

January 2009

18th and Dunbar Former Dry Cleaning Operations, Vancouver, BC



Overview

The Cressey Development Corporation purchased an existing strip mall on the west side of Vancouver that had been occupied by two dry cleaning operations for decades. Cressey sought to develop the site into a residential condominium complex with a ground floor retail component. Though Cressey had standard environmental due diligence completed prior to purchasing the site, workers were exposed to fumes during bulk site excavation for the sub-grade parking structure. At this point, Cressey contacted Keystone Environmental (Keystone's first involvement with the site) prior to completing further excavation activities.

To gain a full understanding of the potential source and magnitude of the fumes, Keystone reviewed the historical records of the dry cleaning operations and discovered one tenant had stored multiple drums of waste dry

cleaning fluids and likely dumped many of those drums into the City storm drainage system. The results were concentrations of tetrachloroethylene (PERC) well beyond hazardous waste levels in soil and groundwater.

Innovations

Three issues required addressing:

- Excavation and disposal of the remaining soils at the development location;
- Assessing impacts on the neighbourhood, if any, of the migrating PERC; and
- Obtaining a Certificate of Compliance (CoC) for the site to allow occupancy of the new building.



Disposal of soils

The first issue was managed without difficulty. Soils were removed and disposed of at a registered facility and the soils that remained on site were found to be acceptable for residential use and thus did not pose a significant risk.



Assessing impacts of PERC

Delineation of the residual PERC present in groundwater to determine how far the contaminant had flowed horizontally and vertically was necessary and Keystone's detailed site investigation showed that the migration in groundwater was extensive.

Drilling below grade showed that the PERC had impacted the groundwater table, the Quadra sand aquifer. The highest concentrations of PERC in groundwater were identified on the first residential property east of the site and the extent of the groundwater plume encompassed 14 neighbouring residential properties, the adjacent city lane and city street. Groundwater testing was conducted at 60 metre intervals. At a test location one city block from the site, results showed undetectable groundwater PERC concentrations.

The extent of the plume was cause for concern on three fronts:

Migration of the PERC plume to the Burrard Inlet or Fraser River

Through a sophisticated groundwater modeling exercise, Keystone was able to demonstrate that there was no risk of the groundwater plume impacting either of the surrounding water bodies. The distance to the water bodies was so far that an impact would not be anticipated.

Exposure to the contaminated groundwater through drinking water, irrigation, or industrial processes

The remaining issue was to deal with the groundwater contamination. The offsite risks were far greater than the onsite risks as the highest PERC concentrations in groundwater were present offsite and the groundwater still was potentially migrating. A survey of the impacted residents and surrounding neighbourhood (which was checked against public records) failed to identify water wells tapping into the groundwater aquifer. Thus at these sites, exposure to contaminated groundwater through drinking water, irrigation or industrial processes would not be expected.

Soil vapours posing a risk to the environment

Keystone conducted an investigation at the residential property where the highest PERC concentrations were identified in groundwater. Soil vapour and indoor air quality samples showed that the current conditions did not pose unacceptable risks.

Obtaining a Certificate of Compliance

With the scientific analysis completed, there remained the requirement to obtain a CoC for the new building (by then well under construction) and the neighbouring residences. All of these CoCs were to be risk based and the process to obtain multiple CoCs was expected to be very costly and time consuming.



Given the circumstances the ministry was reluctant to issue contaminated sites legal instruments for these sites, creating a difficult situation for neighbouring residents attempting to sell their properties or renew mortgages. In one instance, a bank advised a resident it would not renew a mortgage due to the contamination issue.

The situation was resolved through negotiations with the ministry which resulted in all the affected properties being declared a wide area site. Under Section 14 of the Contaminated Sites Regulation, a Director may designate a site as a wide area site with respect to specified substances and specified sources if:

- (a) The site covers an extensive geographic area and comprises many individual properties, and
- (b) Many of the individual properties located within the bounds of the wide area site would, on an individual basis, likely be determined by the Director to be contaminated with one or more of the specified substances in the designation.

Under these provisions a CoC was issued for the source and affected sites collectively designated as a wide area site. It indicates that the site meets the risk-based remediation standards of the Contaminated Sites Regulation.



Key lessons learned

With Keystone's risk assessment, a designated wide area site (a first in British Columbia for a group of properties within a larger community) was the solution to effectively manage the contaminated groundwater and allow the affected residents to continue with life as normal. The wide area site declaration also provided the City of Vancouver the legal protection it required for the street and lane, and to issue an occupancy permit for the condominium units. Keystone continues to conduct ongoing environmental monitoring in the area.

All parties affected by this wide area site were fortunate that a dedicated developer, Cressey Development Corporation, took the responsible and necessary steps to manage the impacts.

Note: This summary is solely for the convenience of the reader. Site investigation/remediation reports and ministry file records should be consulted for complete information.

For more information, contact the Environmental Management Branch at site@gov.bc.ca.

