



Indoor Air Quality Concerns in Tenant Spaces Near US Cleaners (Parkway Plaza)

The Minnesota Department of Health (MDH) was asked by the Minnesota Pollution Control Agency (MPCA) to address the indoor air quality at the Parkway Plaza retail center on Hiawatha Avenue in Minneapolis. Dry cleaning chemical vapor (perchloroethylene, PCE) has been found in the air in businesses in Parkway Plaza. This information sheet is intended to inform the business owners and other people who spend a significant amount of time in Parkway Plaza of the levels of PCE found in the air.

About PCE and Health

MDH recommends that steps be taken to reduce exposures to PCE at Parkway Plaza. MDH believes that people should not breathe in PCE at the levels present in Parkway Plaza.

Health effects can occur when people breathe high concentrations of PCE vapors in the air over many years. Worker exposures over many years to PCE in dry cleaning or other establishments where PCE is used may also increase cancers. *The increase in cancer risk is very small at PCE concentrations found at the Parkway Plaza.*

PCE exposure can result in neurological effects like vision changes, slower reaction time, and reduction in mental function. Typically many or all of these symptoms may go away after exposure ceases. *It is unlikely that levels of PCE measured in the air in businesses adjacent to US Cleaner have been high enough to cause these types of health effects.*

Site Activities

As you may know, environmental investigation and mitigation activities have occurred at Parkway Plaza during the last few months. PCE was found in the soil under US Cleaners during an environmental assessment required for refinancing. The PCE vapors in the indoor air were thought to come from underneath the building from soil contamination. A soil vapor mitigation system was installed in the US Cleaners space in March 2014. The system was designed to lower the amount of PCE vapors in the indoor air of nearby businesses. In addition, carbon air filters were installed in the air intakes for businesses next to US Cleaners and in the nearby daycare center. Indoor air and soil gas beneath the building were tested on April 28, 2014 after installation of the system and the filters.

PCE Air Values (measured in micrograms per cubic meter, or $\mu\text{g}/\text{m}^3$; 1 part per billion = $6.8 \mu\text{g}/\text{m}^3$)

60 $\mu\text{g}/\text{m}^3$	This is the MPCA commercial workplace Intrusion Screening Value (ISV). This is a safe level for the general public, even if exposure occurs over many years. It is used as a screening value for workplaces when chemicals are not used in the workplace.
20 $\mu\text{g}/\text{m}^3$	This is the MPCA residential ISV. It is used by MDH as a screening value for the daycare center because children are often more sensitive to toxic effects of chemicals.
40,000 $\mu\text{g}/\text{m}^3$	This is a level at which workers were found in a study to experience a change in color vision after exposure for many years.
170,000 $\mu\text{g}/\text{m}^3$	This is a regulatory occupational exposure limit for dry cleaner workers.

ISVs are much lower than regulatory limits for workplaces where the chemical is used. ISVs protect vulnerable people, including children, the elderly and people who may already have health issues. When ISVs are exceeded, it is recommended that steps be taken to reduce exposures.

Indoor Air Testing Results

Businesses	PCE ISV*	Feb 6-11, 2014 PCE	Feb 28, 2014 PCE	April 28-29, 2014 PCE
4717 River Parkway Chiropratic	60	295	NS	1,890
4721 (vacant)	60	NS	NS	3,930
4723 Miracle Ear	60	1,080	NS	NS
4725 Hiawatha Alterations	60	3,890	NS	13,600
4727 (vacant)	60	2,660	4,510	17,500
4729 US Cleaners		NS	86,200	47,900
4735 Allstate/vacant	60	11,100	5,960	12,900
4737 Domino's Pizza	60	1,270	NS	6,980
4741 Subway	60	101	NS	1,110
4749 Rise N Shine Child Center	20	248	NS	474

*ISV = Intrusion Screening Value. Sometimes air concentrations are reported in parts per billion (ppb).

1 ppb of TCE is equal to 6.8 ug/cu.m of TCE.

Red results are above the indoor air screening level

NS = not sampled

The indoor air testing results indicate the following:

- Concentrations of PCE exceeded the ISVs for commercial workplaces in all spaces that were sampled.
- Levels of PCE in Parkway Plaza did not improve following the initial installation of the mitigation system and carbon air filters.
- Based on the testing results, it appears that the main source of PCE in the indoor air is most likely the use of workplace chemicals in US Cleaners. A small amount of PCE may be from below the building floor.

Next Steps

The MPCA recently modified the soil vapor mitigation system that is removing PCE from the soil beneath the Plaza to lower the amount of PCE in the business spaces. Also, more carbon filters are being installed. Additional sampling, including indoor air testing, is planned during the next few days to see if these changes lower the overall levels of PCE in indoor air. In addition, the MPCA, US Cleaners and the Parkway Plaza owners are discussing ways to decrease PCE and to increase the circulation of clean air through the businesses.

Contact with questions about health risks:

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See the Minnesota Department of Health website for more information about PCE and Health:

www.health.state.mn.us/divs/eh/hazardous/topics/perc.pdf