

Even as cleanup of Area C was wrapping up, benthic life began repopulating the restored tideflat. With cleanup work nearly complete, the tideflat now thrives with new life. The Middle Waterway Area C work marks another significant step toward preserving and enhancing Washington State's environment. The cleanup was recently commended by Citizens for a Healthy Bay, who presented DNR and Ecology with Bay Hero Awards for their commitment and effort on the project.

Hart Crowser is a 150-person environmental and engineering consulting firm headquartered in Seattle, with offices in Edmonds, Washington; Portland, Oregon; Anchorage, Alaska; Denver, Colorado; and Cherry Hill, New Jersey. The firm specializes in environmental and geotechnical engineering, natural resources, and remediation technologies. Corporate offices are located at 1910 Fairview Avenue East, Seattle, Washington 98102; telephone (206) 324-9530 and fax (206) 328-5581. Visit the firm's website at [www.hartcrowser.com](http://www.hartcrowser.com) for more information.

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