TABLE 1
HUMAN HEALTH RISK ASSESSMENT SELECTION OF EXPOSURE PATHWAYS
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current	Surface Soil	Surface Soil	Surface Soil	On-Site Trespasser	Adult Youth (7-16 years)	Ingestion	Quant.	Trespassers may incidentally ingest surface soil.
						Dermal	Quant.	Trespassers may have exposed skin come into contact with surface soil.
		Particulates and Vapors	Outdoor Air	On-Site Trespasser	Adult Youth (7-16 years)	Inhalation	Quant.	Trespassers may inhale volatiles and fugitive dust that migrate from surface soil to air.
Future	All Soil	All Soil	All Soil	On-Site Trespasser	Adult Youth (7-16 years)	Ingestion	Quant.	Trespassers may incidentally ingest all soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
						Dermal	Quant.	Trespassers may have exposed skin come into contact with all soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
		Particulates and Vapors	Outdoor Air	On-Site Trespasser	Adult Youth (7-16 years)	Inhalation	Quant.	Trespassers may inhale volatiles and fugitive dust that migrate from all soil to air, if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
Current/Future	Sediment	Sediment	Sediment	On-Site Trespasser	Adult Youth (7-16 years)	Ingestion	Quant.	Trespassers may incidentally ingest on-site sediment.
						Dermal	Quant.	Trespassers may have exposed skin come into contact with on-site sediment.
	Surface Water	Surface Water	Surface Water	On-Site Trespasser	Adult Youth (7-16 years)	Ingestion	Quant.	Trespassers may incidentally ingest on-site surface water.
						Dermal	Quant.	Trespassers may have exposed skin come into contact with on-site surface water.
Current/Future	All Soil	All Soil	All Soil	On-Site Construction/Utility Worker	Adult	Ingestion	Quant.	Current/Future construction/utility workers may incidentally ingest soil.
						Dermal	Quant.	Current/Future construction/utility workers may have exposed skin come into contact with soil.
		Particulates and Vapors	Outdoor Air	On-Site Construction/Utility Worker	Adult	Inhalation	Quant.	Current/Future construction/utility workers may inhale volatiles and fugitive dust that migrate from soil to outdoor air.
	Groundwater	Groundwater	Groundwater	On-Site Construction/Utility Worker	Adult	Dermal	Quant.	Current/Future construction/utility workers may have exposed skin come into contact with groudnwater during trench work.
		Vapors	Outdoor Air (trenches)	On-Site Construction/Utility Worker	Adult	Inhalation	Quant.	Current/Future construction/utility workers may inhale groundwater vapors from trench air.
Future	All Soil	All Soil	All Soil	On-Site Recreationalist	Adult Youth (7-16 years) Child (1-6 years)	Ingestion	Quant.	Recreationalists may incidentally ingest all soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.

							Dermal	Quant.
			Particulates and Vapors	Outdoor Air	On-Site Recreationalist	Adult Youth (7-16 years) Child (1-6 years)	Inhalation	Quant.
		Sediment	Sediment	Sediment	On-Site Recreationalist	Adult Youth (7-16 years)	Ingestion	Quant.
							Dermal	Quant.
		Surface Water	Surface Water	Surface Water	On-Site Recreationalist	Adult Youth (7-16 years)	Ingestion	Quant.
							Dermal	Quant.
Future	Future	Surface Soil	Surface Soil	Surface Soil	On-Site Outdoor Worker	Adult	Ingestion	Quant.
							Dermal	Quant.
			Particulates and Vapors	Outdoor Air	On-Site Outdoor Worker	Adult	Inhalation	Quant.
		All Soil	All Soil	All Soil	On-Site Outdoor Worker	Adult	Ingestion	Quant.
							Dermal	Quant.
			Particulates and Vapors	Outdoor Air	On-Site Outdoor Worker	Adult	Inhalation	Quant.
Future	Future	Surface Soil	Surface Soil	Surface Soil	On-Site Commercial/ Industrial Worker	Adult	Ingestion	Quant.
							Dermal	Quant.
			Particulates and Vapors	Outdoor Air	On-Site Commercial/ Industrial Worker	Adult	Inhalation	Quant.
		All Soil	All Soil	All Soil	On-Site Commercial/ Industrial Worker	Adult	Ingestion	Quant.

					On-Site Commercial/ Industrial Worker		Dermal	Quant.
			Particulates and Vapors	Outdoor Air	On-Site Commercial/ Industrial Worker	Adult	Inhalation	Quant.
		Groundwater	Groundwater	Groundwater	On-Site Commercial/ Industrial Worker	Adult	Ingestion	Quant.
							Dermal	Qualt.
			Vapors	Indoor Air - Domestic Use	On-Site Commercial/ Industrial Worker	Adult	Inhalation	Quant.

			Vapors	Indoor Air - Vapor Intrusion	On-Site Commercial/ Industrial Worker	Adult	Inhalation	Quant.
			Vapors	Outdoor Air	On-Site Commercial/ Industrial Worker	Adult	Inhalation	Qualt.
Future	Future	Surface Soil	Surface Soil	Surface Soil	On-Site Resident	Adult Child	Ingestion	Quant.
							Dermal	Quant.
			Particulates and Vapors	Outdoor Air	On-Site Resident	Adult Child	Inhalation	Quant.
		All Soil	All Soil	All Soil	On-Site Resident	Adult Child	Ingestion	Quant.
							Dermal	Quant.
			Particulates and Vapors	Outdoor Air	On-Site Resident	Adult Child	Inhalation	Quant.
		Groundwater	Groundwater	Groundwater	On-Site Resident	Adult Child	Ingestion	Quant.
							Dermal Contact	Quant.
			Vapors	Indoor Air - Household Use	On-Site Resident	Adult Child	Inhalation	Quant.
			Vapors	Indoor Air - Vapor Intrusion	On-Site Resident	Adult Child	Inhalation	Quant.
			Vapors	Outdoor Air	On-Site Resident	Adult Child	Inhalation	Qualt.

Notes:	**Notes:**	
All Soils	All Soils	Assumed to be soils from 0 to 10 feet below ground surface
Surface Soils	Surface Soils	Assumed to be soils from 0 to 2 feet below ground surface
Qualt.	Qualt.	Qualitative; this scenario is expected to be insignificant and is not included in the quantitative risk assessment.
Quant.	Quant.	Quantitative; this scenario was quantitatively assessed in the human health risk assessment

TABLE 1
HUMAN HEALTH RISK ASSESSMENT SELECTION OF EXPOSURE PATHWAYS
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe	Rationale for Selection or Exclusion of Exposure Pathway
Current	Trespassers may incidentally ingest surface soil.
	Trespassers may have exposed skin come into contact with surface soil.
	Trespassers may inhale volatiles and fugitive dust that migrate from surface soil to air.
Future	Trespassers may incidentally ingest all soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
	Trespassers may have exposed skin come into contact with all soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
	Trespassers may inhale volatiles and fugitive dust that migrate from all soil to air, if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
Current/Future	Trespassers may incidentally ingest on-site sediment.
	Trespassers may have exposed skin come into contact with on-site sediment.
	Trespassers may incidentally ingest on-site surface water.
	Trespassers may have exposed skin come into contact with on-site surface water.
Current/Future	Current/Future construction/utility workers may incidentally ingest soil.
	Current/Future construction/utility workers may have exposed skin come into contact with soil.
	Current/Future construction/utility workers may inhale volatiles and fugitive dust that migrate from soil to outdoor air.
	Current/Future construction/utility workers may have exposed skin come into contact with groudnwater during trench work.
	Current/Future construction/utility workers may inhale groundwater vapors from trench air.
Future	Recreationalists may incidentally ingest all soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.

	Recreationalists may have exposed skin come into contact with all soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
	Recreationalists may inhale volatiles and fugitive dust that migrate from all soil to air, if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
	Recreationalist may incidentally ingest on-site sediment.
	Recreationalist may have exposed skin come into contact with on-site sediment.
	Recreationalist may incidentally ingest on-site surface water.
	Recreationalist may have exposed skin come into contact with on-site surface water.
Future	Future outdoor workers may incidentally ingest surface soil.
	Future outdoor workers may have exposed skin come into contact with surface soil.
	Future outdoor workers may inhale volatiles and fugitive dust that migrate from surface soil to air.
	Future outdoor workers may incidentally ingest all soils if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
	Future outdoor workers may have exposed skin come into contact with all soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
	Future outdoor workers may inhale volatiles and fugitive dust that migrate from all soils to air if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
Future	Future commercial/industrial workers may incidentally ingest surface soil.
	Future commercial/industrial workers may have exposed skin come into contact with surface soil.
	Future commercial/industrial workers may inhale volatiles and fugitive dust that migrate from surface soil to air.
	Future commercial/industrial workers may incidentally ingest all soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.

	Future commercial/industrial workers may have exposed skin come into contact with all soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
	Future commercial/industrial workers may inhale volatiles and fugitive dust that migrate from all soil to air if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
	Future commercial/industrial workers may ingest groundwater from the Site.
	Future commercial/industrial workers may have dermal contact with groundwater from the Site; however, this exposure is expected to be insignificant.
	Future commercial/industrial workers may be exposed to volatile groundwater contaminants migrating into indoor air due to domestic use of groundwater.

