

PROJECT PROFILE

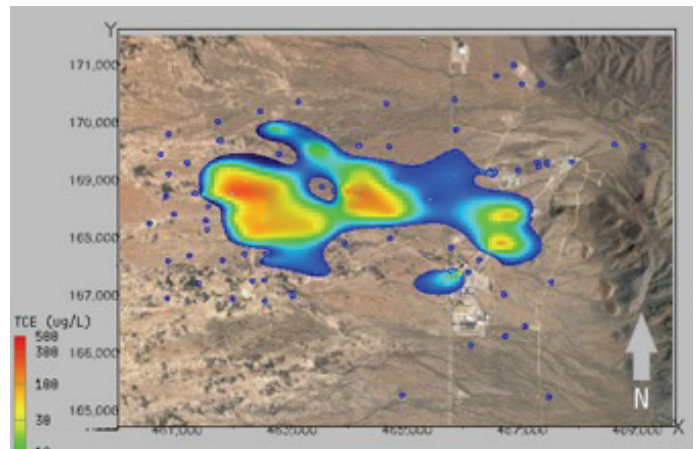
White Sands Test Facility Bioremediation Feasibility Study

Client: Navarro Research & Engineering, Inc.

Location: Las Cruces, NM

Service Areas: Environmental Assessment & Remediation

Services Provided: Enhanced Bioremediation
Feasibility Study



Project Activities

Drummond Carpenter is currently conducting a feasibility study for implementing enhanced bioremediation in groundwater to degrade dissolved plumes of chlorinated volatile organic compounds (CVOs), N-nitrosodimethylamine (NDMA), and Freon 113 (chlorofluorocarbon 113) at White Sands Test Facility in Las Cruces, New Mexico.

First, available site concentration data were used to develop natural attenuation estimates for the contaminants of concern (COCs). Yearly estimates of contaminant mass were calculated in EVS through the three-dimensional (3D) Kriging of analyte concentrations. The contaminant masses removed by treatment were subtracted from total mass reductions to infer the relative amount of reduction caused by natural attenuation.

Next, site sampling was designed and performed to assess aquifer geochemistry, evidence of biodegradation, and microbial population and functional genes. After the sampling event, in situ microcosm (ISM) units (composed of a geochemical fingerprint sampler, COC sampler, and microbial population sampler) were deployed in select wells to measure potential for monitored natural attenuation (MNA), biostimulation, and bioaugmentation. Finally, ex situ treatability testing is being performed as a series of laboratory bench scale tests using site soil and water samples from select wells to assess the effectiveness of MNA, biostimulation, Zero Valent Iron (ZVI), bioaugmentation, and combined approaches.

Outcomes

Using the information from the treatability testing, Drummond Carpenter will determine whether enhanced bioremediation is feasible at the site, evaluate potential approaches, and make recommendations for a pilot test.