Internet Breaks New Ground For Superfund Remediation and Redevelopment

As anyone involved in cleaning up a Superfund site will tell you, large-scale remediation work is big, messy and, more often than not, a very public undertaking. They're called Superfund projects for good reason.

At a Superfund site in Mountain View, California, however, a lot of long-time assumptions were recently extracted as efficiently as the contaminants threatening groundwater supplies. Locus Technologies, the Walnut Creek, California, environmental engineering firm that has supervised much of the cleanup work, recently found itself squeezed between competing goals or expedited groundwater remediation and the demands of private enterprise. While the community, potential responsible parties (PRPs) and military wanted pollutants removed as quickly as possible, business interests that will use part of the site for a high-profile business park wanted remediation to be performed as inconspicuously as possible.

Thanks to Internet technology, Locus was able to find a solution–one that may forever change the way such projects are managed.

Aggressive Treatment Systems

Encompassing more than 480 acres, the Superfund site Study Area was contaminated by solvents that had leaked from underground storage tanks, piping and sumps at several production facilities. The site was also home to the U.S. Naval Air Station at Moffett Field (now Moffett Federal Airfield), where fuels, solvents and PCBs had leaked into the upper aquifers.

Initial investigations showed the presence of volatile organic compounds (VOCs) in the soil and groundwater. The predominant chemical, trichloroethane (TCE), was detected in the uppermost aquifer at concentrations of up to 1,000 parts per million (ppm). These high concentration source areas were contained within slurry walls, which Locus built to inhibit contaminant migration.

The Study Area consists of three separate Superfund sites–all on the federal Superfund list, and initially estimated to require about $50 million each to remediate. On the north side of U.S. Highway 101 is one Superfund site, and on the south side of U.S. Highway 101 are the other two Superfund sites. Located there are 11 companies – which constitute PRPs. In 1992, the EPA settled with two of the PRPs: Raytheon and Intel, who agreed to share 35 percent of the responsibility for cleaning the site. The rest of the PRPs will pay for the remaining 65 percent.

Involved with the project since the 1980's, Locus Technologies has been responsible for all aspects of on- and off-site environmental issues, including consulting, planning, engineering, design and construction, real estate development, automation, and operation and maintenance. Locus designed and constructed site-specific and the regional groundwater control and treatment systems. The two largest regional systems were started up this year. The groundwater extraction system consists of 28 extraction wells that hydraulically control and remediate the chemical plume underneath the site and connect to two groundwater treatment systems.

As part of the cleanup of the site, Locus also designed, built and operated a 500-horsepower soil vapor extraction (SVE) system.

Preparing for Development—Internet Changes the Future

Challenging enough from the outset, remediation became considerably more complex for Locus when a portion of the site was set aside to be redeveloped as a business park for several high-profile Silicon Valley companies, including Netscape Communications. As a general requirement, Moffett Federal Airfield, NASA-Ames and the PRPs wanted a remediation system that would minimize operation and maintenance costs over the anticipated 30-year life of the project.

Loaded with can-do optimism and broad computer expertise, Locus engineers rolled up their sleeves and began seeking a solution. What they found was as close as the mouse on their desktops. Turning to the world of cyber-space, Locus devised an Internet-based control system that provides for continuous real-time monitoring, control and data collection from the convenience of one's office desk. Designed and built by Locus, the system was one of the first applications where Internet-based technologies were used not only for data display and project control, but also for operation and control of the installed treatment systems.

"The Locus Internet-based Environmental Dashboard™ gives us better control of the remediation system, with faster response to problems and quicker access to real-time data. We've given our clients a system that is much more efficient to operate and maintain and which saves them lots of money," said Mr. Dennis Curran, Locus' Vice President in charge of the Mountain View office.

A Better System

For its innovative solutions at this series of large Superfund sites, Locus is receiving accolades from government, business and remediation professionals. Union Pacific Railroad has noticed the benefits of the Internet-based system and contracted Locus to automate a series of sites in California and Nevada. The Locus system is a long-overdue better mouse-trap–one that expands options, industry officials say. And in an arena where options usually are complicated and always expensive, computerized remediation control is an innovative alternative.

"Locus believes a significant opportunity exists to leverage the power of the Internet to provide secure, universally accessible network services that connect the participants, automate the flow of information and provide remote control of treatment systems and data collection and data management. We believe Internet-based technologies have the potential to create significant improvements in the way that information is used in the environmental industry, enabling improved work flows, better decision-making and, ultimately, higher quality project management and delivery at a lower cost," said Dr. Neno Duplancic, President and CEO of Locus.