	Future commercial/industrial workers may be exposed to volatile groundwater contaminants migrating into indoor air via
	Future commercial/industrial workers may inhale groundwater vapors from the Site. However, this exposure is expected to be insignificant.
Future	Future residents may incidentally ingest surface soil.
	Future residents may have exposed skin come into contact with surface soil.
	Future residents may inhale volatiles and fugitive dust that migrate from surface soil to air.
	Future residents may incidentally ingest all soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
	Future residents may have exposed skin come into contact with all soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
	Future residents may inhale volatiles and fugitive dust that migrate from all soil to air, if subsurface soil is brought to the surface and mixed with surface soil as a result of Site development.
	Future residents may ingest groundwater from the Site.
	Future residents may have dermal contact with groundwater from the Site.
	Future residents may be exposed to volatile groundwater contaminants released from groundwater to indoor air from household groundwater use (e.g., showering).
	Future residents may be exposed to volatile groundwater contaminants migrating into indoor air via vapor intrusion.
	Future residents may inhale groundwater vapors from the Site. However, this exposure is expected to be insignificant.

Notes:
All Soils
Surface Soils
Qualt.
Quant.

		1	Csat (See User Guide)					
			2	3	4	5	6	7
			Toxicity and Chemical-specific Information					
		Analyte	$(mg/kg\text{-}day)^{-1}$	y	$(ug/m^3)^{-1}$	y	(mg/kg-day)	y
--		Acephate	8.7E-03	I			4.0E-03	I
--		Acetaldehyde			2.2E-06	I		
--		Acetochlor					2.0E-02	I
--	X	Acetone					9.0E-01	I
--		Acetone Cyanohydrin						
--		Acetonitrile						
--	X	Acetophenone					1.0E-01	I
--		Acetylaminofluorene, 2-	3.8E+00	C	1.3E-03	C		
--		Acrolein					5.0E-04	I
--		Acrylamide	5.0E-01	I	1.0E-04	I	2.0E-03	I
--		Acrylic Acid					5.0E-01	I
--		Acrylonitrile	5.4E-01	I	6.8E-05	I	4.0E-02	A
--		Adiponitrile						
--		Alachlor	5.6E-02	C			1.0E-02	I
--		Aldicarb					1.0E-03	I
--		Aldicarb Sulfone					1.0E-03	I
--		Aldicarb sulfoxide						
--		Aldrin	1.7E+01	I	4.9E-03	I	3.0E-05	I
--		Allyl Alcohol					5.0E-03	I
--		Allyl Chloride	2.1E-02	C	6.0E-06	C		
--	X	Aluminum					1.0E+00	P
--		Aluminum Phosphide					4.0E-04	I
--		Ametryn					9.0E-03	I
--		Aminobiphenyl, 4-	2.1E+01	C	6.0E-03	C		
--		Aminophenol, m-					8.0E-02	P
--		Aminophenol, p-					2.0E-02	P
--		Amitraz					2.5E-03	I
--		Ammonia						
--		Ammonium Sulfamate					2.0E-01	I
--		Amyl Alcohol, tert-						
--		Aniline	5.7E-03	I	1.6E-06	C	7.0E-03	P
--		Anthraquinone, 9,10-	4.0E-02	P			2.0E-03	X
--	X	Antimony					4.0E-04	I
--		Antimony Pentoxide					5.0E-04	H
--		Antimony Tetroxide					4.0E-04	H
--		Antimony Trioxide						
--	X	Arsenic	1.5E+00	I	4.3E-03	I	3.0E-04	I
--		Arsine					3.5E-06	C

--		Asulam					5.0E-02	I
--		Atrazine	2.3E-01	C			3.5E-02	I
--		Auramine	8.8E-01	C	2.5E-04	C		
--		Avermectin B1					4.0E-04	I
--		Azinphos-methyl					3.0E-03	A
--		Azobenzene	1.1E-01	I	3.1E-05	I		
--		Azodicarbonamide					1.0E+00	P
--	X	Barium					2.0E-01	I
--		Barium Chromate	5.0E-01	C	1.5E-01	C	2.0E-02	C
--		Benfluralin					3.0E-01	I
--		Benomyl					5.0E-02	I
--		Bensulfuron-methyl					2.0E-01	I
--		Bentazon					3.0E-02	I
--	X	Benzaldehyde	4.0E-03	P			1.0E-01	I
--	X	Benzene	5.5E-02	I	7.8E-06	I	4.0E-03	I
--		Benzenediamine-2-methyl sulfat	1.0E-01	X			3.0E-04	X
--		Benzenethiol					1.0E-03	P
--		Benzidine	2.3E+02	I	6.7E-02	I	3.0E-03	I
--		Benzoic Acid					4.0E+00	I
--		Benzotrichloride	1.3E+01	I				
--	X	Benzyl Alcohol					1.0E-01	P
--		Benzyl Chloride	1.7E-01	I	4.9E-05	C	2.0E-03	P
--	X	Beryllium			2.4E-03	I	2.0E-03	I
--		Bifenox					9.0E-03	P
--		Biphenthrin					1.5E-02	I
--	X	1,1-Biphenyl	8.0E-03	I			5.0E-01	I
--		Bis(2-chloro-1-methylethyl) ethe					4.0E-02	I
--		Bis(2-chloroethoxy)methane					3.0E-03	P
--	X	bis(2-Chloroethyl)ether	1.1E+00	I	3.3E-04	I		
--		Bis(chloromethyl)ether	2.2E+02	I	6.2E-02	I		
--		Bisphenol A					5.0E-02	I
--		Boron And Borates Only					2.0E-01	I
--		Boron Trichloride					2.0E+00	P
--		Boron Trifluoride					4.0E-02	C
--		Bromate	7.0E-01	I			4.0E-03	I
--		Bromo-2-chloroethane, 1-	2.0E+00	X	6.0E-04	X		
--		Bromobenzene					8.0E-03	I
--		Bromochloromethane						
--		Bromodichloromethane	6.2E-02	I	3.7E-05	C	2.0E-02	I
--		Bromoform	7.9E-03	I	1.1E-06	I	2.0E-02	I
--		Bromomethane					1.4E-03	I
--		Bromophos					5.0E-03	H

--		Bromoxynil					2.0E-02	I
--		Bromoxynil Octanoate					2.0E-02	I
--		Butadiene, 1,3-	3.4E+00	C	3.0E-05	I		
--		Butanol, N-					1.0E-01	I
--		Butyl alcohol, sec-					2.0E+00	P
--		Butylate					5.0E-02	I
--		Butylated hydroxyanisole	2.0E-04	C	5.7E-08	C		
--		Butylated hydroxytoluene	3.6E-03	P			3.0E-01	P
--	X	n-Butylbenzene					5.0E-02	P
--	X	sec-Butylbenzene					1.0E-01	X
--	X	tert-Butylbenzene					1.0E-01	X
--		Cacodylic Acid					2.0E-02	A
--	X	Cadmium			1.8E-03	I	1.0E-03	I
--		Cadmium (Water)			1.8E-03	I	5.0E-04	I
--		Calcium Chromate	5.0E-01	C	1.5E-01	C	2.0E-02	C
--		Caprolactam					5.0E-01	I
--		Captafol	1.5E-01	C	4.3E-05	C	2.0E-03	I
--		Captan	2.3E-03	C	6.6E-07	C	1.3E-01	I
--		Carbaryl					1.0E-01	I
--		Carbofuran					5.0E-03	I
--	X	Carbon Disulfide					1.0E-01	I
--		Carbon Tetrachloride	7.0E-02	I	6.0E-06	I	4.0E-03	I
--		Carbonyl Sulfide						
--		Carbosulfan					1.0E-02	I
--		Carboxin					1.0E-01	I
--		Ceric oxide						
--		Chloral Hydrate					1.0E-01	I
--		Chloramben					1.5E-02	I
--		Chloranil	4.0E-01	H				
--		Chlordane	3.5E-01	I	1.0E-04	I	5.0E-04	I
X		alpha-Chlordane	3.5E-01	I	1.0E-04	I	5.0E-04	I
X		gamma-Chlordane	3.5E-01	I	1.0E-04	I	5.0E-04	I
--		Chlordecone (Kepone)	1.0E+01	I	4.6E-03	C	3.0E-04	I
--		Chlorfenvinphos					7.0E-04	A
--		Chlorimuron, Ethyl-					2.0E-02	I
--		Chlorine					1.0E-01	I
--		Chlorine Dioxide					3.0E-02	I
--		Chlorite (Sodium Salt)					3.0E-02	I
--		Chloro-1,1-difluoroethane, 1-						
--		Chloro-1,3-butadiene, 2-			3.0E-04	I	2.0E-02	H
--		Chloro-2-methylaniline HCl, 4-	4.6E-01	H				
--		Chloro-2-methylaniline, 4-	1.0E-01	P	7.7E-05	C	3.0E-03	X

