

IN SITU REMEDIATIONS

Project Duration
On-going

Project Costs
\$5,000,000



Project Description

Terrapex is currently assisting a major petroleum company to complete the remediation of three sites where free-phase petroleum hydrocarbon has migrated off-property beneath adjacent roadways and neighbouring private properties. The remediations are being conducted in situ due to the depth of the impacts (between 8 and 15 m below grade), the areal extents, and the roadways and structures which overlie the impacts. Two of the sites are also impacted with chlorinated hydrocarbon compounds (CHCs) from other sources, resulting in co-mingled plumes.

Angled remediation wells have been installed at all of the properties to access contaminants beneath roadways. At two of the sites, sub-grade piping trenches were installed in the roadways to transport contaminants back to the sites for treatment. At the third site, where trenching was not feasible, seven horizontal wells, each more than 100 m long, were installed using directional drilling technology.



Numerous state-of-the-art treatment technologies are being implemented at the sites, including:

- high-vacuum three-phase extraction (bioslurping) for free-phase and dissolved phase recovery;
- vacuum-enhanced total fluids extraction for free-phase and dissolved phase recovery;
- air sparging for groundwater treatment;
- in situ bioremediation (bioventing) for soil and groundwater treatment;
- vapour extraction for soil treatment;
- oil/water separation, air stripping, filtration, settling and carbon treatment for recovered groundwater;
- bio-filtration and/or carbon treatment for recovered vapours.



The remediation infrastructure has also been designed and installed to facilitate injection of chemical oxidants to polish impacted media as the remediations approach completion.

Terrapex's contracts have included:

- assisting in the negotiation of agreements for the installation of remediation infrastructure on municipal and private property;
- obtaining Certificates of Approval (Air) from the MOE for the treatment systems;
- reporting to the City regarding sewer discharges in accordance with a Surcharge Agreement already existing for the sites;
- liaison with the Ministry of Environment, neighbouring property owners and other stakeholders,
- design, purchase and installation of three state-of-the-art self-contained treatment systems;
- drilling recovery wells and installing sub-grade infrastructure (piping, pumps, valving, access vaults);
- connecting and commissioning the systems;
- operating and maintaining the systems in accordance with the approvals and agreements;
- monitoring and maintaining over 200 monitoring wells for groundwater and combustible vapours across the three sites including analyzing the data collected for trends, anomalies and pre-set action levels.