# Lessons Learned from Thin Layer Cover Placement Pilot Application in Brunswick Estuary, Georgia, USA

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**Background/Objectives.** The LCP Chemicals Superfund Site is in Glynn County, Georgia, immediately northwest of the city of Brunswick. The site consists of a mix of tidal creeks, marshes, and brackish estuary and an adjacent upland area. Investigations of the surrounding marsh have identified sediment and surface water contamination related to historical industrial operations at the site. Site contaminants of concern include mercury, Aroclor 1268, lead, and polycyclic aromatic hydrocarbons (PAHs). Potentially responsible parties at the site include Honeywell, Atlantic Richfield Company, and Georgia Power, and the agencies are the U.S. Environmental Protection Agency and Georgia Department of Natural Resources, Environmental Protection Division. The remedial investigations and feasibility studies at the site concluded that the most effective remedy for the site was dredging and backfilling 7 acres of tidal creeks, capping 6 acres of tidal creeks, and placement of a thin cover over 11 acres of wetlands to enhance natural recovery. Remedial design is ongoing, and construction is slated for 2020/2021.

**Approach/Activities.** During Spring 2018, a pilot project involving placing 6 to 9 inches of material within a 2/3-acre marsh area was completed. Two material types—sand and higher organic content fines—were tested. The purpose of the pilot was to test construction methodology and remedy performance in advance of the future full-scale thin cover remedy implementation in larger areas throughout the site. The contractor identified the appropriate equipment and means and methods to hydraulically convey and place the thin cover material within the pilot area, per stated performance objectives. Primary placement occurred using a hydraulic nozzle spray placement method that resulted in generally uniform distribution and thickness of thin cover. To access the marsh area, a mat-based access road was installed to allow equipment to move the pipeline and spray nozzle for fine placement control within the pilot area. Turbidity in the water discharged from the treatment area was minimized by environmental controls (e.g., perimeter hay bales) installed by the contractor. The contractor closely monitored production rates, thin cover placement thickness, and the effectiveness of environmental controls during the work.

**Results/Lessons Learned.** Placed thin cover thicknesses in the field ranged from 6 inches to 12 inches. A 30- to 45-degree spray yielded the best distribution of materials for the equipment used. Placement of sandy material was faster and more uniform than fines due to the enhanced settling characteristics and ease of distribution of the material. A modified top soil-fines mix with a baffle plate eventually permitted optimal placement of fines within the study area while keeping target organic content. Mat-based construction access initially experienced some settlement issues due to loading and required restoration following project completion. Placed material thickness was consistent with previous studies, which documented that similar thickness of placement is sufficient to encourage natural vegetative recovery over a time span of 2 to 3 years. Vegetative monitoring will be conducted over a period of 2 years to document natural recovery and thin cover effectiveness for the remedy.