--		Chloroacetaldehyde, 2-	2.7E-01	X					
--		Chloroacetic Acid							
--		Chloroacetophenone, 2-							
--		Chloroaniline, p-	2.0E-01	P			4.0E-03	I
--		Chlorobenzene					2.0E-02	I
--		Chlorobenzilate	1.1E-01	C	3.1E-05	C	2.0E-02	I
--		Chlorobenzoic Acid, p-					3.0E-02	X
--		Chlorobenzotrifluoride, 4-					3.0E-03	P
--		Chlorobutane, 1-					4.0E-02	P
--		Chlorodifluoromethane						
--		Chloroethanol, 2-					2.0E-02	P
--	X	Chloroform	3.1E-02	C	2.3E-05	I	1.0E-02	I
--		Chloromethane						
--		Chloromethyl Methyl Ether	2.4E+00	C	6.9E-04	C		
--		Chloronitrobenzene, o-	3.0E-01	P			3.0E-03	P
--		Chloronitrobenzene, p-	6.0E-02	P			7.0E-04	P
--		Chlorophenol, 2-					5.0E-03	I
--		Chloropicrin						
--		Chlorothalonil	3.1E-03	C	8.9E-07	C	1.5E-02	I
--		Chlorotoluene, o-					2.0E-02	I
--		Chlorotoluene, p-					2.0E-02	X
--		Chlorozotocin	2.4E+02	C	6.9E-02	C		
--		Chlorpropham					2.0E-01	I
--		Chlorpyrifos					1.0E-03	A
--		Chlorpyrifos Methyl					1.0E-02	H
--		Chlorsulfuron					5.0E-02	I
--		Chlorthal-dimethyl					1.0E-02	I
--		Chlorthiophos					8.0E-04	H
!	X	Chromium					1.5E+00	I
--	X	Hexavalent chromium	5.0E-01	J	8.4E-02	S	3.0E-03	I
!	X	Chromium						
--		Clofentezine					1.3E-02	I
--	X	Cobalt			9.0E-03	P	3.0E-04	P
--		Coke Oven Emissions			6.2E-04	I		
--	X	Copper					4.0E-02	H
--		Cresol, m-					5.0E-02	I
--		Cresol, o-					5.0E-02	I
--		Cresol, p-					1.0E-01	A
--		Cresol, p-chloro-m-					1.0E-01	A
--		Cresols					1.0E-01	A
--		Crotonaldehyde, trans-	1.9E+00	H			1.0E-03	P
!		Isopropylbenzene					1.0E-01	I

--		Cupferron	2.2E-01	C	6.3E-05	C		
--		Cyanazine	8.4E-01	H			2.0E-03	H
--		Cyanides						
--		~Calcium Cyanide					1.0E-03	I
--		~Copper Cyanide					5.0E-03	I
--		~Cyanide (CN-)					6.0E-04	I
--		~Cyanogen					1.0E-03	I
--		~Cyanogen Bromide					9.0E-02	I
--		~Cyanogen Chloride					5.0E-02	I
--		~Hydrogen Cyanide					6.0E-04	I
--		~Potassium Cyanide					2.0E-03	I
--		~Potassium Silver Cyanide					5.0E-03	I
--		~Silver Cyanide					1.0E-01	I
--		~Sodium Cyanide					1.0E-03	I
--		~Thiocyanates					2.0E-04	P
--		~Thiocyanic Acid					2.0E-04	X
--		~Zinc Cyanide					5.0E-02	I
--		Cyclohexane						
!		Methyl cyclohexane						
--		Cyclohexane, 1,2,3,4,5-pentabro	2.3E-02	H				
--		Cyclohexanone					5.0E+00	I
--		Cyclohexene					5.0E-03	P
--		Cyclohexylamine					2.0E-01	I
--		Cyfluthrin					2.5E-02	I
--		Cyhalothrin					5.0E-03	I
--		Cypermethrin					1.0E-02	I
--		Cyromazine					7.5E-03	I
--		DDD	2.4E-01	I	6.9E-05	C		
--		DDE, p,p'-	3.4E-01	I	9.7E-05	C		
--		DDT	3.4E-01	I	9.7E-05	I	5.0E-04	I
--		Dalapon					3.0E-02	I
--		Daminozide	1.8E-02	C	5.1E-06	C	1.5E-01	I
--		Decabromodiphenyl ether, 2,2',3	7.0E-04	I			7.0E-03	I
--		Demeton					4.0E-05	I
--		Di(2-ethylhexyl)adipate	1.2E-03	I			6.0E-01	I
--		Diallate	6.1E-02	H				
--		Diazinon					7.0E-04	A
--		Dibenzothiophene					1.0E-02	X
--	X	1,2-Dibromo-3-chloropropane	8.0E-01	P	6.0E-03	P	2.0E-04	P
--		Dibromobenzene, 1,3-					4.0E-04	X
--		Dibromobenzene, 1,4-					1.0E-02	I
--		Dibromochloromethane	8.4E-02	I			2.0E-02	I

--		Dibromoethane, 1,2-	2.0E+00	I	6.0E-04	I	9.0E-03	I
--		Dibromomethane (Methylene Br						
--		Dibutyltin Compounds					3.0E-04	P
--		Dicamba					3.0E-02	I
--		Dichloro-2-butene, 1,4-			4.2E-03	P		
--		Dichloro-2-butene, cis-1,4-			4.2E-03	P		
--		Dichloro-2-butene, trans-1,4-			4.2E-03	P		
--		Dichloroacetic Acid	5.0E-02	I			4.0E-03	I
--		Dichlorobenzene, 1,2-					9.0E-02	I
--		Dichlorobenzene, 1,4-	5.4E-03	C	1.1E-05	C	7.0E-02	A
--		Dichlorobenzidine, 3,3'-	4.5E-01	I	3.4E-04	C		
--		Dichlorobenzophenone, 4,4'-					9.0E-03	X
--		Dichlorodifluoromethane					2.0E-01	I
--	X	1,1-Dichloroethane	5.7E-03	C	1.6E-06	C	2.0E-01	P
--	X	1,2-Dichloroethane	9.1E-02	I	2.6E-05	I	6.0E-03	X
--		Dichloroethylene, 1,1-					5.0E-02	I
--	X	cis-1,2-Dichloroethene					2.0E-03	I
--		Dichloroethylene, 1,2-trans-					2.0E-02	I
--		Dichlorophenol, 2,4-					3.0E-03	I
--		Dichlorophenoxy Acetic Acid, 2,					1.0E-02	I
--		Dichlorophenoxy)butyric Acid, 4-					8.0E-03	I
--		Dichloropropane, 1,2-	3.6E-02	C	1.0E-05	C	9.0E-02	A
--		Dichloropropane, 1,3-					2.0E-02	P
--		Dichloropropanol, 2,3-					3.0E-03	I
--		Dichloropropene, 1,3-	1.0E-01	I	4.0E-06	I	3.0E-02	I
--		Dichlorvos	2.9E-01	I	8.3E-05	C	5.0E-04	I
--		Dicrotophos					1.0E-04	I
--		Dicyclopentadiene					8.0E-02	P
--		Dieldrin	1.6E+01	I	4.6E-03	I	5.0E-05	I
--		Diesel Engine Exhaust			3.0E-04	C		
--		Diethanolamine					2.0E-03	P
--		Diethylene Glycol Monobutyl Eth					3.0E-02	P
--		Diethylene Glycol Monoethyl Eth					6.0E-02	P
--		Diethylformamide					1.0E-03	P
--		Diethylstilbestrol	3.5E+02	C	1.0E-01	C		
--		Difenzoquat					8.0E-02	I
--		Diflubenzuron					2.0E-02	I
--		Difluoroethane, 1,1-						
--		Dihydrosafrole	4.4E-02	C	1.3E-05	C		
--		Diisopropyl Ether						
--		Diisopropyl Methylphosphonate					8.0E-02	I
--		Dimethipin					2.0E-02	I

