





Contaminated Medium		GROUNDWATER (µg/L (ppb))						GROUNDWATER (µg/L (ppb))						GROUNDWATER (µg/L (ppb))						Soil Vapor (µg/m³)						AIR (µg/m³)					
Exposure Pathway		Volatilization to Outdoor Air (RBC <sub>wo</sub> )						Vapor Intrusion into Buildings (RBC <sub>wi</sub> ) Use Separate DEQ VI RBCs 0						GW in Excavation (RBC <sub>we</sub> )						Vapor Intrusion into Buildings (RBC <sub>sv</sub> ) Use Separate DEQ VI RBCs 0						INHALATION (RBC <sub>air</sub> )					
Receptor Scenario		Residential		Urban Residential		Occupational		Residential		Urban Residential		Occupational		Construction & Excavation Worker		Residential		Urban Residential		Occupational		Residential		Urban Residential		Occupational					
Direct or Indirect Pathway (see notes)		IVW		IVW		IVW		IVW		IVW		IVW		DS		ICA		ICA		ICA		DCA		DCA		DCA					
Contaminant	Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note						
Acenaphthene	nc, v	-	>S	-	>S	-	>S							-	>S							-	>Pv	-	>Pv	-	>Pv				
Acrylonitrile	c, v	2,200		5,300		9,800								250								0.041		0.098		0.18					
Aldrin	c, v	-	>S	-	>S	-	>S							3.5								0.00057		0.0014		0.0025					
Anthracene	nc, v	-	>S	-	>S	-	>S							-	>S							-	>Pv	-	>Pv	-	>Pv				
Arsenic	c, nv	-	NV	-	NV	-	NV							6,300								0.00065		0.0015		0.0029					
Barium	nc, nv	-	NV	-	NV	-	NV							-	>S							0.52		0.52		2.2					
Benz[a]anthracene	c, v	-	>S	-	>S	-	>S							-	>S							0.017		0.033		0.20					
Benzene	c, v	3,100		7,400		14,000								1,800								0.36		0.85		1.6					
Benzidine	c, nv	-	NV	-	NV	-	NV							17								0.000015		0.000029		0.00018					
Benzo[a]pyrene (BaP equivalents) **	c, nv	-	NV	-	NV	-	NV							-	>S							0.0017		0.0021		0.0088					
Benzo[b]fluoranthene	c, nv	-	NV	-	NV	-	NV							-	>S							0.017		0.033		0.20					
Benzo[k]fluoranthene	c, nv	-	NV	-	NV	-	NV							-	>S							-	>Pv	-	>Pv	-	>Pv				
Beryllium	c, nv	-	NV	-	NV	-	NV							270,000								0.0012		0.0028		0.0051					
Bis(2-ethylhexyl)phthalate	c, nv	-	NV	-	NV	-	NV							-	>S							-	>Pv	-	>Pv	-	>Pv				
Bromodichloromethane	c, v	1,400		3,200		6,000								450								0.076		0.18		0.33					
Bromoform	c, v	130,000		300,000		550,000								14,000								2.6		6.0		11					
Bromomethane	nc, v	32,000		32,000		130,000								1,200								5.2		5.2		22					
Cadmium	c, nv	-	NV	-	NV	-	NV							130,000								0.0016		0.0037		0.0068					
Carbon tetrachloride	c, v	1,800		4,200		7,700								1,800								0.47		1.1		2.0					
Chlorobenzene	nc, v	-	>S	-	>S	-	>S							10,000								52		52		220					
Chlorodibromomethane (dibromochloromethane)	c, v	3,900		9,300		17,000								610								0.10		0.25		0.45					
Chloroethane (ethyl chloride)	nc, v	-	>S	-	>S	-	>S							2,400,000								10000		10000		44000					
