



Screening Levels for Vapor Intrusion Contaminants of Concern

Reilly Tar and Chemical Co. Superfund Site

St. Louis Park, Minnesota

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U.S. Environmental Protection Agency Region 5 is conducting a vapor intrusion investigation at the Reilly site that includes collecting samples. These sample results, along with other factors and information, are a critical part of assessing health risks from potential vapor intrusion in the area. In the chart below are screening levels EPA will use to help analyze the sample data.

EPA determines probability of a non-cancer detrimental health effect to occur by calculating a hazard index (HI). The HI is a ratio of a single substance exposure level during a specified time to a reference dose of the same substance derived from a similar exposure period. It is recommended the HI of an exposure to a chemical of concern be below or equal to 1. That is the level at which no adverse human health effects are expected to occur. For cancer risk, EPA recommends a screening level that would equate to a 1 in 1 million (1×10^{-6}) or greater risk of developing cancer from lifetime exposure to a contaminant. A 1 in 1 million chance means that for every 1 million people exposed, one extra cancer may occur beyond what would be expected from all other causes. A 1 in ten thousand risk is the upper limit of US EPA's acceptable range for lifetime cancer risk. Minnesota Pollution Control Agency (MPCA) has recommended Acute Vapor Intrusion Action Levels at which an immediate action would be recommended to protect residents.

The chart below defines Reilly Tar site-specific screening levels for indoor air and sub-slab soil gas to protect residents from non-cancer risks equating to a hazard index of 1, and a lifetime cancer risk of 1 in 1 million. The chart also details the MPCA Acute Vapor Intrusion Screening Level. A screening level based upon a 1 in 10,000 lifetime cancer risk was calculated for the few chemicals of concern that do not have an Acute Vapor Intrusion Screening Level. These screening levels are denoted by an asterisk.

Chemical of Concern	Residential Air Interior ug/m ³	Residential Air Subslab ug/m ³	MPCA Indoor Air Action Level ug/m ³
benzo(b)fluoranthene	2.2E-02	2.2E-01	2.2E+00*
benzo(j)fluoranthene	2.2E-02	2.2E-01	2.2E+00*
naphthalene	7.2E-02	7.2E-01	7.2E+00*
tetrachloroethene	4.1E-01	4.1E+00	2.0E+04
trichloroethene	1.2E+00	1.2E+01	2.0E+03
cis-1,2-dichloroethene	6.3E+01	6.3E+02	8.3E+02
trans-1,2-dichloroethene	6.3E+01	6.3E+02	8.3E+02
vinyl chloride	5.5E-01	5.5E+00	1.8E+05
benzene	3.1E-01	3.1E+00	1.0E+03
ethylbenzene	9.7E-01	9.7E+00	1.0E+04
toluene	5.2E+03	5.2E+04	3.7E+04
xylene	1.0E+02	1.0E+03	4.3E+04

Sample results from residences near the Reilly site will be compared with screening levels and communicated to property owners and residents. If results are above screening levels, further testing or mitigation may be necessary, and this will be addressed on a case-by-case basis. If results are below screening levels, no further action may be necessary.

For more information visit www.epa.gov/oswer/vaporintrusion/ or www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm or <http://www.epa.gov/region5/sites/reillytarmn/index.html>. You can also contact EPA Remedial Project Manager Michelle Kerr at 800-621-8431, Ext. 68961, weekdays 8:30 a.m. – 4:30 p.m. or kerr.michelle@epa.gov.