



### Hexavalent Chrome Soil Remediation, Hagerstown, Indiana *Client: DANA Corporation*

#### **SITUATION**

DANA Corporation operated a chrome plating facility for automotive parts manufacturing in eastern Indiana. Following shut down of operations, the building was demolished; a concrete wall footing and several concrete plating dip tanks were left in-place. The soils within the foundation area were contaminated with total levels of Hexavalent Chrome ranging from 5,600 ppm to 10,000 ppm. Results of a site characterization indicated approximately 9,400 tons of impacted soil to a depth of eight (8) feet. Static ground water was present at 8.2 feet.

The Indiana Department of Environmental Management (IDEM) and DANA entered into an agreement under the state's Voluntary Cleanup Program to remediate areas of the facility that had been contaminated with Hexavalent Chrome. In order to meet the State's treatment level, site soils had to be treated to less than 1 mg/l TCLP, (<1 mg/l Leachable Chrome).

#### **CBA'S TECHNOLOGY AND APPROACH**

CBA was approached by the DANA's engineering firm, RMT, prior to completion of the remedial action plan. The primary objective was to utilize an innovative IN-SITU Soil Treatment Technology that could meet treatment objectives in accordance with the IDEM soil treatment criteria, and to generate cost savings to the client. CBA's Mobile Injection Treatment Unit (MITU) was selected as a potential innovative methodology. A pilot study was scheduled to demonstrate the MITU technology's mixing ability and to finalize the chemical dosage application prior to full scale remediation.

#### **RESULTS**

During the pilot study, additional sub-surface obstructions were discovered. These obstructions consisted of seven (7)

full-length concrete reinforcement walls, which were located throughout the entire treatment area. The clients initial decision was to excavate and dispose off-site of the concrete. CBA proposed the option of excavation and on-site crushing of the concrete. A crusher was mobilized to the site. All concrete was excavated and crushed to 2 inch minus, re-applied over the treatment area and treated in-place by the MITU technology. CBA successfully treated all crushed concrete and generated a \$250,000 savings to the client, in addition to eliminating any materials from going off-site for disposal.

During the full-scale operation, the MITU technology averaged a treatment and production rate of 450 tons per day of treated chrome contaminated soil, which included chemical handling, application and treatment. Despite adverse weather conditions of continuous rain, very dense and plastic soils and site mobility, CBA completed the project with success prior to the end of the year.

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