

EVS Activities at the Weldon Spring Site Remedial Action Project

The Weldon Spring site, which is located in St. Charles County, Missouri, consists of two noncontiguous areas: a 220-acre former chemical plant and a 9-acre quarry. With the U.S. Department of Energy (DOE) determined to complete remediation at the site in 2002, closure of the Weldon Spring Site Remedial Action Project is expected in about three years. EVS is continuing to provide key technical support for this project, as it has for the past decade. As the remaining pieces of this cleanup puzzle are put into place, new challenges arise. Selected remedies for groundwater contamination beneath both areas at the site are currently being identified and implemented.

PROBLEM/OPPORTUNITY

Four Records of Decision (RODs) are planned for the Weldon Spring site. The third was signed recently by the U.S. Environmental Protection Agency (EPA), culminating several years of environmental evaluation and planning for addressing residual soil, surface water, sediment, and groundwater contamination at the quarry and its immediate vicinity. Groundwater beneath the quarry, which is about three miles southwest of the chemical plant, contains significant levels of uranium. A nearby county well field serving 100,000 residents is approximately one-half mile downgradient from the quarry, but it is not impacted. Contaminated soil, building foundation, raffinate pit surface water, and sludge at the chemical plant area are being managed as stipulated in the ROD for the chemical plant.

APPROACH

The remedy selected for treating the contaminated groundwater at the quarry area depended on the representativeness of the fate and transport model that was developed. The development of this tool required the expertise of EVS staff in interpreting complex site geochemical, hydrogeological, and contaminant data. In addition, the EVS staff evaluated various technologies to support the remedy selection process. The evaluation consisted of a careful and comprehensive screening of technologies, which was facilitated by resources available in EVS for validating commercial capabilities.

In addition to providing technical support during the project's planning stages, EVS also provided expertise that has been helpful in the implementation phase. For example, EVS staff were recently asked to evaluate potential environmental impacts at possible borrow areas for quarry restoration. About 250,000 cubic yards (yd³) of material will be taken from these areas for use as fill for restoring the quarry to safe, nonhazardous conditions. The evaluations will need to be thorough and conducted quickly to allow construction schedules to be met. EVS's evaluations will include a delineation of wetlands and floodplains; assessment of impacts to surface water, hydrogeology, air, and noise; and determination of cultural resources.

EVS's demonstrated expertise and experience in environmental restoration planning, data analysis, risk assessment, environmental chemistry and engineering, and environmental assessment have been used to identify creative solutions for site problems. As the project moves toward closure, EVS staff are also providing technical support for remedial design and remedial action activities. These opportunities represent an expansion of EVS's experience base relative to its involvement in field applications.

RESULTS

Upon project closure in 2002, approximately 50,000 yd³ of foundation, 175,000 yd³ of contaminated soil, 100,000 linear feet of pipe, 122,000 yd³ of raffinate pit sludge, and 120,000 yd³ of quarry waste and rubble will be entombed in an

on-site engineered disposal cell. The cell is designed to have a capacity of 1.3 million yd³ covering approximately 41 acres, with an average height of 65 feet above ground. A savings of about \$200 million out of a \$1 billion project baseline was realized when the project was completed in 2002.

FUTURE

Argonne expects to continue to provide technical support as needed during the long-term surveillance and maintenance period of the project. Opportunities to provide similar support also exist at sites comparable to the Weldon Spring site. Argonne is currently providing technical support to the DOE Office of Legacy Management on their long-term management of the Nevada Off-sites.

COMMUNICATION OF RESULTS

Numerous documents — including baseline risk assessments, feasibility studies, proposed plans, RODs, remedial investigations, and work plans — have been published to communicate EVS's efforts at the Weldon Spring site. Through this project, EVS also has established its technical credibility with the local public and other stakeholders by participating in numerous public meetings and technical workshops.



Disposal cell development