--		Dimethoate					2.0E-04	I
--		Dimethoxybenzidine, 3,3'-	1.6E+00	P				
--		Dimethyl methylphosphonate	1.7E-03	P			6.0E-02	P
--		Dimethylamino azobenzene [p-]	4.6E+00	C	1.3E-03	C		
--		Dimethylaniline HCl, 2,4-	5.8E-01	H				
--		Dimethylaniline, 2,4-	2.0E-01	P			2.0E-03	X
--		Dimethylaniline, N,N-					2.0E-03	I
--		Dimethylbenzidine, 3,3'-	1.1E+01	P				
--		Dimethylformamide					1.0E-01	P
--		Dimethylhydrazine, 1,1-					1.0E-04	X
--		Dimethylhydrazine, 1,2-	5.5E+02	C	1.6E-01	C		
--		Dimethylphenol, 2,4-					2.0E-02	I
--		Dimethylphenol, 2,6-					6.0E-04	I
--		Dimethylphenol, 3,4-					1.0E-03	I
--		Dimethylvinylchloride	4.5E-02	C	1.3E-05	C		
--		Dinitro-o-cresol, 4,6-					8.0E-05	X
--		Dinitro-o-cyclohexyl Phenol, 4,6-					2.0E-03	I
--		Dinitrobenzene, 1,2-					1.0E-04	P
--		Dinitrobenzene, 1,3-					1.0E-04	I
--		Dinitrobenzene, 1,4-					1.0E-04	P
--		Dinitrophenol, 2,4-					2.0E-03	I
--		Dinitrotoluene Mixture, 2,4/2,6-	6.8E-01	I				
--		Dinitrotoluene, 2,4-	3.1E-01	C	8.9E-05	C	2.0E-03	I
--	X	2,6-Dinitrotoluene	1.5E+00	P			3.0E-04	X
--		Dinitrotoluene, 2-Amino-4,6-					2.0E-03	S
--		Dinitrotoluene, 4-Amino-2,6-					2.0E-03	S
--		Dinitrotoluene, Technical grade	4.5E-01	X			9.0E-04	X
--		Dinoseb					1.0E-03	I
--	X	1,4-Dioxane	1.0E-01	I	5.0E-06	I	3.0E-02	I
--		Dioxins						
--		~Hexachlorodibenzo-p-dioxin, M	6.2E+03	I	1.3E+00	I		
--		~TCDD, 2,3,7,8-	1.3E+05	C	3.8E+01	C	7.0E-10	I
!	X	Dioxin TEQ	1.3E+05	C	3.8E+01	C	7.0E-10	I
--		Diphenamid					3.0E-02	I
--		Diphenyl Sulfone					8.0E-04	X
--		Diphenylamine					2.5E-02	I
--		Diphenylhydrazine, 1,2-	8.0E-01	I	2.2E-04	I		
--		Diquat					2.2E-03	I
--		Direct Black 38	7.1E+00	C	1.4E-01	C		
--		Direct Blue 6	7.4E+00	C	1.4E-01	C		
--		Direct Brown 95	6.7E+00	C	1.4E-01	C		
--		Disulfoton					4.0E-05	I

--		Dithiane, 1,4-					1.0E-02	I
--		Diuron					2.0E-03	I
--		Dodine					4.0E-03	I
--		EPTC					2.5E-02	I
--		Endosulfan					6.0E-03	I
X		alpha-Endosulfan					6.0E-03	I
X		beta-Endosulfan					6.0E-03	I
--		Endothall					2.0E-02	I
--		Endrin					3.0E-04	I
x		Endrin Aldehyde					3.0E-04	I
x		Endrin Ketone					3.0E-04	I
--		Epichlorohydrin	9.9E-03	I	1.2E-06	I	6.0E-03	P
--		Epoxybutane, 1,2-						
--		Ethanol, 2-(2-methoxyethoxy)-					4.0E-02	P
--		Ethephon					5.0E-03	I
--		Ethion					5.0E-04	I
--		Ethoxyethanol Acetate, 2-					1.0E-01	P
--		Ethoxyethanol, 2-					9.0E-02	P
--		Ethyl Acetate					9.0E-01	I
--		Ethyl Acrylate					5.0E-03	P
--		Ethyl Chloride (Chloroethane)						
--		Ethyl Ether					2.0E-01	I
--		Ethyl Methacrylate						
--		Ethyl-p-nitrophenyl Phosphonate					1.0E-05	I
--	X	Ethylbenzene	1.1E-02	C	2.5E-06	C	1.0E-01	I
--		Ethylene Cyanohydrin					7.0E-02	P
--		Ethylene Diamine					9.0E-02	P
--		Ethylene Glycol					2.0E+00	I
--		Ethylene Glycol Monobutyl Ethe					1.0E-01	I
--		Ethylene Oxide	3.1E-01	C	8.8E-05	C		
--		Ethylene Thiourea	4.5E-02	C	1.3E-05	C	8.0E-05	I
--		Ethyleneimine	6.5E+01	C	1.9E-02	C		
--		Ethylphthalyl Ethyl Glycolate					3.0E+00	I
--		Fenamiphos					2.5E-04	I
--		Fenpropathrin					2.5E-02	I
--		Fenvalerate					2.5E-02	I
--		Fluometuron					1.3E-02	I
--		Fluoride					4.0E-02	C
--		Fluorine (Soluble Fluoride)					6.0E-02	I
--		Fluridone					8.0E-02	I
--		Flurprimidol					2.0E-02	I
--		Flusilazole					7.0E-04	I

--		Flutolanil					6.0E-02	I
--		Fluvalinate					1.0E-02	I
--		Folpet	3.5E-03	I			1.0E-01	I
--		Fomesafen	1.9E-01	I				
--		Fonofos					2.0E-03	I
--		Formaldehyde			1.3E-05	I	2.0E-01	I
--		Formic Acid					9.0E-01	P
--		Fosetyl-AL					3.0E+00	I
--		Furans						
--	X	Dibenzofuran					1.0E-03	X
--		~Furan					1.0E-03	I
--	X	Tetrahydrofuran					9.0E-01	I
--		Furazolidone	3.8E+00	H				
--		Furfural					3.0E-03	I
--		Furium	1.5E+00	C	4.3E-04	C		
--		Furmecyclox	3.0E-02	I	8.6E-06	C		
--		Glufosinate, Ammonium					4.0E-04	I
--		Glutaraldehyde						
--		Glycidyl					4.0E-04	I
--		Glyphosate					1.0E-01	I
--		Guanidine					1.0E-02	X
--		Guanidine Chloride					2.0E-02	P
--		Haloxyfop, Methyl					5.0E-05	I
--		Heptachlor	4.5E+00	I	1.3E-03	I	5.0E-04	I
--		Heptachlor Epoxide	9.1E+00	I	2.6E-03	I	1.3E-05	I
--		Hexabromobenzene					2.0E-03	I
--		Hexabromodiphenyl ether, 2,2',4					2.0E-04	I
--	X	Hexachlorobenzene	1.6E+00	I	4.6E-04	I	8.0E-04	I
--		Hexachlorobutadiene	7.8E-02	I	2.2E-05	I	1.0E-03	P
--		Hexachlorocyclohexane, Alpha-	6.3E+00	I	1.8E-03	I	8.0E-03	A
--		Hexachlorocyclohexane, Beta-	1.8E+00	I	5.3E-04	I		
--		Hexachlorocyclohexane, Gamm	1.1E+00	C	3.1E-04	C	3.0E-04	I
--		Hexachlorocyclohexane, Techni	1.8E+00	I	5.1E-04	I		
--		Hexachlorocyclopentadiene					6.0E-03	I
--		Hexachloroethane	4.0E-02	I	1.1E-05	C	7.0E-04	I
--		Hexachlorophene					3.0E-04	I
--		Hexahydro-1,3,5-trinitro-1,3,5-tri	1.1E-01	I			3.0E-03	I
--		Hexamethylene Diisocyanate, 1						
--		Hexamethylphosphoramide					4.0E-04	P
--		Hexane, N-						
--		Hexanedioic Acid					2.0E+00	P
--		Hexanone, 2-					5.0E-03	I

--		Hexazinone					3.3E-02	I
--		Hexythiazox					2.5E-02	I
--		Hydramethylnon					3.0E-04	I
--		Hydrazine	3.0E+00	I	4.9E-03	I		
--		Hydrazine Sulfate	3.0E+00	I	4.9E-03	I		
--		Hydrogen Chloride						
--		Hydrogen Fluoride					4.0E-02	C
--		Hydrogen Sulfide						
--		Hydroquinone	6.0E-02	P			4.0E-02	P
--		Imazalil					1.3E-02	I
--		Imazaquin					2.5E-01	I
--		Imazethapyr					2.5E-01	I
--		Iodine					1.0E-02	A
--		Iprodione					4.0E-02	I
--	X	Iron					7.0E-01	P
--		Isobutyl Alcohol					3.0E-01	I
--		Isophorone	9.5E-04	I			2.0E-01	I
--		Isopropalin					1.5E-02	I
--		Isopropanol					2.0E+00	P
--		Isopropyl Methyl Phosphonic Ac					1.0E-01	I
--		Isoxaben					5.0E-02	I
--		JP-7						
--		Lactofen					2.0E-03	I
--		Lead Compounds						
--		~Lead Chromate	5.0E-01	C	1.5E-01	C	2.0E-02	C
--		~Lead Phosphate	8.5E-03	C	1.2E-05	C		
--		~Lead acetate	8.5E-03	C	1.2E-05	C		
--	X	Lead						
--		~Lead subacetate	8.5E-03	C	1.2E-05	C		
--		~Tetraethyl Lead					1.0E-07	I
--		Lewisite					5.0E-06	P
--		Linuron					2.0E-03	I
--		Lithium					2.0E-03	P
--		MCPA					5.0E-04	I
--		MCPB					1.0E-02	I
--		MCPP					1.0E-03	I
--		Malathion					2.0E-02	I
--		Maleic Anhydride					1.0E-01	I
--		Maleic Hydrazide					5.0E-01	I
--		Malononitrile					1.0E-04	P
--		Mancozeb					3.0E-02	H
--		Maneb					5.0E-03	I