Chloroform	c, v	1,400		3,400		6,300								720								0.12		0.29		0.53					
Chloromethane	nc, v	440,000		440,000		1,800,000								22,000								94		94		390					
Chlordane	c, v	-	>S	-	>S	-	>S							-	>S							0.028		0.066		0.12					
Chromium (III)	nc, nv	-	NV	-	NV	-	NV							-	>S							-	>Pv	-	>Pv	-	>Pv				
Chromium (VI)	c, nv	-	NV	-	NV	-	NV							9,400								0.000012		0.000023		0.00015					
Chrysene	c, nv	-	NV	-	NV	-	NV							-	>S							1.7		3.3		-	>Pv				
Copper	nc, nv	-	NV	-	NV	-	NV							5,400,000								-	>Pv	-	>Pv	-	>Pv				
Cyanide (hydrogen cyanide) ^	nc, v	32,000		32,000		140,000								190								0.83		0.83		3.5					
DDD (4,4'-Dichlorodiphenyldichloroethane)	c, nv	-	NV	-	NV	-	NV							3.2								0.041		0.096		0.18					
DDE (4,4'-Dichlorodiphenyldichloroethene)	c, v	-	>S	-	>S	-	>S							-	>S							0.029		0.068		0.13					
DDT (4,4'-Dichlorodiphenyltrichloroethane)	c, nv	-	NV	-	NV	-	NV							-	>S							0.029		0.068		0.13					
Dibenz[a,h]anthracene	c, nv	-	NV	-	NV	-	NV							-	>S							-	>Pv	-	>Pv	-	>Pv				
1,2-Dichlorobenzene	nc, v	-	>S	-	>S	-	>S							37,000								210		210		880					
1,4-Dichlorobenzene	c, v	4,900		12,000		21,000								1,500								0.26		0.6		1.1					
3,3-Dichlorobenzidine	c, nv	-	NV	-	NV	-	NV							-	>S							0.0083		0.020		0.036					
1,1-Dichloroethane	c, v	16,000		37,000		68,000								10,000								1.8		4.1		7.7					
1,1-Dichloroethene	c, v	570,000		570,000		2,400,000								44,000								210		210		880					
cis-1,2-Dichloroethene	nc, v	-	>S	-	>S	-	>S							18,000								-	>Pv	-	>Pv	-	>Pv				
trans-1,2-Dichloroethene	nc, v	-	>S	-	>S	-	>S							180,000								-	>Pv	-	>Pv	-	>Pv				
Dichloroethylether	c, v	5,700		13,000		30,000								51								0.0085		0.02		0.037					
Dichloromethane	c, v	1,000,000	>S	2,000,000	>S	1.3E+07	>S							79,000								100		190		1200					
Dichlorophenoxyacetic acid, 2,4- (2,4-D)	nc, nv	-	NV	-	NV	-	NV							77,000								-	>Pv	-	>Pv	-	>Pv				
Dieldrin	c, v	-	NV	-	NV	-	NV							2.4								0.00061		0.0014		0.0027					
Dinitrotoluene, 2,6-	nc, nv	-	NV	-	NV	-	NV							830								-	>Pv	-	>Pv	-	>Pv				
Di-N-propylnitrosamine (N-nitroso-di-N-propylamine)	c, nv	-	NV	-	NV	-	NV							370								0.0014		0.0033		0.0061					
Dioxane, 1,4-	c, nv	820,000		1,900,000		4,500,000								3,400								0.56		1.3		2.5					
Diphenylnitrosamine	c, nv	-	NV	-	NV	-	NV							-	>S							1.1		2.6		4.7					
EDB (1,2-dibromoethane)	c, v	180		430		790								27								0.0047		0.011		0.020					
EDC (1,2-dichloroethane)	c, v	2,100		4,900		9,000								630								0.11		0.26		0.47					
Endosulfan, (alpha-beta)	nc, v	-	>S	-	>S	-	>S							-	>S							-	>Pv	-	>Pv	-	>Pv				
Endrin	nc, nv	-	NV	-	NV	-	NV							170								-	>Pv	-	>Pv	-	>Pv				

