

CASE STUDY

GASOLINE REMEDIATION IN PORT DOVER, ONTARIO



Background

CLIENT: Landowner

DURATION: 4 Months

LOCATION: Port Dover, Ontario, Canada

PROJECT VALUE: \$12,000 CDN

As part of a real-estate sales agreement, the site of an active gas station in a residential area required remediation to address residue contamination. The small, heavily trafficked site required a discrete approach, based within a compact, self-contained infrastructure.

Approach

A previous contractor had attempted to remediate the site using in-situ chemical oxidation, but the program addressed only the symptoms of the contamination, and not the cause. IRSL earned the project directly with the landowner based on their past history, and their ability to effectively analyse the subsurface and recommend a sound solution.

GROUNDWATER PUMP & TREAT SYSTEM

To mitigate the dissolved phase plume, IRSL analysed the geology, hydrogeology, and geochemistry, of the area and then designed, implemented, maintained, and continuously optimized a pump & treat system for the capture and treatment of Gasoline and BTEX compounds in the groundwater plume using a small, mobile system.

GEOLOGY: Sand
PLUME SIZE: 350 m²

ANALYSIS & OPTIMIZATION

To confirm hydraulic containment, the IRSL team completed pumping tests, supplemented by numerical modeling. Based on the picture they attained from this modeling, they were able to recommend an effective approach.

TREATMENT SYSTEM

The Pump & Treat system consisted of one well instrumented with a submersible pump, from which water was pumped into a secured, above-ground system housed in a mobile trailer. Recovered groundwater was treated to levels below the regulatory limits and disposed of into the sanitary sewer system, as per an agreement with the municipality.

TREATMENT TRAIN

To remove the Petroleum Hydrocarbons from the impacted groundwater, IRSL used the following methodology:

- 1 Oil/Water Separator:** To remove any NAPL.
- 2 Particle Filters:** To remove fine particles.
- 3 Activated Carbon:** To remove the Gasoline, BTEX, and other organic contaminants.



Challenges

- Detailed hydrogeologic analyses were required to ensure plume capture and confirm no adverse impacts to down-gradient human and ecological receptors.
- The small parking lot of the active station required a very small footprint.
- The busy residential neighbourhood required completing low-noise impact assessments.
- The system required year-round operation, necessitating winterization to protect the equipment and piping against freezing in sub-zero temperatures.

Results

- Hydrogeological and geochemical testing confirmed plume capture.
- The chosen treatment system met the discharge criteria.
- The project realised an over 96% reduction in hydrocarbon mass in less than 3 months, resulting in the shut down of the system.



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.

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