

US EPA ARCHIVE DOCUMENT

Source: HydroGeoLogic Inc. 2012. *Revised Final Feasibility Study Report, Garvey Elevator Site, Hastings, Nebraska, August.*

The purpose of these revisions is to derive an indoor air concentration that represents the upper limit of acceptable risk for a future resident. This value will then be used to calculate a an upper limit for the upper 10 ft of soil. Relevant to a potential future residential exposure scenario.

Table B.4 (Revised September 27, 2013 by Brian Zurbuchen, Ph.D., revisions shown in Calibri 14pt font)

**Indoor Air Calculations
Garvey Elevator Site, Hastings, Nebraska**

Calculate Protective Indoor Air Concentrations (evaluate both carcinogenic, noncarcinogenic):

$C_{cancer} (ug/m^3) = [(TCR * Atc) / (EF * ED * IUR)] =$ Indoor Air Concentration Protective of Carcinogenic Affects

$C_{nc} (ug/m^3) = (THQ * RfC * 1000ug/mg) =$ Indoor Air Concentration Protective of Non-carcinogenic Affects

Chemical	Inhalation Unit Risk, IUR (ug/m3)-1	Reference Concentration, RfC (mg/m3)	C _{cancer} (ug/m3)	C _{noncancer} (ug/m3)	Lower of the Carcinogenic and Non-Carcinogenic Concentrations (ug/m3)
Chloroform	2.30E-05	9.80E-02	1.06E-01	9.80E+01	1.06E-01
Tetrachloroethene	2.60E-07	4.00E-02	9.36E+00	4.00E+01	9.36E+00
Trichloroethene	4.10E-06	2.00E-03	4.30E-01*	2.00E+00	4.30E-01

Carbon Tetrachloride 6.00E-06 1.00E-01 4.06E-01 1.00E+02 4.06E-01

* = Chemical identified as a mutagen. Listed indoor air concentration incorporates the mutagenic component.

Total Carcinogenic Risk (TCR)	1.00E-06	
Total Hazard Quotient (THQ)	1	
Averaging Time (Atc)	25550	days
Exposure Frequency (EF)	350	days/year
Exposure Duration (ED)	30	years

Values are calculated site-specific risk-based levels for indoor air using formulas from Appendix D of the USEPA VI Guidance, 2002. Toxicity values are from the USEPA RSL April 2012 Tables.

