



# 57<sup>th</sup> and Logan Soil Vapor Study

## Hmong American Shopping Center Site #2

Remediation/VIC/VP18581 • September 2008

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**T**his 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). To date soil gas samples has been collected from beneath 27 homes and indoor air samples have been collected from 3 homes. None of the indoor air sample results have been found to exceed health limits for the site compounds of concern. Additional homes will be sampled and a ground water treatment system installed soon. Please refer to the additional information at the end of the fact sheet for Site contacts and links to additional Site information. A copy of this and the previous April 2008 fact sheet for this Site can be found on the Minnesota Pollution Control Agency (MPCA) website at:

[www.pca.state.mn.us/cleanup/sites/index.html](http://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 1950's and 1960's.

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 the dry cleaning solvents perchloroethylene (PCE) and trichloroethylene (TCE) in the ground water 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 ground water and as vapors in the soil overlying the ground water (soil gas) in an area extending from the Site property east to James Avenue.

The City hosted a public meeting in October 2006 to present the investigation results to the community and to request access from homeowners to look for vapors beneath homes (sub-slab) and in indoor air. Sub-slab samples were collected from two homes in 2006 and the results identified PCE and TCE concentrations below levels of concern. An indoor air sample was also collected at one of the residences at the request of the owner. The indoor air sample result was well below the indoor air screening levels.

In 2007, the City conducted 44 additional subsurface probes across the investigation area to determine the extent of the ground water and soil gas contamination. Higher PCE and TCE soil gas concentrations were correlated with the higher ground water concentrations.

Following this investigation the City worked with MPCA to develop a plan for additional sub-slab vapor sampling and presented this plan to the community in a public meeting on March 27, 2008.

### Compounds of Concern

The two primary compounds of concern, PCE and TCE, have been detected in the off-site ground water and overlying soil

gas. The screening level for PCE sub-slab sample results is 200 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) and  $30 \mu\text{g}/\text{m}^3$  for TCE. Sub-slab screening levels are health protective values that are used to decide if there is a potential risk for elevated vapor concentrations to build up in indoor air.

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  $20 \mu\text{g}/\text{m}^3$  and for TCE is  $3 \mu\text{g}/\text{m}^3$ . 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 suggest an imminent health risk to residents. The investigation is designed to rule out any potential problems. The municipal drinking water supply in the investigation area is not affected by the contaminated ground water.

The City is completing a ground water receptor survey to determine if there are any private household wells in the investigation area. Private wells should not be used for drinking water although other uses for water from private wells should pose no risks. 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. If VOCs in indoor air from vapor intrusion are identified at concentrations above screening levels, the City and/or the MPCA will take steps to eliminate the vapor intrusion.

## Additional vapor sampling investigation

### April-June sub-slab vapor sampling

Several property owners from the Site investigation area contacted the City requesting their property to be sampled. The City coordinated with MPCA to select 15

homes to collect sub-slab vapor samples. The City's environmental consultant, Tetra Tech, collected these samples between April 19 and April 26, 2008.

In addition to these 15 properties, STS, Consultants, Ltd. (STS), an MPCA contractor, collected sub-slab vapor samples from an additional six properties. STS collected these samples from May 13 to June 10, 2008, a total of 21 properties with sub-slab samples.

Sampling results showed that PCE or TCE was not detected in the sub-slab at nine of the 21 locations. PCE or TCE were detected in the sub-slab at eight properties but were below screening levels. At four properties, the sampling results showed that either PCE or TCE exceeded their respective sub-slab screening level.

Letters to the individual homeowners were prepared by MPCA project staff in coordination with MDH that provided a discussion of the sampling results. The MPCA and MDH concluded that no further sampling or actions were required at the present time for the properties that did not exceed the screening criteria.

### Indoor air and outdoor air sampling

The MPCA conducted follow-up sampling, using their contractor STS, under a contract lasting through the end of June, at three of the four property locations that had sub-slab exceedances of either PCE or TCE. Scheduling issues prevented sampling at the northernmost location during the contract period.

Sampling at these three properties with sub-slab exceedances involved collecting another sub-slab sample, collecting an indoor air sample from the basement level, and conducting a building survey. At two properties, an indoor air sample was also collected from the first floor level above the basement, as well as an outdoor air sample for comparison with the results of the basement samples. All indoor air and outdoor air samples were collected using a vacuum gas canister over a 24-hour time period. A building survey and outdoor sampling are done because VOC's are ubiquitous in consumer products.

The indoor air basement samples collected at the three properties did not detect PCE or TCE above the laboratory reporting limits. PCE and TCE were not detected in the first floor samples or the outdoor samples collected from two separate locations.

The two outdoor air samples did detect several other VOCs, the majority of which are commonly associated with petroleum fuels and are common to urban areas.

STS prepared a report summarizing their investigation results dated June 24, 2008, which can be found at: [www.pca.state.mn.us/cleanup/sites/index.html](http://www.pca.state.mn.us/cleanup/sites/index.html)

### July 2008 sub-slab vapor sampling

After review of the results of the sampling of the 21 properties, the MPCA recommended additional sampling for vapor risks, based on the detections of PCE and TCE in sub-slab samples and from the earlier ground water and subsurface soil gas investigations. Letter requests for sub-slab sampling access of additional homes were mailed by the City to 26 properties on July 2, 2008.

