

Underground Storage Tanks

Underground Fuel Storage Tanks when left in place continue to prove themselves as major contaminant sources.

Underground storage tanks (or USTs), used to store hazardous fluids, such as diesel or gas, have been found to be buried within the bounds of almost all levels of property ranging from rural homes to industrial sites. To date literally thousands of USTs have been removed from the underground caverns in which they were buried. What is becoming increasingly apparent is that the longer these USTs are left in the ground, whether abandoned with or without fuel in them, they have created expensive contaminant situations which could have been avoided if they were simply removed.

Groundwater flow in the subsurface environment is the primary mechanism for which steel corrosion (cathodic loss) occurs. Corrosion of USTs usually starts with very small perforations in the metal which often results in tanks initially leaking quite slowly. Even if a tank has been pumped out and abandoned-in-place, there is still a thick layer of hydrocarbon sludge that remains along the bottom surface. Usually after a short period of time, the steel tank will start to fill up with groundwater. With continued metallic decay of the tank the concentrated sludge, mixed with groundwater starts to leak into the surrounding environment causing more and more subsurface contamination. Detection of a failed UST is normally after a considerable amount of fluid has been lost over many years.

Environmental Fate of Contaminants from Corroded USTs

Once released from a tank, gasoline sinks through (infiltrates) the surrounding soil and since gasoline is less dense than water it floats on the surface of the **water table**. Despite the fact that most components of gasoline are quite volatile, leaks often go undetected until the vapors pass into a sewer line.



(Above) Example of a typical UST with large pin-hole perforations

In addition to the risk to surrounding water systems, leaking gasoline also presents the risk of fire and explosion as vapors from these corroded tanks can travel through sewer lines and soils into buildings.

USTs Near Buildings

Another common factor that we encounter is that when USTs are situated close to under permanent structures (buildings), fuel leaks can infiltrate the surrounding soils and migrate along drain tiles and/or under foundations. When this type of contaminant migration occurs, remediation can become incredibly costly due to either extensive excavation requirements undermining building stability, or *in situ* treatment (on-site) treatment techniques, which are usually quite a long-term project. Both forms of remediation can also seriously affect land titles and property values.



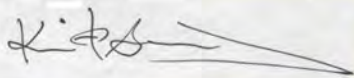
USTs Continue to Pose Environmental Risk in British Columbia

Although the environmental risks are well documented and the removal of aged steel USTs installed without corrosion protection is relatively low-cost, remediation of soils and groundwater contaminated by UST failures and resulting oil leaks remains the single largest income source for many of BC's Environmental Consulting firms (including E-Pro). Commonly, hydrocarbon contamination of groundwater can be traced to a site containing a failed UST that exists literally kilometers away. When off-site migration of contaminants occurs, the cost of remediation vastly increases and can often be in the hundreds of thousands.

UST Removal

Safe removal of an Underground Storage Tank is often accomplished in one-day. Depending on the complexity of the site, proximity to buildings, gas, water and/or sewer lines, removal costs can range from \$2000-\$5000. At the time of tank removal, the surrounding soils will be professionally assessed for hydrocarbon contamination. Most banks require professional verification that all underground fuel related systems have been both professionally and scientifically decommissioned. Soil and/or groundwater samples are collected and analyzed to confirm the presence and/or extent of contamination; the resulting data is used to determine the costs of site remediation.

We are forwarding this letter to all of our respective banking and commercial/industrial property contacts to inform them of this maintenance issue that can be cost-effectively managed if addressed appropriately. Should you be aware that a UST still exist on your property and wish to have it looked at (free of cost), please give us a call.



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(Below) Another example of minute perforations
in the metal of USTs causing subsurface impacts.



(Above) Costly excavation work
required under a building

