CASE STUDY
Aerobic Bioremediation of BTEX and Diesel Impacts, Rio de Janeiro

Background

DURATION:	4 months
LOCATION:	Rio de Janeiro, Rio
CLIENT:	Gas Station
PROJECT VALUE:	685,000 reals

At an active gasoline retail station in Rio de Janeiro, historical spills of diesel residues resulted in groundwater impacts to the underlying sand aquifer. Compounds of concern included including benzene, toluene, ethylbenzene, and xylenes (BTEX), diesel residues, and naphthalene. ASR was retained by the facilities owner to address the impacted groundwater using an insitu remedial program with the objective of mass reduction and mitigating off site and human health risks. Part of the remedial plan involved minimizing the system footprint, energy requirements, and noise generation.

Approach

The site owner along with their environmental consultant worked with ASR to develop a remedial work plan based on meeting the remedial objectives for the site. After reviewing the geology, hydrogeology and geochemistry of the site, ASR developed a plan that used aerobic bioremediation to address the dissolved phase impacts. The plan used direct push technology coupled with oxygen-releasing materials to facilitate the destruction of the BTEX and gasoline residues within the groundwater. Additional monitoring included compound specific isotope analysis (CSIA) along with detailed microbiological assessment of the aquifer.

For more information, contact:

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InSitu Remediation Services Ltd. (IRSL) is one of Canada's most experienced remediation companies. Our team has designed, implemented, and optimized, soil and groundwater remediation programs in diverse geological environments in North, Central, and South America, Asia, Europe, and the Middle East.

We confidently implement innovative solutions, based on sound knowledge, using seasoned field staff. Our pragmatic, flexible approach reduces effort, cost to our clients, and environmental risk.

Challenges

A number of conditions at the site made this project challenging including:

- Heterogenetic aquifer
- Underground infrastructure including piping and USTs
- Active site
- Traffic and pedestrians

Results

The results of the insitu remedial program included:

- Over 65,000 kg of remedial solution being injected over a 2-week period at low pressure
- Reduction of BTEX concentrations of greater than 99.9 percent for a two-year period
- Reduction of diesel range concentrations greater than 98.4 percent for a two-year period
- Injection program completed under budget and under schedule resulting in a 7 percent savings for client

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