Overview of Ongoing Remedial Investigations
Kerr-McGee Chemical Corporation Superfund Site, Navassa, North Carolina
December 7, 2016

Navassa Site

The 251-acre Kerr-McGee Chemical Corporation Superfund Site (the Site) is bounded to the east by the Brunswick River, the south by Sturgeon Creek, the west by a residential area, and the north by a light industrial area with an active CSX rail line.

Site Background

The Site was used for creosote-based wood treating from 1936 to 1974. By 1980, Kerr-McGee dismantled the wood-treatment buildings and facilities. During decommissioning, the creosote sludge from product tanks and unlined waste water ponds was mixed with clean fill, then compacted in the pond basins, which were backfilled and vegetated.

Site Contamination

Creosote is still present in soils in the former process and pond areas, and has moved to sediments in the tidal marshes that border the property. The contaminated soils and sediments are leaching creosote-related contaminants to groundwater, which generally flows south and southeast to the tidal marshes, Sturgeon Creek, and the Brunswick River.

In 2010, the EPA listed the Site on the National Priorities List because of contaminated groundwater, soil, and sediment resulting from the wood-treating operations.

Multistate Trust Cleanup Activities

Since it was established in 2011, the Multistate Trust has been performing investigations and cleanup activities approved by EPA in consultation with NCDEQ, using the cleanup funds allocated for the Site.

The Multistate Trust is currently performing final Supplemental Remedial Investigations (SRI) to fill data gaps and finalize the RI report. The RI activities are focused on delineating the nature and extent of contamination in the former process areas and the tidal marsh between the former wastewater ponds and Sturgeon Creek.

The Multistate Trust

The Multistate Trust owns and manages more than 400 former Kerr-McGee contaminated sites in 31 states. It has assumed responsibility for remediating the sites using funds earmarked for each site, and facilitating safe redevelopment and long-term stewardship of the sites.

Greenfield Environmental Multistate Trust LLC is the court-appointed Trustee of the Multistate Environmental Response Trust.

Use of Innovative Technology for Remedial Investigations at Navassa Superfund Site

High Performance Mats

A temporary concourse of more than 300 high-density polyethylene mats was installed to protect the marsh environment while creating a stable surface for drill rigs and other heavy equipment to collect samples in the marsh. A sampling window (below left) is open in the mats to allow access to soils and sediments.

State-of-the-Art Sampling Technologies and Innovative Methods

The Multistate Trust is using technologies and approaches designed to allow real-time, rapid data collection between tidal cycles and to minimize disturbance of sensitive environmental areas.

Rotosonic Drill Rig

A track-mounted rotosonic drill rig (above and left) was used to rapidly penetrate coastal lithologies and minimize waste generation. The drill rig recovered continuous soil cores as deep as 100 feet below ground surface (bgs). Geologists inspected and screened the cores to characterize site geology and evaluate contaminant distribution.

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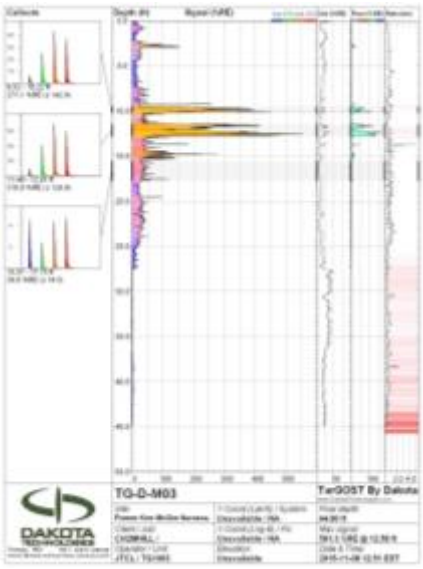
TarGOST System

The laser-based Tar-specific Green Optical Screening Tool (TarGOST) system (below left) was deployed to quickly and cost-effectively characterize the vertical profile of non-aqueous phase liquid (NAPL) using the TarGOST high-resolution technology. The TarGOST system was deployed with direct push technology (DPT) equipment (below right), although thin layers of dense limestone limited DPT penetration to 40 to 70 feet bgs. TarGOST responses indicated potential NAPL in the marsh sediments, but not in the underlying sandy soils. Based on borings completed near the waste water ponds, TarGOST results also suggested weathering of NAPL near that area based on the difference in instrument signature results.

Vibracore Sampling

A Vibracore sampling system was used to collect continuous cores of soft, loose marsh sediment that cannot be recovered with rotosonic drill equipment. Cores were inspected and screened, and samples were collected for analysis and comparison with TarGOST profiles to clarify the differences in TarGOST responses between the borings in the marsh and those near the waste water ponds.



This log for a TarGOST boring in the marsh shows distinct peaks that indicate NAPLs present between 10 and 15 feet bgs.

Questions or Comments?

U.S. EPA

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Learn more about the Navassa Superfund Site

Visit the Multistate Trust website at http://multi-trust.org/navassa-north-carolina or the EPA website at https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0403028