--	X	Manganese					1.4E-01	I
--		Manganese (Non-diet)					2.4E-02	S
--		Mephosfolan					9.0E-05	H
--		Mepiquat Chloride					3.0E-02	I
--		Mercury Compounds						
--		~Mercuric Chloride (and other M					3.0E-04	I
--		~Mercury (elemental)						
--		~Methyl Mercury					1.0E-04	I
--		~Phenylmercuric Acetate					8.0E-05	I
--		Merphos					3.0E-05	I
--		Merphos Oxide					3.0E-05	I
--		Metalaxyl					6.0E-02	I
--		Methacrylonitrile					1.0E-04	I
--		Methamidophos					5.0E-05	I
--		Methanol					2.0E+00	I
--		Methidathion					1.0E-03	I
--		Methomyl					2.5E-02	I
--		Methoxy-5-nitroaniline, 2-	4.9E-02	C	1.4E-05	C		
--		Methoxychlor					5.0E-03	I
--		Methoxyethanol Acetate, 2-					8.0E-03	P
--		Methoxyethanol, 2-					5.0E-03	P
--		Methyl Acetate					1.0E+00	X
--		Methyl Acrylate						
--		Methyl Ethyl Ketone (2-Butanon					6.0E-01	I
--		Methyl Hydrazine			1.0E-03	X	1.0E-03	P
--		Methyl Isobutyl Ketone (4-methy						
--		Methyl Isocyanate						
--		Methyl Methacrylate					1.4E+00	I
--		Methyl Parathion					2.5E-04	I
--		Methyl Phosphonic Acid					6.0E-02	X
--		Methyl Styrene (Mixed Isomers)					6.0E-03	H
--		Methyl methanesulfonate	9.9E-02	C	2.8E-05	C		
--		Methyl tert-Butyl Ether (MTBE)	1.8E-03	C	2.6E-07	C		
--		Methyl-1,4-benzenediamine dihy					3.0E-04	X
--		Methyl-5-Nitroaniline, 2-	9.0E-03	P			2.0E-02	X
--		Methyl-N-nitro-N-nitrosoguanidir	8.3E+00	C	2.4E-03	C		
--		Methylaniline Hydrochloride, 2-	1.3E-01	C	3.7E-05	C		
--		Methylarsonic acid					1.0E-02	A
--		Methylbenzene,1-4-diamine mor					2.0E-04	X
--		Methylbenzene-1,4-diamine sulf	1.0E-01	X			3.0E-04	X
--		Methylcholanthrene, 3-	2.2E+01	C	6.3E-03	C		
--		Methylene Chloride	2.0E-03	I	1.0E-08	I	6.0E-03	I

--		Methylene-bis(2-chloroaniline), 4	1.0E-01	P	4.3E-04	C	2.0E-03	P
--		Methylene-bis(N,N-dimethyl) An	4.6E-02	I	1.3E-05	C		
--		Methylenebisbenzenamine, 4,4'-	1.6E+00	C	4.6E-04	C		
--		Methylenediphenyl Diisocyanate						
--		Methylstyrene, Alpha-					7.0E-02	H
--		Metolachlor					1.5E-01	I
--		Metribuzin					2.5E-02	I
--		Metsulfuron-methyl					2.5E-01	I
--		Mineral oils					3.0E+00	P
--		Mirex	1.8E+01	C	5.1E-03	C	2.0E-04	I
--		Molinate					2.0E-03	I
--		Molybdenum					5.0E-03	I
--		Monochloramine					1.0E-01	I
--		Monomethylaniline					2.0E-03	P
--		Myclobutanil					2.5E-02	I
--		N,N'-Diphenyl-1,4-benzenediam					3.0E-04	X
--		Naled					2.0E-03	I
--		Naphtha, High Flash Aromatic (I					3.0E-02	X
--		Naphthylamine, 2-	1.8E+00	C	0.0E+00	C		
--		Napropamide					1.0E-01	I
--		Nickel Acetate			2.6E-04	C	1.1E-02	C
--		Nickel Carbonate			2.6E-04	C	1.1E-02	C
--		Nickel Carbonyl			2.6E-04	C	1.1E-02	C
--		Nickel Hydroxide			2.6E-04	C	1.1E-02	C
--		Nickel Oxide			2.6E-04	C	1.1E-02	C
--		Nickel Refinery Dust			2.4E-04	I	1.1E-02	C
--	X	Nickel			2.6E-04	C	2.0E-02	I
--		Nickel Subsulfide	1.7E+00	C	4.8E-04	I	1.1E-02	C
--		Nickelocene			2.6E-04	C	1.1E-02	C
--		Nitrate					1.6E+00	I
--		Nitrate + Nitrite (as N)						
--		Nitrite					1.0E-01	I
--		Nitroaniline, 2-					1.0E-02	X
--		Nitroaniline, 4-	2.0E-02	P			4.0E-03	P
--		Nitrobenzene			4.0E-05	I	2.0E-03	I
--		Nitrocellulose					3.0E+03	P
--		Nitrofurantoin					7.0E-02	H
--		Nitrofurazone	1.3E+00	C	3.7E-04	C		
--		Nitroglycerin	1.7E-02	P			1.0E-04	P
--		Nitroguanidine					1.0E-01	I
--		Nitromethane			8.8E-06	P		
--		Nitropropane, 2-			2.7E-03	H		

--		Nitroso-N-ethylurea, N-	2.7E+01	C	7.7E-03	C		
--		Nitroso-N-methylurea, N-	1.2E+02	C	3.4E-02	C		
--		Nitroso-di-N-butylamine, N-	5.4E+00	I	1.6E-03	I		
--		Nitroso-di-N-propylamine, N-	7.0E+00	I	2.0E-03	C		
--		Nitrosodiethanolamine, N-	2.8E+00	I	8.0E-04	C		
--		Nitrosodiethylamine, N-	1.5E+02	I	4.3E-02	I		
--		Nitrosodimethylamine, N-	5.1E+01	I	1.4E-02	I	8.0E-06	P
--		Nitrosodiphenylamine, N-	4.9E-03	I	2.6E-06	C		
--		Nitrosomethylethylamine, N-	2.2E+01	I	6.3E-03	C		
--		Nitrosomorpholine [N-]	6.7E+00	C	1.9E-03	C		
--		Nitrosopiperidine [N-]	9.4E+00	C	2.7E-03	C		
--		Nitrosopyrrolidine, N-	2.1E+00	I	6.1E-04	I		
--		Nitrotoluene, m-					1.0E-04	X
--		Nitrotoluene, o-	2.2E-01	P			9.0E-04	P
--		Nitrotoluene, p-	1.6E-02	P			4.0E-03	P
--		Nonane, n-					3.0E-04	X
--		Norflurazon					4.0E-02	I
--		Octabromodiphenyl Ether					3.0E-03	I
--		Octahydro-1,3,5,7-tetranitro-1,3,					5.0E-02	I
--		Octamethylpyrophosphoramide					2.0E-03	H
--		Oryzalin					5.0E-02	I
--		Oxadiazon					5.0E-03	I
--		Oxamyl					2.5E-02	I
--		Oxyfluorfen					3.0E-03	I
--		Paclobutrazol					1.3E-02	I
--		Paraquat Dichloride					4.5E-03	I
--		Parathion					6.0E-03	H
--		Pebulate					5.0E-02	H
--		Pendimethalin					4.0E-02	I
--		Pentabromodiphenyl Ether					2.0E-03	I
--		Pentabromodiphenyl ether, 2,2',					1.0E-04	I
--	X	Pentachlorobenzene					8.0E-04	I
--		Pentachloroethane	9.0E-02	P				
--		Pentachloronitrobenzene	2.6E-01	H			3.0E-03	I
--	X	Pentachlorophenol	4.0E-01	I	5.1E-06	C	5.0E-03	I
--		Pentaerythritol tetranitrate (PET	4.0E-03	X			2.0E-03	P
--		Pentane, n-						
--		Perchlorates						
--		~Ammonium Perchlorate					7.0E-04	I
--		~Lithium Perchlorate					7.0E-04	I
--		~Perchlorate and Perchlorate Sa					7.0E-04	I
--		~Potassium Perchlorate					7.0E-04	I