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Exposure Pathway		Volatilization to Outdoor Air (RBC <sub>wo</sub> )						Vapor Intrusion into Buildings (RBC <sub>wi</sub> ) Use Separate DEQ VI RBCs 0						GW in Excavation (RBC <sub>we</sub> )						Vapor Intrusion into Buildings (RBC <sub>sv</sub> ) Use Separate DEQ VI RBCs 0						INHALATION (RBC <sub>air</sub> )					
Receptor Scenario		Residential		Urban Residential		Occupational		Residential		Urban Residential		Occupational		Construction & Excavation Worker		Residential		Urban Residential		Occupational		Residential		Urban Residential		Occupational					
Direct or Indirect Pathway (see notes)		IVW		IVW		IVW		IVW		IVW		IVW		DS		ICA		ICA		ICA		DCA		DCA		DCA					
Contaminant	Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note						
Ethylbenzene	c, v	9,900	>S	23,000	>S	43,000	>S							4,500								1.1		2.7		4.9					
Fluoranthene	nc, nv	-	NV	-	NV	-	NV							-	>S							-	>Pv	-	>Pv	-	>Pv				
Fluorene	nc, v	-	>S	-	>S	-	>S							-	>S							-	>Pv	-	>Pv	-	>Pv				
Formaldehyde	c*, nv	1,500,000		3,700,000		8,500,000								1,300								0.22		0.51		0.94					
Heptachlor	c, v	-	>S	-	>S	-	>S							1.8								0.0022		0.0051		0.0094					
Heptachlor Epoxide	c, v	-	>S	-	>S	-	>S							3.2								0.0011		0.0026		0.0047					
Hexachlorobenzene	c, v	-	>S	-	>S	-	>S							-	>S							0.0061		0.014		0.027					
Hexachlorocyclohexane, alpha- (alpha-HCH)	c, nv	-	NV	-	NV	-	NV							18	>S							0.0016		0.0037		0.0068					
Hexachlorocyclohexane, gamma- (Lindane)	c, nv	-	NV	-	NV	-	NV							100								0.0091		0.021		0.040					
Hexachloroethane	c*, v	5,000		12,000		22,000								700								0.26		0.60		1.1					
Indeno[1,2,3-cd]pyrene	c, nv	-	NV	-	NV	-	NV							-	>S							-	>Pv	-	>Pv	-	>Pv				
Lead	nc, nv	-	NV	-	NV	-	NV							-	>S							-	>Pv	-	>Pv	-	>Pv				
Manganese	nc, nv	-	NV	-	NV	-	NV							3,200,000								0.052		0.052		0.22					
MCPA ((4-chloro-2-methylphenoxy)acetic acid)	nc, nv	-	NV	-	NV	-	NV							1,700								-	>Pv	-	>Pv	-	>Pv				
Mercury	nc, nv	-	NV	-	NV	-	NV							-	>S							0.31		0.31		1.3					
MTBE (methyl t-butyl ether)	c, v	350,000		830,000		1,500,000								63,000								11		26		47					
Naphthalene	c, v	3,600		8,500		16,000	>S							500								0.083		0.20		0.36					
Nickel	c*, nv	-	NV	-	NV	-	NV							-	>S							0.011		0.026		0.047					
Penlchlorophenol	c, nv	-	NV	-	NV	-	NV							53								0.55		1.3		2.4					
Polychlorinated biphenyls (Total PCBs) **	c*, v	-	>S	-	>S	-	>S							30								0.0038		0.0090		0.017					
iso-Propylbenzene (cumene)	nc, v	-	>S	-	>S	-	>S							51,000								420		420		1800					
Pyrene	nc, v	-	>S	-	>S	-	>S							-	>S							-	>Pv	-	>Pv	-	>Pv				
Silver	nc, nv	-	NV	-	NV	-	NV							1,100,000								-		-		-					
Styrene	nc, v	-	>S	-	>S	-	>S							170,000								1000		1000		4400					
2,3,7,8-TCDD (dioxin) equivalents **	c, v	0.022		0.052		0.11								0.00045								5.6E-8		1.3E-7		2.5E-7					
Tetrachloroethene (PCE)	c*, v	64,000		150,000		-	>S							5,600								11		26		47					
Toluene	nc, v	-	>S	-	>S	-	>S							220,000								5200		5200		22000					
Toxaphene	c, nv	-	NV	-	NV	-	NV							18								0.0088		0.021		0.038					
Trichloro-1,2,2-trifluoroethane, 1,1,2- (Freon 113)	nc, v	-	>S	-	>S	-	>S							-	>S							31000		31000		130000					
Trichloroethane, 1,1,1-	nc, v	-	>S	-	>S	-	>S							1,100,000								5200		5200		22000					
Trichloroethane, 1,1,2-	c*, v	4,700		5,600		21,000								49								0.18		0.21		0.77					
Trichloroethene	c*, v	3,300		6,900		20,000								430								0.47		1.0		2.9					
Trichlorofluoromethane (Freon 11)	nc, v	780,000		780,000		-	>S							160,000								730		730		3,100					
Trichlorophenol, 2,4,6-	c*, nv	-	NV	-	NV	-	NV							1,700								0.91		2.1		4.0					
Trimethylbenzene, 1,2,4-	nc, v	-	>S	-	>S	-	>S							6,300								63		63		260					
Trimethylbenzene, 1,3,5-	nc, v	-	>S	-	>S	-	>S							7,500								63		63		260					
Vinyl chloride	c, v	350		430		5,900								960								0.17		0.20		2.8					
Xylenes	nc, v	-	>S	-	>S	-	>S							23,000								100		100		440					
Generic Gasoline	nc, v	>S		>S		>S								14,000								390		390		1,700					
Generic Diesel/Heating Oil	nc, v	>S		>S		>S								>S								100		100		440					
Generic Mineral/Insulating Oil	nc, nv	>S		>S		>S								>S								150		150		620					

