

CASE STUDY

Contact Info

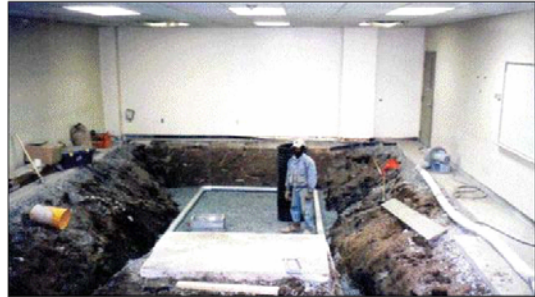
Ivey International Inc

PO Box 706 Campbell
River, BC, Canada V9W 6J3
Tel: (250) 923-6326
Fax: 1-888-640-3622

budivey@iveyinternational.com
www.iveyinternational.com

PROPOSED USE

Continued use as a Business College during and after site remediation. Located in the downtown commercial business area.



DESCRIPTION OF PROJECT

Site Summary

- shallow soil vapour extraction system (VES)
- Ivey-sol®
- injection gallery system
- granular activated carbon (GAC) filtration

The majority of the sub-surface contamination was found present under one quarter of the building and associated corner-classes. These classrooms were temporarily sealed off from the rest of the building for health and safety reasons.

A large window and section of the brick wall was then removed to allow a mini-excavator access to

the classroom. The concrete floor was also removed and the excavation was completed to a depth of approximately two to four metres in some areas. Prior to backfilling, a network of injection galleries and a recovery well were installed.

After a vapour extraction system was installed the excavated area was filled

to grade and restored. The system was activated and the room was made available to the college as a classroom during the entire subsequent remediation process.

In order to deal with less permeable soils in the area which may impede transportation, a large amount of contaminated soil was excavated and removed from this site. Residual contamination that seeped into the high permeable (crushed stone) back-filled area was quickly drawn into the recovery well for subsequent treatment.



CASE STUDY

BENEFITS

- Assessment determined that no further action was required and that there would not be a health risk to those living and working in the area.
- Client cost and time saving were estimated at between \$75,000-\$150,000 and 3-years compared to alternatives that

SITE HISTORY

The college began receiving complaints from the students saying they could smell fuel-oil in the classrooms. An environmental inspector was hired and it was discovered that there was a fuel-oil spill under the building from historical land use. After further investigation, it was deter-

mined that the building used to be an office and garage for Shell Oil. The building was purchased from previous owners in 1988 in "good faith," completely unaware of the historical hydrocarbon spill.

Montclair Consulting provided investigation reports that included site geology,

type and extent of soil and groundwater contamination plumes onsite. The reports revealed that the foundation of the two-storey building was impacted, under two classrooms in particular, and that off-gassing had contaminated the air quality.

CLEANUP PROCESS & TECHNOLOGIES



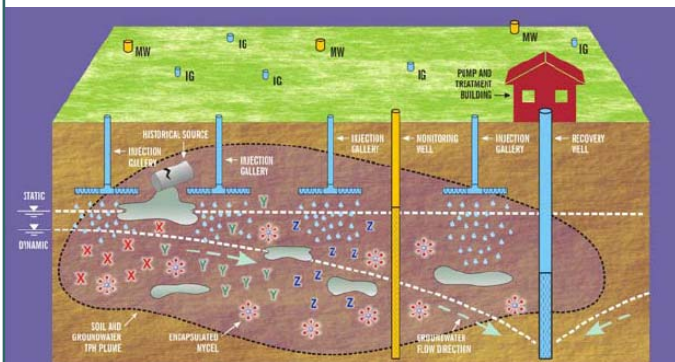
Prior to back-filling, a network of injection galleries as well a recovery well were installed. A pump and treat system was used to contain and recover the local contaminated ground water after each injection.

Closer to the surface, a vapour extraction system (VES) was also installed to remove hydrocarbon vapours. Screened piping was also placed under the vacuum to recover vapours pumped to the external air treatment system.

Monthly injections of the SPTT® solution and water were conducted to increase the solubility of remaining sub-surface petroleum contamination. The injected solution along with extracted petroleum contaminants would then be recovered

in the recovery well for treatment, with the treatment system located in a small shed adjacent to the college.

The influent from the recovery well was treated by granular activated carbon (GAC) filtration and discharged to the municipal sewer. The sub floor VES system extracted vapours that may have otherwise seeped into the ambient indoor air. The extracted air was treated by GAC and discharged outside.



Injection Gallery Option