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Copy Deck

CLIENT: Regenesis

PROJECT: Case Study Copy Deck/Advanced ORC Landtech-IL/

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HEADER: Single Application of ORC Advanced Results in 87% Reduction of Contaminated Groundwater Plume

SUBHEADER: Benzene, Toluene, Ethylbenzene, and total Xylenes (BTEX) posed significant challenge at Rockford, IL site.

Project Highlights

- Size of contaminated groundwater plume reduced by 87% through extensive injection of ORC Advanced, applied using vertical and horizontal wells.
- Total BTEX >62.5ppm (mg/l) concentrations were identified prior to site treatment.
- Final round of ORC injections approved by Illinois EPA and LUST Program and is in-progress.

Project Summary

This site had been a carwash and retail gasoline station in an industrial - commercial area. During the removal of two (2) 6,000-gallon gasoline underground storage tanks (UST) and two (2) fuel dispensers, a gasoline release was reported to the Illinois Management Emergency Agency, based on impacted soil observed during the excavation. Contaminants for this gasoline release were Benzene, Toluene, Ethylbenzene, and total Xylenes (BTEX). The release resulted in groundwater contamination that encompassed the entire property, and extended slightly off-site, impacting three businesses. The area covered by the groundwater plume was approximately 1.5 acres. The size of the groundwater BTEX plume posed a significant challenge in site treatment. Landtech Consultants implemented an ORC Advanced remediation treatment plan which included several tons of ORC Advanced, injected through vertical and horizontal wells below the ground surface and beneath the existing structures.

Remediation Approach

In this instance, Landtech Consultants implemented an Enhanced Aerobic Biodegradation strategy using ORC Advanced. This included 12,800 pounds of ORC Advanced, 7 pounds of Nitrate, and 1 pound of Phosphorous nutrients applied to the site via direct injection through 242 vertical wells to 16 feet below ground surface, and 1,065 feet of horizontal wells beneath the existing structures. ORC Advanced® is an engineered, oxygen release compound designed specifically for enhanced, in situ aerobic bioremediation of petroleum hydrocarbons in groundwater and saturated soils. ORC Advanced provides remediation practitioners with a significantly faster and highly effective means of treating petroleum contaminated sites.

Results

This site presented significant challenges due to the extensive levels of BTEX contaminants and the large area of groundwater contamination. After one round of injections and a monitoring period of 1 year, analytical results for the groundwater demonstrated the ORC injections had achieved 100% efficiency, with the exception of a few recalcitrant performance wells. In addition, the BTEX groundwater plume extent was reduced by 87%. A second/final round of ORC Advanced injections have been approved by the Illinois EPA and LUST Program and is currently in-progress. The final application will include 1,350 pounds of Advanced ORCs which will be introduced through 82 injection points of a 5-foot radius of influence, followed by a monitoring period.