Project

Pioneering technology for groundwater remediation saves costs

20+ years

extraction wells required by our solution, down from 30+

time period for which our system has operated continuously

Summary

- A product manufacturer brought in Haley & Aldrich to speed up a groundwater recovery and remediation process.
- Our experts quickly determined that the method being used was not cost effective. To improve the process, our team pioneered the use of synthetic adsorbent resin technology to clean up groundwater contaminants.
- The improved groundwater recovery system — which has now operated continuously for more than 20 years — reduced the number of required extraction wells and significantly increased the contaminant mass removal rate, delivering more cost-effective, efficient results.

Client challenge

Nearly 20 years ago, a product manufacturer had a release of ethylene dichloride (EDC) that impacted nearby soil, sediment, surface water, and groundwater. The company needed to control migration of the impacted surface water and groundwater and protect the public from potential exposure. As a first-response action, the manufacturer used granular activated carbon (GAC) as a treatment media for recovered groundwater and surface water. The company initially brought the Haley & Aldrich team in to accelerate the groundwater recovery and remediation process. The client soon realized, however, that Haley & Aldrich's out-of-the-box thinking would begin a long-term, trusted advisory relationship.

Our approach

Haley & Aldrich remediation experts had the experience to quickly see that activated carbon adsorption was not the most cost-effective way to remove EDC from the recovered surface water and groundwater. Applying our understanding of the problem, technical expertise, and ability to find novel and efficient solutions, Haley & Aldrich staff identified an existing technology that had not been previously used for environmental remediation — synthetic adsorbent resin.

Synthetic adsorbent resins, commonly used in chemical and beverage processing operations, were well suited for this application because of their high adsorptive capacity, resistance to fouling, and ability to be regenerated on site using available plant steam. The on-site regeneration would enable implementation with no process air emissions, as well as minimal waste generation and permitting requirements.

Haley & Aldrich staff constructed and operated a field pilot study that illustrated how the synthetic adsorbent resin technology could effectively treat more EDC-impacted water with lower long-term operating costs than the current GAC systems. The field pilot helped to develop the projected operating costs and provided the basis for a full-scale treatment system design.

Value delivered

- Pioneered first-time use of synthetic adsorbent resin technology in groundwater contaminant clean-up
- Provided an innovative solution that limited environmental impact and addressed regulatory concerns
- Improved groundwater recovery system that reduced the number of required extraction wells from more than 30 to fewer than 10 and increased contaminant mass removal rate significantly, making remediation more cost effective
- Designed an innovative groundwater treatment system to reduce operation and maintenance costs
- Created an efficient, cost-effective solution that has operated continuously for more than 20 years

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