

Eagle Picher Remedial Investigation, Feasibility Study, and Remedial Design

Socorro, New Mexico

Client

**New Mexico
Environment
Department Ground
Water Quality Bureau**

Highlights

- ◆ Performed under direction of U.S. EPA; authority of CERCLA
- ◆ Used portable gas chromatograph for real time assessment of VOCs during installation of monitor wells
- ◆ Designed pump-and-treat groundwater remediation system to address extensive TCE plume

DBS&A was contracted by the New Mexico Environment Department Ground Water Quality Bureau (NMED GWQB) to perform the Remedial Investigation (RI), Feasibility Study (FS), and Remedial Design (RD) at the Eagle Picher Carefree Batteries Superfund Site. Historical activities at the site had long been associated with a trichloroethylene (TCE) plume in groundwater underlying an extensive area on the outskirts of Socorro. The purpose of the investigation was to quantitatively and systematically evaluate the nature and extent of contamination at the site and surrounding affected areas to aid in the selection of a remedy that reduces risks to human health and the environment. The U.S. Environmental Protection Agency (EPA) directed the work under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

DBS&A surveyed and tested the existing structures for the presence of hazardous materials (e.g., lead-based paint [LBP] and asbestos-containing building material [ACBM]), which dictated demolition and disposal options. Soil and groundwater samples were analyzed for parameters selected based on known previous site use, including lead, chromium, and volatile organic compounds (VOCs). Staff performed XRF field screening and analysis of soil samples, passive and active soil gas sampling, sub-slab sampling, installation of new monitor wells, and analysis of groundwater samples. Groundwater modeling and risk assessment were used to evaluate the necessity, effectiveness, and cost of potential remediation approaches in each of the affected environmental media.

DBS&A completed an FS in 2014 that analyzed various remediation strategies for the impacted aquifer, including the technical limitations, financial impacts, and projected remedial timeframes. After considering in situ and ex situ technologies, DBS&A recommended a pump-and-treat system to address the TCE plume, which also locally contains actionable concentrations of tetrachloroethylene (PCE), 1,1-dichloroethylene (DCE) and 1,4-dioxane.

The RD began with the installation of a test extraction well to verify and further quantify aquifer parameters. DBS&A completed revised groundwater modeling to support the remediation strategy prescribed in EPA's Record of Decision, which included multi-zone pumping wells located and operated to provide capture and containment of the contaminant plume. The final remediation system design included extraction wells, a centralized treatment facility utilizing Advanced Oxidation Process technology, and a booster station and pipelines to convey the treated effluent to a purpose-built injection wellfield. Through the RD process, DBS&A submitted a Basis of Design report, Engineer's Opinion of Probable Cost (EOPC), Construction Quality Assurance Plan (CQAP), engineering drawings, technical specifications, and other project-specific guidance documents, including an Operating and Maintenance Manual.



Field personnel perform sampling