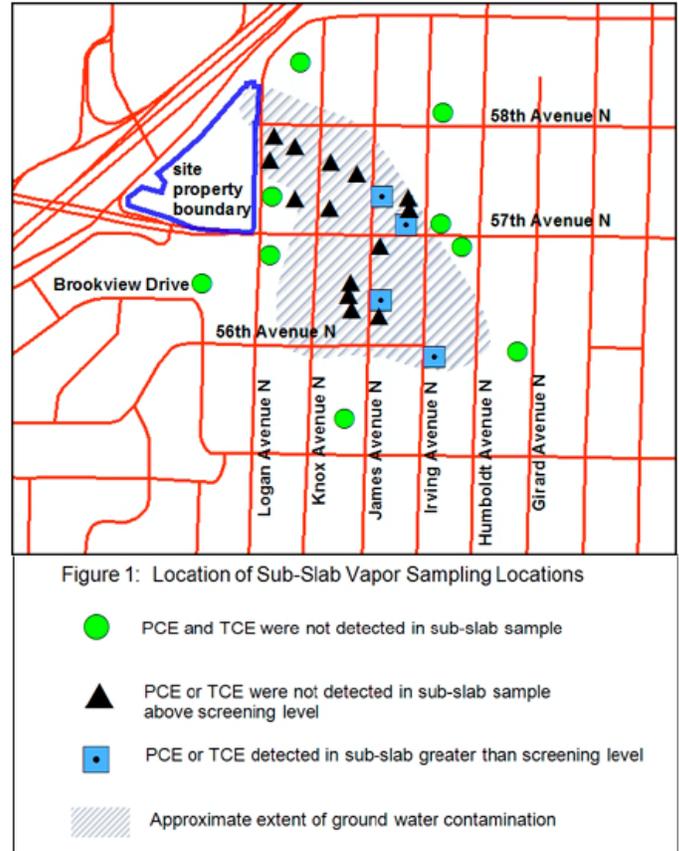
Tetra Tech sampled five of the 26 properties on July 19, 2008. PCE or TCE was identified in the sub-slab samples but at levels below screening criteria. Based on these results no further sampling or action is planned at these five properties at this time.

### Interim Conclusions of the Investigation

A total of 27 sub-slab sampling properties have been sampled. Figure 1 illustrates the location of the Site, the approximate extent of ground water contamination, and provides a graphic summary of the sub-slab sampling results. The presence of PCE and TCE in the ground water and vapor in the sub-slab samples indicates that both are compounds of potential vapor intrusion concern. The sampling did not detect PCE or TCE in the indoor air of the three homes that were tested.

The indoor air and the outdoor air sampling results lead the MPCA to conclude that PCE and TCE are the primary compounds originating from the Site releases that pose a potential risk of vapor intrusion. In addition to the two primary compounds of concern, two additional chlorinated solvents, trichloroethane and dichloroethane, were detected in sub-slab samples at a small number of properties, below their sub-slab screening criteria. Trichloroethane was identified in the indoor air of one property far below the indoor air screening level.

The vapor investigations conducted between April and July have confirmed that the overall risks posed by the Site compounds of concern appear to be low. Sampling is needed at additional properties to complete the vapor investigation and reach conclusions regarding the potential need for mitigation.



### Next Steps

#### Ongoing Site Investigation

The next steps are for the MPCA Site Assessment Program to continue Site investigation activities including additional sub-slab sampling near properties where PCE and TCE have been detected in sub-slab samples. The MPCA contractor, STS, will be conducting this additional sub-slab sampling and follow-up indoor air sampling, if the sub-slab sampling results exceed screening levels. The MPCA is also planning to conduct additional ground water characterization and subsurface soil vapor sampling within the investigation area.

After additional sub-slab and indoor air sampling is conducted, the results will be evaluated and a public

meeting held to discuss the results with the community. An announcement for the next public meeting will be made approximately three weeks in advance. The MPCA will notify the residents through a public mailing and put a public notice in the local newspapers. The next public meeting is tentatively scheduled to be during the fall of 2008.

### **Soil and Ground Water Remediation**

The MPCA Site Assessment Program has contracted to install a soil vapor extraction (SVE) system at the location of the former dry cleaner in order to begin remediation of the ground water and to remove residual soil contamination. SVE technology involves the use of a vacuum applied on wells that are set in the soils above the water table that will remove VOCs from the soil and help clean up the underlying ground water. The SVE system is tentatively scheduled to be installed at the Site in mid- to late-September and it is anticipated to begin operation in October.

### **Vapor Mitigation**

If homes have exceeded indoor air levels of PCE or TCE, the City and/or the MPCA will provide a vapor mitigation system at no cost to the residential property owner. The mitigation system recommended is the same as a system used for radon. The typical system collects vapors from beneath the slab of the home from a PVC 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.

## **Additional Information**

### **Minnesota Pollution Control Agency**

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### **Minnesota Department of Health**

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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 web site (following the links for 57<sup>th</sup> and Logan Soil Vapor Study): [www.cityofbrooklyncenter.org/](http://www.cityofbrooklyncenter.org/)

All documents submitted to the MPCA pertaining to the Site are kept at: MPCA, 520 Lafayette Drive, St. Paul, Minnesota 55155.

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:**

[www.health.state.mn.us/divs/eh/hazardous/topics/vaporintrusion.pdf](http://www.health.state.mn.us/divs/eh/hazardous/topics/vaporintrusion.pdf)