TEA Inc. | Environmental Solutions

SUCCESS STORY

"Within just 18 months after startup of the system, the plume was reduced to one fifth of its original size."

PROJECT DETAILS

Location:
SE United States

Project Type:
Groundwater Remediation, Air Sparging

PROJECT SUMMARY

Air sparging was utilized at a previously operated drilling service facility in the southeastern U.S. to remediate groundwater. The contaminants of concern were low levels of chlorinated solvents.

The site investigations were performed in a manner consistent with the state requirements for Brownfields Voluntary Cleanup and Redevelopment Program. The Brownfields Program is a risk-based program that is used to develop criteria for medium-specific remediation requirements for a particular site.

Arsenic and barium were originally found above the Target Remediation Goals (TRGs) in soils. A second soil sampling event was conducted in the same locations as the previous event. Samples were collected from the 0-1' interval, and analyzed for arsenic, and speciated as arsenite and arsenate.

Arsenite and arsenate are the two species of arsenic, with one (arsenite) being more toxic than the other (arsenate). Based on the arsenic soil data (arsenic on site is represented by 9% arsenite and 91% arsenate), the COCs found at the site in soils pose no unacceptable risk to human health and the environment.

A Corrective Action Plan (CAP) was prepared to address CVOCs in shallow groundwater, and detailed the air sparging groundwater remediation option selected. This CAP presented the conceptual design and identified the design elements to eliminate or reduce risk to human health and the environment.

REMEDIATION PLAN

Air sparging was selected as the preferred remedial technology. The selection of air sparging was supported by the fact that the areal extent of contamination was limited to the site, the site is vacant and secure, the groundwater contamination is shallow, and the sandy soils present at the site have sufficient porosity to allow for the distribution of air in the subsurface to achieve the remedial objectives.

The system includes a forced air system with air compressors, an air distribution system, and air sparging wells located throughout the site. The system layout includes a total of 71 sparging points within three zones, designed to balance the air flow to each zone.

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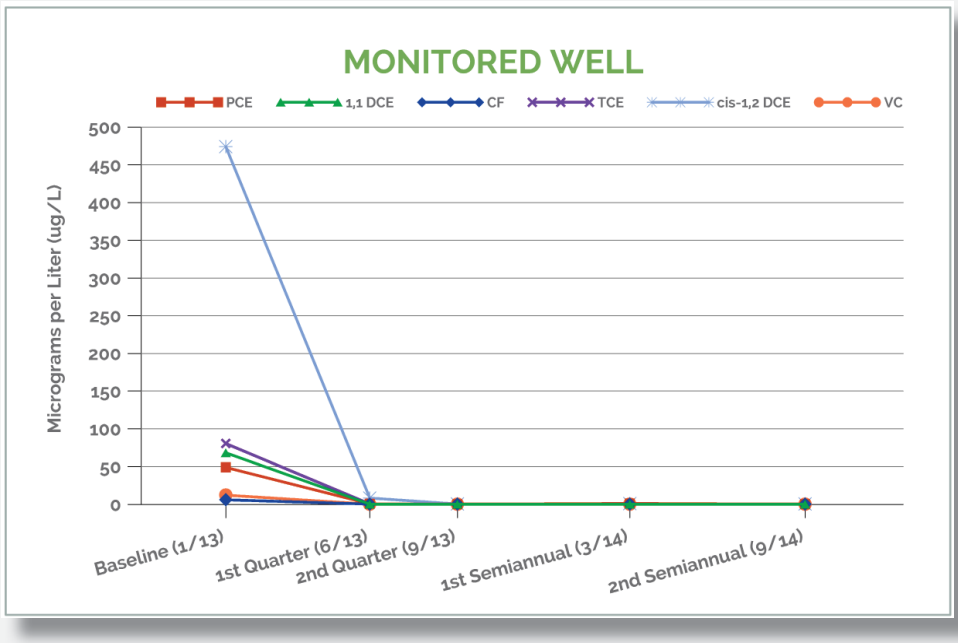
THE RESULTS

After only 18 months of operation of the air sparging system, significant reduction of dissolved-phase COCs has been achieved. Currently, seven existing monitor wells at the site have concentrations of COCs that have met TRGs. Initially, the highest COC concentration was located in one area. The sparging system operation focused a large air flow in this area upon startup. Within three months operation time, COC concentrations were non-detectable and remain so to date.

The system remains in an oxic state throughout the zone of aeration, and it is expected that a further reduction in COCs will continue. The COC plume for the site continues to be diminishing in both areal extent and concentration levels. Based on the widespread measured effects on COCs and field parameters, the system is operating successfully.

GRAPH OF COC'S



AIR SPARGING

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