Minnesota Pollution Control Agency

Soil vapor study update for Former Pilgrim Dry Cleaner Site (also known as 57th and Logan Redevelopment Site or Hmong American Shopping Center Site #2)

Geographic/Hennepin County • g-27-13c • September 2010

This fact sheet provides an update on the comprehensive environmental investigation being conducted at the 57th and Logan Redevelopment site (the Site) in Brooklyn Center (the City). Indoor air sample results have been found to exceed indoor air screening values for the Site compounds of concern at four properties. Vapor intrusion mitigation systems have been installed at these properties. A soil vapor extraction system was installed at the dry cleaning chemical source area and began operation on October 31, 2008. The purpose of the soil vapor extraction system was to clean up soil contaminated with dry cleaning solvents in the source area located on the site of the former Pilgrim Dry Cleaner. Soil cleanup activities are nearing completion. The next phase of clean up will focus on contaminated groundwater.

Please refer to the additional information section at the end of this fact sheet for Site contacts and links to additional Site information. This and the previous fact sheets for this Site can be found on the Minnesota Pollution Control Agency (MPCA) Website at www.pca.state.mn.us/cleanup/sites/index.html .

Site history

Historical Site activities included retail, commercial business, dry cleaning, and gas stations dating back to the 1950s and 1960s.

An initial environmental investigation was conducted by Hennepin County to assist the City in assessing the Site for redevelopment. This investigation identified elevated levels of volatile organic compounds (VOCs), primarily dry-cleaning solvents including perchloroethylene (PCE) and trichloroethylene (TCE) in the groundwater near the former dry cleaner. The City acquired the Site property in 2005, and began an investigation under the oversight of the MPCA Voluntary Investigation and Cleanup (VIC) Program. In the fall of 2005, elevated concentrations of PCE and TCE were identified in groundwater and as vapors in the soil (soil gas) overlying the groundwater in an area extending from the Site property east to James Avenue. (Chemicals in soil vapor phase can cause chemical vapor intrusion into buildings.)

In February of 2009, the MPCA completed a vapor intrusion investigation that included sub-slab sampling and indoor air sampling of residential properties in the area of the PCE and TCE groundwater contaminant plume. Air sample analytical results identified four properties with PCE or TCE concentrations greater than indoor air screening values. In response to these indoor air exceedances, MPCA staff hired certified contractors to install indoor air vapor mitigation systems.

Compounds of concern

The two primary compounds of concern, PCE and TCE, have been detected in the off-site groundwater and overlying soil gas. The screening level for PCE sub-slab sample results is 200 micrograms per cubic meter ($\mu g/m^3$) and 30 $\mu g/m^3$ for TCE. Sub-slab screening levels are health protective values that are used to decide whether there is a potential risk for elevated vapor concentrations to build up in indoor air.

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The indoor air screening value is a level in indoor air that is considered safe, over a lifetime of exposure. The indoor air screening level for PCE is 20 µg/m^3 and for TCE is 3 µg/m^3. Both the sub-slab and the indoor air screening levels were developed in cooperation with the Minnesota Department of Health (MDH).

Potential risks

There is no evidence to date that suggests an imminent health risk to residents. The municipal drinking water supply in the investigation area is not affected by the contaminated ground water as the municipal water supply originates from much deeper, protected water source.

The City has completed a groundwater receptor survey to determine if there are any private household wells in the investigation area. Eight private wells have been identified. However, some homeowners did not respond to the survey request. Private water supply wells in the area should not be used for drinking water. Wells that are no longer in use should be properly sealed to prevent future problems.

VOCs in groundwater can move into the open air spaces between particles of soil and then enter the indoor air of homes through cracks or other openings in foundations. This process is known as "vapor intrusion".

Long-term exposure to VOC vapors in indoor air above indoor air screening levels can result in an increased risk of cancer or other health problems. Both PCE and TCE identified in soil gas at the Site are considered carcinogens.

The figure to the right illustrates the location of the Site, the approximate extent of groundwater contamination, and provides a graphic summary of the sub-slab sampling results. The presence of PCE and TCE in the groundwater and vapor in the sub-slab samples indicates that both are compounds of potential vapor intrusion concern.

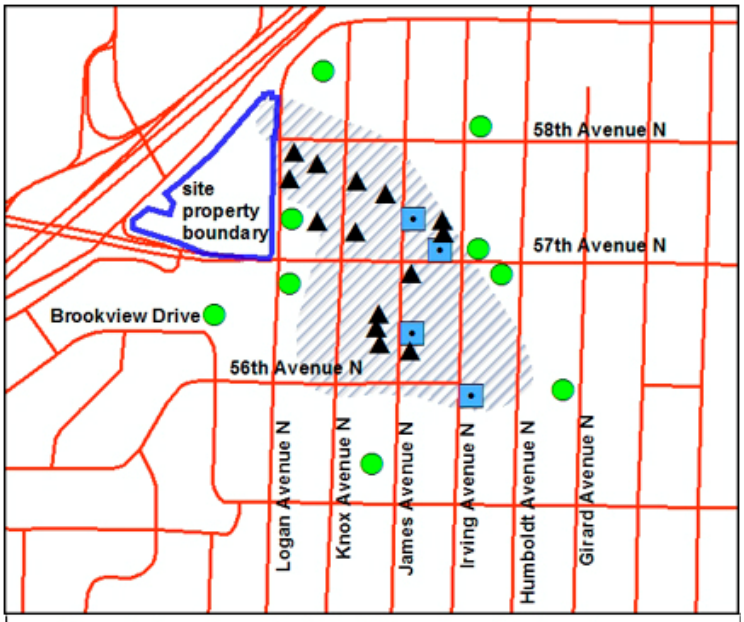

Figure 1: Location of Sub-Slab Vapor Sampling Locations

Next steps

Vapor mitigation systems for homes that exceeded indoor air levels of PCE or TCE were provided by the City and/or the MPCA at no cost to the owner. The mitigation system recommended is the same as the system used for radon. The typical system collects vapors from beneath the slab of the home from a PVC (polyvinyl chloride) pipe installed in a small opening in the slab, which allows the vapors to pass through the pipe vertically through the roof, where it is safely vented to the atmosphere. These systems utilize a small fan that is installed in the pipe.

Soil remediation began operation in October 2008. Recent testing results indicate that the soil cleanup is nearly complete. However, groundwater contaminated with PCE and TCE is still present.

The next phase of cleanup will use a technology called "chemical oxidation" to clean up the dry cleaning chemicals in the subsurface. Chemical oxidation involves the injection of sodium permanganate into the groundwater to oxidize PCE and TCE into water and other harmless chemicals. More information about chemical oxidation can be found in the fact sheet, *Chemical Oxidation of Dry Cleaning Solvents.*

Additional information

Minnesota Pollution Control Agency

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City of Brooklyn Center

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Information about the Site and recent Site reports by the City are available at the City of Brooklyn Center's Website, www.cityofbrooklyncenter.org, (following the links for 57th and Logan Soil Vapor Study).

All documents submitted to the MPCA pertaining to the Site are kept at the MPCA, 520 Lafayette Drive N., St. Paul, Minnesota

The City has established a repository of Site documents at the Minnesota Room of the Hennepin County Brookdale Area Library located at 6125 Shingle Creek Parkway.

For more information on vapor intrusion, go to the Minnesota Department of Health Website at www.health.state.mn.us/divs/eh/hazardous/topics/vaporintrusion.pdf.