--		~Sodium Perchlorate					7.0E-04	I
--		Perfluorobutane Sulfonate					2.0E-02	P
--		Permethrin					5.0E-02	I
--		Phenacetin	2.2E-03	C	6.3E-07	C		
--		Phenmedipham					2.5E-01	I
--	X	Phenol					3.0E-01	I
--		Phenol, 2-(1-methylethoxy)-, me					4.0E-03	I
--		Phenothiazine					5.0E-04	X
--		Phenylenediamine, m-					6.0E-03	I
--		Phenylenediamine, o-	4.7E-02	H				
--		Phenylenediamine, p-					1.9E-01	H
--		Phenylphenol, 2-	1.9E-03	H				
--		Phorate					2.0E-04	H
--		Phosgene						
--		Phosmet					2.0E-02	I
--		Phosphates, Inorganic						
--		~Aluminum metaphosphate					4.9E+01	P
--		~Ammonium polyphosphate					4.9E+01	P
--		~Calcium pyrophosphate					4.9E+01	P
--		~Diammonium phosphate					4.9E+01	P
--		~Dicalcium phosphate					4.9E+01	P
--		~Dimagnesium phosphate					4.9E+01	P
--		~Dipotassium phosphate					4.9E+01	P
--		~Disodium phosphate					4.9E+01	P
--		~Monoaluminum phosphate					4.9E+01	P
--		~Monoammonium phosphate					4.9E+01	P
--		~Monocalcium phosphate					4.9E+01	P
--		~Monomagnesium phosphate					4.9E+01	P
--		~Monopotassium phosphate					4.9E+01	P
--		~Monosodium phosphate					4.9E+01	P
--		~Polyphosphoric acid					4.9E+01	P
--		~Potassium tripolyphosphate					4.9E+01	P
--		~Sodium acid pyrophosphate					4.9E+01	P
--		~Sodium aluminum phosphate (					4.9E+01	P
--		~Sodium aluminum phosphate (					4.9E+01	P
--		~Sodium aluminum phosphate (					4.9E+01	P
--		~Sodium hexametaphosphate					4.9E+01	P
--		~Sodium polyphosphate					4.9E+01	P
--		~Sodium trimetaphosphate					4.9E+01	P
--		~Sodium tripolyphosphate					4.9E+01	P
--		~Tetrapotassium phosphate					4.9E+01	P
--		~Tetrasodium pyrophosphate					4.9E+01	P

--		~Trialuminum sodium tetra deca						4.9E+01	P
--		~Tricalcium phosphate						4.9E+01	P
--		~Trimagnesium phosphate						4.9E+01	P
--		~Tripotassium phosphate						4.9E+01	P
--		~Trisodium phosphate						4.9E+01	P
--		Phosphine						3.0E-04	I
--		Phosphoric Acid						4.9E+01	P
--		Phosphorus, White						2.0E-05	I
--		Phthalates							
--	X	bis(2-Ethylhexyl)phthalate	1.4E-02	I	2.4E-06	C		2.0E-02	I
--	X	Butyl benzyl phthalate	1.9E-03	P				2.0E-01	I
--		~Butylphthalyl Butylglycolate						1.0E+00	I
--		~Dibutyl Phthalate						1.0E-01	I
--		~Diethyl Phthalate						8.0E-01	I
--		~Dimethylterephthalate						1.0E-01	I
--	X	Di-n-octylphthalate						1.0E-02	P
--		~Phthalic Acid, P-						1.0E+00	H
--		~Phthalic Anhydride						2.0E+00	I
--		Picloram						7.0E-02	I
--		Picramic Acid (2-Amino-4,6-dinit						1.0E-04	X
--		Picric Acid (2,4,6-Trinitrophenol)						9.0E-04	X
--		Pirimiphos, Methyl						1.0E-02	I
--		Polybrominated Biphenyls	3.0E+01	C	8.6E-03	C		7.0E-06	H
--		Polychlorinated Biphenyls (PCB							
--		~Aroclor 1016	7.0E-02	S	2.0E-05	S		7.0E-05	I
--		~Aroclor 1221	2.0E+00	S	5.7E-04	S			
--		~Aroclor 1232	2.0E+00	S	5.7E-04	S			
--		~Aroclor 1242	2.0E+00	S	5.7E-04	S			
--	X	Aroclor-1248	2.0E+00	S	5.7E-04	S			
--	X	Aroclor-1254	2.0E+00	S	5.7E-04	S		2.0E-05	I
--	X	Aroclor-1260	2.0E+00	S	5.7E-04	S			
--		~Aroclor 5460						6.0E-04	X
!	X	Total Aroclor	2.0E+00	S	5.7E-04	S		2.0E-05	I
--		~Heptachlorobiphenyl, 2,3,3',4,4	3.9E+00	E	1.1E-03	E		2.3E-05	E
--		~Hexachlorobiphenyl, 2,3',4,4',5	3.9E+00	E	1.1E-03	E		2.3E-05	E
--		~Hexachlorobiphenyl, 2,3,3',4,4'	3.9E+00	E	1.1E-03	E		2.3E-05	E
--		~Hexachlorobiphenyl, 2,3,3',4,4'	3.9E+00	E	1.1E-03	E		2.3E-05	E
--		~Hexachlorobiphenyl, 3,3',4,4',5	3.9E+03	E	1.1E+00	E		2.3E-08	E
--		~Pentachlorobiphenyl, 2',3,4,4',5	3.9E+00	E	1.1E-03	E		2.3E-05	E
--		~Pentachlorobiphenyl, 2,3',4,4',5	3.9E+00	E	1.1E-03	E		2.3E-05	E
--		~Pentachlorobiphenyl, 2,3,3',4,4	3.9E+00	E	1.1E-03	E		2.3E-05	E
--		~Pentachlorobiphenyl, 2,3,4,4',5	3.9E+00	E	1.1E-03	E		2.3E-05	E

--		~Pentachlorobiphenyl, 3,3',4,4',5	1.3E+04	E	3.8E+00	E	7.0E-09	E
--		~Polychlorinated Biphenyls (high	2.0E+00	I	5.7E-04	I		
!	X	Total PCBs	2.0E+00	I	5.7E-04	I		
--		~Polychlorinated Biphenyls (low	4.0E-01	I	1.0E-04	I		
--		~Polychlorinated Biphenyls (low	7.0E-02	I	2.0E-05	I		
--		~Tetrachlorobiphenyl, 3,3',4,4'- (	1.3E+01	E	3.8E-03	E	7.0E-06	E
--		~Tetrachlorobiphenyl, 3,4,4',5- (	3.9E+01	E	1.1E-02	E	2.3E-06	E
--		Polymeric Methylene Diphenyl D						
--		Polynuclear Aromatic Hydrocarb						
--	X	Acenaphthene					6.0E-02	I
!	X	Acenaphthylene					6.0E-02	I
--	X	Anthracene					3.0E-01	I
--	X	Benzo(a)anthracene	7.3E-01	E	1.1E-04	C		
--		~Benzo(j)fluoranthene	1.2E+00	C	1.1E-04	C		
--	X	Benzo(a)pyrene	7.3E+00	I	1.1E-03	C		
!	X	Benzo(a)pyrene Equivalent	7.3E+00	I	1.1E-03	C		
--	X	Benzo(b)fluoranthene	7.3E-01	E	1.1E-04	C		
!	X	Benzo(g,h,i)perylene					3.0E-02	I
--	X	Benzo(k)fluoranthene	7.3E-02	E	1.1E-04	C		
--		~Chloronaphthalene, Beta-					8.0E-02	I
--	X	Chrysene	7.3E-03	E	1.1E-05	C		
--	X	Dibenzo(a,h)anthracene	7.3E+00	E	1.2E-03	C		
--		~Dibenzo(a,e)pyrene	1.2E+01	C	1.1E-03	C		
--		~Dimethylbenz(a)anthracene, 7,	2.5E+02	C	7.1E-02	C		
--	X	Fluoranthene					4.0E-02	I
--	X	Fluorene					4.0E-02	I
--	X	Indeno(1,2,3-cd)pyrene	7.3E-01	E	1.1E-04	C		
--	X	1-Methylnaphthalene	2.9E-02	P			7.0E-02	A
--	X	2-Methylnaphthalene					4.0E-03	I
--		Naphthalene			3.4E-05	C	2.0E-02	I
--		~Nitropyrene, 4-	1.2E+00	C	1.1E-04	C		
!	X	Phenanthrene					3.0E-02	I
--	X	Pyrene					3.0E-02	I
--		Potassium Perfluorobutane Sulf					2.0E-02	P
--		Prochloraz	1.5E-01	I			9.0E-03	I
--		Profluralin					6.0E-03	H
--		Prometon					1.5E-02	I
--		Prometryn					4.0E-03	I
--		Propachlor					1.3E-02	I
--		Propanil					5.0E-03	I
--		Propargite					2.0E-02	I
--		Propargyl Alcohol					2.0E-03	I

