

REACTIVE CORE MAT® for creosote sediment cap at Portland superfund site

The former McCormick and Baxter Creosoting Company is located in Portland, Oregon on the Willamette River. This Superfund Site encompasses approximately 41 acres of land and an additional 23 acres of contaminated sediment.



PROJECT DETAILS

McCormick & Baxter Superfund Site
Engineers: GSI Water Solutions, Inc.
and Ecology & Environment, Inc.

LOCATION

Portland, Oregon, USA

PRODUCTS USED

ORGANOCCLAY™

REACTIVE CORE MAT®

Left to Right: Obvious creosote sheen present near the shoreline of the Willamette River cove (left). Gas ebullition through the REACTIVE CORE MAT® to the surface of the water (middle). Subaqueous installation of the ORGANOCCLAY™ filled REACTIVE CORE MAT by barge using a spreader bar and divers for placement (right).

CHALLENGE:

To successfully install a reactive sediment cap remedy that would effectively control nonaqueous phase liquid (NAPL) release, apparently associated with gas release, while minimizing the potential for resuspension of contaminated sediments.

SOLUTION:

As part of the remedial action at the site, soil hot spots were removed and creosote was recovered from wells. Also, several measures were implemented to prevent creosote contamination from continuing to discharge to the river. These remedial measures included installation of an upland barrier wall, upland impermeable cap, and sediment cap over creosote seep areas in the river. Organoclay-filled mats (i.e., REACTIVE CORE MAT) were installed at the McCormick & Baxter Creosoting Company Superfund Site in Portland, Oregon in 2005 to control NAPL release associated with gas release.

Reactive mat used in creosote sediment cap remedy at a Portland superfund site

RESULT:

ORGANOCLAY™ filled REACTIVE CORE MAT® (RCM) was placed in designated areas where ebullition, in conjunction with tidal pumping, created minute pathways for otherwise immobile (residual) creosote, either as a sheen associated with the gas bubbles or globules of creosote migrating through the pathway created by the bubbling. After evaluation of test sections of the sediment cap, results showed that the ORGANOCLAY contained within the RCM retained significant sorption capacity.