

Certainty

Well documented human health studies (workplace exposures)



TCE Inhalation & Health Effects

10,000,000 ppb

1,000,000 ppb

Human Odor Threshold (where humans can smell TCE) = 100,000 ppb

Acute Human Effects:
200,000 ppb (irritation of eyes and respiratory tract)

Chronic Human Effects:
40,000 ppb (cancers, dizziness, headache, lack of coordination)

Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL) = 100,000 ppb (based upon an 8 hr. work day -- industrial setting -- healthy adult)

100,000 ppb

10,000 ppb

Former GM Moraine Site

November 2011 sampling

- ❖ 89 indoor air samples were collected from 42 properties
- ❖ Of the 89 samples, 63 had detections of TCE

Glossary of Terms:

- Units measured in parts per billion (ppb).
- Acute exposure = short-term
- Chronic exposure = long-term
- Cancer Risk = Theoretical number of increases in cancer risk if a person is exposed 365 days a year for 70 years
- RfC = daily exposure that is unlikely to cause an adverse health effect

1000 ppb

100 ppb

U.S. EPA indoor air sampling at GM Moraine highest TCE value recorded in home = 9.3 ppb

U.S. EPA indoor air sampling at GM Moraine average TCE value recorded in homes = 1.2 ppb

10 ppb

1 ppb

U.S. EPA's Chronic inhalation Reference Concentration (RfC) = 0.4 ppb

EPA Theoretical Additional Lifetime Cancer Risk Calculations for Chronic Inhalation Exposures

- 4.0 ppb = 1 in 10,000 risk 10^{-4}
- 0.4 ppb = 1 in 100,000 risk 10^{-5}
- 0.04 ppb = 1 in 1,000,000 risk 10^{-6}

Limited human health studies (calculated risk and modeling)

Uncertainty