--		Propazine					2.0E-02	I
--		Propham					2.0E-02	I
--		Propiconazole					1.3E-02	I
--		Propionaldehyde						
--	X	n-Propylbenzene					1.0E-01	X
--		Propylene						
--		Propylene Glycol					2.0E+01	P
--		Propylene Glycol Dinitrate						
--		Propylene Glycol Monomethyl E					7.0E-01	H
--		Propylene Oxide	2.4E-01	I	3.7E-06	I		
--		Propyzamide					7.5E-02	I
--		Pyridine					1.0E-03	I
--		Quinalphos					5.0E-04	I
--		Quinoline	3.0E+00	I				
--		Quizalofop-ethyl					9.0E-03	I
--		Refractory Ceramic Fibers						
--		Resmethrin					3.0E-02	I
--		Ronnel					5.0E-02	H
--		Rotenone					4.0E-03	I
--		Safrole	2.2E-01	C	6.3E-05	C		
--		Selenious Acid					5.0E-03	I
--	X	Selenium					5.0E-03	I
--		Selenium Sulfide					5.0E-03	C
--		Sethoxydim					9.0E-02	I
--		Silica (crystalline, respirable)						
--	X	Silver					5.0E-03	I
--		Simazine	1.2E-01	H			5.0E-03	I
--		Sodium Acifluorfen					1.3E-02	I
--		Sodium Azide					4.0E-03	I
--		Sodium Dichromate	5.0E-01	C	1.5E-01	C	2.0E-02	C
--		Sodium Diethyldithiocarbamate	2.7E-01	H			3.0E-02	I
--		Sodium Fluoride					5.0E-02	A
--		Sodium Fluoroacetate					2.0E-05	I
--		Sodium Metavanadate					1.0E-03	H
--		Sodium Tungstate					8.0E-04	P
--		Sodium Tungstate Dihydrate					8.0E-04	P
--		Stirofos (Tetrachlorovinphos)	2.4E-02	H			3.0E-02	I
--		Strontium Chromate	5.0E-01	C	1.5E-01	C	2.0E-02	C
--		Strontium, Stable					6.0E-01	I
--		Strychnine					3.0E-04	I
--		Styrene					2.0E-01	I
--		Styrene-Acrylonitrile (SAN) Trim					3.0E-03	P

--		Sulfolane					1.0E-03	P
--		Sulfonylbis(4-chlorobenzene), 1					8.0E-04	P
--		Sulfur Trioxide						
--		Sulfuric Acid						
--		Sulfurous acid, 2-chloroethyl 2-[	2.5E-02	I	7.1E-06	I	5.0E-02	H
--		TCMTB					3.0E-02	H
--		Tebuthiuron					7.0E-02	I
--		Temephos					2.0E-02	H
--		Terbacil					1.3E-02	I
--		Terbufos					2.5E-05	H
--		Terbutryn					1.0E-03	I
--		Tetrabromodiphenyl ether, 2,2',4					1.0E-04	I
--	X	1,2,4,5-Tetrachlorobenzene					3.0E-04	I
--		Tetrachloroethane, 1,1,1,2-	2.6E-02	I	7.4E-06	I	3.0E-02	I
--		Tetrachloroethane, 1,1,2,2-	2.0E-01	I	5.8E-05	C	2.0E-02	I
--	X	Tetrachloroethene	2.1E-03	I	2.6E-07	I	6.0E-03	I
--		Tetrachlorophenol, 2,3,4,6-					3.0E-02	I
--		Tetrachlorotoluene, p- alpha, alp	2.0E+01	H				
--		Tetraethyl Dithiopyrophosphate					5.0E-04	I
--		Tetrafluoroethane, 1,1,1,2-						
--		Tetryl (Trinitrophenylmethylnitra					2.0E-03	P
--		Thallic Oxide					2.0E-05	S
--		Thallium (I) Nitrate					1.0E-05	X
--	X	Thallium					1.0E-05	X
--		Thallium Acetate					1.0E-05	X
--		Thallium Carbonate					2.0E-05	X
--		Thallium Chloride					1.0E-05	X
--		Thallium Selenite					1.0E-05	S
--		Thallium Sulfate					2.0E-05	X
--		Thifensulfuron-methyl					1.3E-02	I
--		Thiobencarb					1.0E-02	I
--		Thiodiglycol					7.0E-02	X
--		Thiofanox					3.0E-04	H
--		Thiophanate, Methyl					8.0E-02	I
--		Thiram					5.0E-03	I
--		Tin					6.0E-01	H
--		Titanium Tetrachloride						
--		Toluene					8.0E-02	I
!		4-Isopropyltoluene					8.0E-02	I
--		Toluene-2,4-diisocyante			1.1E-05	C		
--		Toluene-2,5-diamine	1.8E-01	X			2.0E-04	X
--		Toluene-2,6-diisocyante			1.1E-05	C		

--		Toluidine, o- (Methylaniline, 2-)	1.6E-02	P	5.1E-05	C		
--		Toluidine, p-	3.0E-02	P			4.0E-03	X
--		Total Petroleum Hydrocarbons (					3.0E+00	P
--		Total Petroleum Hydrocarbons (						
!	X	TPH (C10-C28)					1.0E-02	X
--		Total Petroleum Hydrocarbons (					4.0E-02	P
--		Total Petroleum Hydrocarbons (					4.0E-03	P
--		Total Petroleum Hydrocarbons (					4.0E-03	P
--		Toxaphene	1.1E+00	I	3.2E-04	I		
--		Tralomethrin					7.5E-03	I
--		Tri-n-butyltin					3.0E-04	A
--		Triacetin					8.0E+01	X
--		Triadimefon					3.0E-02	I
--		Triallate					1.3E-02	I
--		Triasulfuron					1.0E-02	I
--		Tribenuron-methyl					8.0E-03	I
--		Tribromobenzene, 1,2,4-					5.0E-03	I
--		Tributyl Phosphate	9.0E-03	P			1.0E-02	P
--		Tributyltin Compounds					3.0E-04	P
--		Tributyltin Oxide					3.0E-04	I
--		Trichloro-1,2,2-trifluoroethane, 1					3.0E+01	I
--		Trichloroacetic Acid	7.0E-02	I			2.0E-02	I
--		Trichloroaniline HCl, 2,4,6-	2.9E-02	H				
--		Trichloroaniline, 2,4,6-	7.0E-03	X			3.0E-05	X
--		Trichlorobenzene, 1,2,3-					8.0E-04	X
--		Trichlorobenzene, 1,2,4-	2.9E-02	P			1.0E-02	I
--		Trichloroethane, 1,1,1-					2.0E+00	I
--		Trichloroethane, 1,1,2-	5.7E-02	I	1.6E-05	I	4.0E-03	I
--	X	Trichloroethene	4.6E-02	I	4.1E-06	I	5.0E-04	I
--		Trichlorofluoromethane					3.0E-01	I
--		Trichlorophenol, 2,4,5-					1.0E-01	I
--		Trichlorophenol, 2,4,6-	1.1E-02	I	3.1E-06	I	1.0E-03	P
--		Trichlorophenoxyacetic Acid, 2,4					1.0E-02	I
--		Trichlorophenoxypropionic acid,					8.0E-03	I
--		Trichloropropane, 1,1,2-					5.0E-03	I
--		Trichloropropane, 1,2,3-	3.0E+01	I			4.0E-03	I
--		Trichloropropene, 1,2,3-					3.0E-03	X
--		Tricresyl Phosphate (TCP)					2.0E-02	A
--		Tridiphane					3.0E-03	I
--		Triethylamine						
--		Triethylene Glycol					2.0E+00	P
--		Trifluoroethane, 1,1,1-						

--		Trifluralin	7.7E-03	I			7.5E-03	I
--		Trimethyl Phosphate	2.0E-02	P			1.0E-02	P
--		Trimethylbenzene, 1,2,3-						
--	X	1,2,4-Trimethylbenzene						
--	X	1,3,5-Trimethylbenzene					1.0E-02	X
--		Trimethylpentene, 2,4,4-					1.0E-02	X
--		Trinitrobenzene, 1,3,5-					3.0E-02	I
--		Trinitrotoluene, 2,4,6-	3.0E-02	I			5.0E-04	I
--		Triphenylphosphine Oxide					2.0E-02	P
--		Tris(1,3-Dichloro-2-propyl) Phos					2.0E-02	A
--		Tris(1-chloro-2-propyl)phosphate					1.0E-02	X
--		Tris(2,3-dibromopropyl)phospha	2.3E+00	C	6.6E-04	C		
--		Tris(2-chloroethyl)phosphate	2.0E-02	P			7.0E-03	P
--		Tris(2-ethylhexyl)phosphate	3.2E-03	P			1.0E-01	P
--		Tungsten					8.0E-04	P
--		Uranium (Soluble Salts)					3.0E-03	I
--		Urethane	1.0E+00	C	2.9E-04	C		
--		Vanadium Pentoxide			8.3E-03	P	9.0E-03	I
--	X	Vanadium					5.0E-03	S
--		Vernolate					1.0E-03	I
--		Vinclozolin					2.5E-02	I
--		Vinyl Acetate					1.0E+00	H
--		Vinyl Bromide			3.2E-05	H		
--	X	Vinyl Chloride	7.2E-01	I	4.4E-06	I	3.0E-03	I
--		Warfarin					3.0E-04	I
--		Xylene, P-					2.0E-01	S
--		Xylene, m-					2.0E-01	S
--		Xylene, o-					2.0E-01	S
--		Xylenes					2.0E-01	I
--		Zinc Phosphide					3.0E-04	I
--	X	Zinc					3.0E-01	I
--		Zineb					5.0E-02	I
--		Zirconium					8.0E-05	X

