

Case-In-Point

Advertorial

In-Situ Soil Mixing

Lang Tool Co.

Burns & McDonnell, an environmental and engineering firm with a local office in St. Louis, was employed as the prime contractor to remediate a site impacted with cadmium and other minor regulated heavy metals. The site, located in central Illinois, was to be remediated in situ, under EPA guidance for RCRA metals within the limits of an "Area of Contamination." In the fall of 2007, Burns & McDonnell chose SeaBreeze Technologies, LLC, an environmental consultant from Fishers, Ind., to develop and implement an in situ treatment plan for the site. SeaBreeze Technologies teamed with Lang Tool Co., a contractor specializing in soil mixing technology, to tackle the project.

The treatment plan was to produce cement slurry and thoroughly mix it with the contaminated soil at a specific ratio so that the cadmium levels were reduced to the approved remediation compliance levels and the soil pH did not exceed allowable limits. There were two separate areas (Area A and Area B) and each required a specific cement to soil ratio. Area A involved mixing 200 cubic yards of contaminated soil

with 41 tons of Portland cement. Area B involved mixing 2,200 cubic yards of contaminated soil with 200 tons of Portland cement.

The major pieces of equipment that were used to mix the soil and cement slurry were manufactured by Lang Tool Co. The soil mixing was performed using a 290-LTC tool carrier equipped with an LTC Dual Axis blender attachment. This soil mixing equipment is capable of producing a thoroughly homogenous mixture of the contaminated soil and additive to depths of 15 feet. The slurry mixture was produced by an LTC Slurry Truck. This truck accurately mixes cement and water to the specified ratio and meters the delivery to the soil mixing machine. The LTC Slurry Truck is equipped with meters and controls so that the additive delivery can be precisely matched to the rate of production feeding the soil mixing equipment. An 800 cubic foot horizontal dry reagent silo and a Putzmeister TK-50 grout pump were also employed on the project.

Lang Tool Co. mobilized from Michigan on Monday November 12th. The equipment was set up



and the treatment grid layout was established using a Global Positioning System (GPS) base station and field unit by late afternoon on the day of mobilization. The site was treated to specifications, the equipment decontaminated, and demobilization initiated by noon on Saturday the 17th. Soil samples were collected and analyzed shortly afterward that indicated the site met the established clean up criteria. Burns & McDonnell is now in the process of completing additional reporting tasks necessary to close the site.

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