NOTES:

Direct or Indirect Pathway Codes have the following meanings: DC means it is a direct contact pathway with a limiting value of Csat. IVS means it is an indirect pathway with a limiting value of Csat. DS means it is a direct contact pathway with a limiting value equal to the solubility, S. IVW means it is an indirect pathway with a limiting value equal to the solubility, S. DCA means it is a direct contact pathway with a limiting value equal to the vapor pressure, Pv.

The symbols in the "Note" columns are explained below. The references can be found in Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites (DEQ, 2003)

c This chemical is a known or suspected carcinogen. The RBCs in this row were calculated using equations for carcinogens.

c\* The RBCs in this row were calculated using equations for both carcinogens and noncarcinogens (where lower). For some scenarios the RBCs based on non-carcinogenic effects are lower than RBCs based on cancer effects for these chemicals. You should use the lower of the calculated RBCs for each exposure scenario, as shown in this table.

>Csat This soil RBC exceeds the limit of three-phase equilibrium partitioning. Refer to "ChemData" page for the corresponding value of Csat. Soil concentrations in excess of Csat indicate that free product might be present. See Section B.2.1.4 for additional information.

L The values for lead reported in this table are not calculated. See Section B.3.4 for the source of the lead numbers and information on applying them.

>Max The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario.



NA  
nc  
nv  
>Pv  
>S  
v  
\*  
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Not Available.

This chemical is a noncarcinogen. The RBCs in this row were calculated using equations for noncarcinogens. When carcinogenic RBCs can be calculated and the noncancer RBC is lower, (nc) is shown in the notes.

**This chemical is considered "nonvolatile" for purposes of the exposure calculations.** A chemical is defined as nonvolatile if the Henry's law constant is less than  $1 \times 10^{-5}$  atm/m<sup>3</sup>-mole and vapor pressure less than one mm mercury.

The air concentration reported for the RBC exceeds the vapor pressure of the pure chemical. It can be assumed that this constituent cannot create an unacceptable risk by this pathway. See Section B.2.1.4 for additional information.

This groundwater RBC exceeds the solubility limit. Refer to Appendix D for the corresponding value of S. Groundwater concentrations in excess of S indicate that free product may be present. See Section B.2.1.4 for additional information.

**This chemical is classified as "volatile" for purposes of the exposure calculations in this document. A chemical is defined as volatile if the Henry's law constant is greater than or equal to  $1 \times 10^{-5}$  atm/m<sup>3</sup>-mole or vapor pressure greater than or equal to one mm mercury.**

Leaching-to-Groundwater RBCs are not provided for inorganic chemicals. If this pathway is of concern, then site-specific leaching tests must be performed.

Compounds in this category are considered in aggregate as a chemical class and should be evaluated as single substances. See notes to accompany Risk-Based Concentrations for Individual Chemicals, November 1, 2015.

When "Show All Values" is not selected on the Main Menu, all RBC values for indirect pathways that exceed a limit (C<sub>sat</sub>, S, or P<sub>v</sub>) are removed from the table and replaced with "-". If you suspect that a chemical may be present at high concentrations on airborne dust rather than vapor, the vapor pressure limit does not apply, so use the RBC<sub>air</sub> value.

**DEQ no longer screens vapor intrusion risks based on soil data.**

**Vapor intrusion RBCs are now in a separate DEQ RBC table for screening vapor intrusion risk from groundwater and soil vapor.**