TR=
THC

Csat (See User Guide

8	9	10	11	12	13	14		
d Chemical-specific Information								Contaminant
(mg/m³)	y	l	gen	GIABS	ABS	(mg/kg)	FA	Analyte
				1	0.1		1	Acephate
9.0E-03	I	V		1		1.1E+05	1	Acetaldehyde
				1	0.1		0.9	Acetochlor
3.1E+01	A	V		1		1.1E+05	1	Acetone
2.0E-03	X			1	0.1		1	Acetone Cyanohydrin
6.0E-02	I	V		1		1.3E+05	1	Acetonitrile
		V		1		2.5E+03	1	Acetophenone
				1	0.1		1	Acetylaminofluorene, 2-
2.0E-05	I	V		1		2.3E+04	1	Acrolein
6.0E-03	I		M	1	0.1		1	Acrylamide
1.0E-03	I	V		1		1.1E+05	1	Acrylic Acid
2.0E-03	I	V		1		1.1E+04	1	Acrylonitrile
6.0E-03	P			1	0.1		1	Adiponitrile
				1	0.1		0.9	Alachlor
				1	0.1		1	Aldicarb
				1	0.1		1	Aldicarb Sulfone
				1	0.1		1	Aldicarb sulfoxide
		V		1			1	Aldrin
1.0E-04	X	V		1		1.1E+05	1	Allyl Alcohol
1.0E-03	I	V		1		1.4E+03	1	Allyl Chloride
5.0E-03	P			1			1	Aluminum
				1			1	Aluminum Phosphide
				1	0.1		1	Ametryn
				1	0.1		1	Aminobiphenyl, 4-
				1	0.1		1	Aminophenol, m-
				1	0.1		1	Aminophenol, p-
				1	0.1		0.9	Amitraz
1.0E-01	I	V		1			1	Ammonia
				1			1	Ammonium Sulfamate
3.0E-03	X	V		1		1.4E+04	1	Amyl Alcohol, tert-
1.0E-03	I			1	0.1		1	Aniline
				1	0.1		0.9	Anthraquinone, 9,10-
				0.15			1	Antimony (metallic)
				0.15			1	Antimony Pentoxide
				0.15			1	Antimony Tetroxide
2.0E-04	I			0.15			1	Antimony Trioxide
1.5E-05	C			1	0.03		1	Arsenic, Inorganic
5.0E-05	I			1			1	Arsine

				1	0.1	1	Asulam
				1	0.1	1	Atrazine
				1	0.1	0.9	Auramine
				1	0.1	1	Avermectin B1
1.0E-02	A			1	0.1	1	Azinphos-methyl
		V		1		1	Azobenzene
7.0E-06	P			1	0.1	1	Azodicarbonamide
5.0E-04	H			0.07		1	Barium
2.0E-04	C		M	0.025		1	Barium Chromate
		V		1		0.8	Benfluralin
				1	0.1	1	Benomyl
				1	0.1	1	Bensulfuron-methyl
				1	0.1	1	Bentazon
		V		1	1.2E+03	1	Benzaldehyde
3.0E-02	I	V		1	1.8E+03	1	Benzene
				1	0.1	1	sulfate, 1,4-
		V		1	1.3E+03	1	Benzenethiol
			M	1	0.1	1	Benzidine
				1	0.1	1	Benzoic Acid
		V		1	3.2E+02	1	Benzotrichloride
				1	0.1	1	Benzyl Alcohol
1.0E-03	P	V		1	1.5E+03	1	Benzyl Chloride
2.0E-05	I			0.007		1	Beryllium and compounds
				1	0.1	0.9	Bifenox
				1	0.1	0	Biphenthrin
4.0E-04	X	V		1		1	Biphenyl, 1,1'-
		V		1	1.0E+03	1	ether
				1	0.1	1	Bis(2-chloroethoxy)methane
		V		1	5.1E+03	1	Bis(2-chloroethyl)ether
		V		1	4.2E+03	1	Bis(chloromethyl)ether
				1	0.1	1	Bisphenol A
2.0E-02	H			1		1	Boron And Borates Only
2.0E-02	P	V		1		1	Boron Trichloride
1.3E-02	C	V		1		1	Boron Trifluoride
				1		1	Bromate
		V		1	2.4E+03	1	Bromo-2-chloroethane, 1-
6.0E-02	I	V		1	6.8E+02	1	Bromobenzene
4.0E-02	X	V		1	4.0E+03	1	Bromochloromethane
		V		1	9.3E+02	1	Bromodichloromethane
		V		1	9.2E+02	1	Bromoform
5.0E-03	I	V		1	3.6E+03	1	Bromomethane
		V		1		0.8	Bromophos

				1	0.1		0.9	Bromoxynil
		V		1			0.8	Bromoxynil Octanoate
2.0E-03	I	V		1		6.7E+02	1	Butadiene, 1,3-
		V		1		7.6E+03	1	Butanol, N-
3.0E+01	P	V		1		2.1E+04	1	Butyl alcohol, sec-
		V		1			1	Butylate
				1	0.1		0.8	Butylated hydroxyanisole
				1	0.1		1	Butylated hydroxytoluene
		V		1		1.1E+02	1	Butylbenzene, n-
		V		1		1.5E+02	1	Butylbenzene, sec-
		V		1		1.8E+02	1	Butylbenzene, tert-
				1	0.1		1	Cacodylic Acid
1.0E-05	A			0.025	0.001		1	Cadmium (Diet)
1.0E-05	A			0.05	0.001		1	Cadmium (Water)
2.0E-04	C		M	0.025			1	Calcium Chromate
2.2E-03	C			1	0.1		1	Caprolactam
				1	0.1		0.9	Captafol
				1	0.1		1	Captan
				1	0.1		1	Carbaryl
				1	0.1		1	Carbofuran
7.0E-01	I	V		1		7.4E+02	1	Carbon Disulfide
1.0E-01	I	V		1		4.6E+02	1	Carbon Tetrachloride
1.0E-01	P	V		1		5.9E+03	1	Carbonyl Sulfide
				1	0.1		0.8	Carbosulfan
				1	0.1		1	Carboxin
9.0E-04	I			1			1	Ceric oxide
		V		1			1	Chloral Hydrate
				1	0.1		1	Chloramben
				1	0.1		1	Chloranil
7.0E-04	I	V		1	0.04		0.7	Chlordane
7.0E-04	I	V		1	0.04		0.7	Chlordane
7.0E-04	I	V		1	0.04		0.7	Chlordane
				1	0.1		0.8	Chlordecone (Kepone)
				1	0.1		0.9	Chlorfenvinphos
				1	0.1		1	Chlorimuron, Ethyl-
1.5E-04	A	V		1		2.8E+03	1	Chlorine
2.0E-04	I	V		1			1	Chlorine Dioxide
				1			1	Chlorite (Sodium Salt)
5.0E+01	I	V		1		1.2E+03	1	Chloro-1,1-difluoroethane, 1-
2.0E-02	I	V		1		7.9E+02	1	Chloro-1,3-butadiene, 2-
				1	0.1		1	4-
				1	0.1		1	Chloro-2-methylaniline, 4-

		V		1		1.2E+04	1	Chloroacetaldehyde, 2-
				1	0.1		1	Chloroacetic Acid
3.0E-05	I			1	0.1		1	Chloroacetophenone, 2-
				1	0.1		1	Chloroaniline, p-
5.0E-02	P	V		1		7.6E+02	1	Chlorobenzene
				1	0.1		0.8	Chlorobenzilate
				1	0.1		1	Chlorobenzoic Acid, p-
3.0E-01	P	V		1		2.9E+02	1	Chlorobenzotrifluoride, 4-
		V		1		7.3E+02	1	Chlorobutane, 1-
5.0E+01	I	V		1		1.7E+03	1	Chlorodifluoromethane
		V		1		1.1E+05	1	Chloroethanol, 2-
9.8E-02	A	V		1		2.5E+03	1	Chloroform
9.0E-02	I	V		1		1.3E+03	1	Chloromethane
		V		1		9.3E+03	1	Chloromethyl Methyl Ether
1.0E-05	X			1	0.1		1	Chloronitrobenzene, o-
2.0E-03	P			1	0.1		1	Chloronitrobenzene, p-
		V		1		2.7E+04	1	Chlorophenol, 2-
4.0E-04	C	V		1		6.2E+02	1	Chloropicrin
				1	0.1		0.9	Chlorothalonil
		V		1		9.1E+02	1	Chlorotoluene, o-
		V		1		2.5E+02	1	Chlorotoluene, p-
				1	0.1		1	Chlorozotocin
				1	0.1		0.9	Chlorpropham
				1	0.1		0.8	Chlorpyrifos
				1	0.1		0.9	Chlorpyrifos Methyl
				1	0.1		1	Chlorsulfuron
				1	0.1		0.9	Chlorthal-dimethyl
				1	0.1		0.8	Chlorthiophos
				0.013			1	Salts
1.0E-04	I		M	0.025			1	Chromium(VI)
				0.013			1	Chromium, Total
				1	0.1		0.9	Clofentezine
6.0E-06	P			1			1	Cobalt
		V	M	1			0	Coke Oven Emissions
				1			1	Copper
6.0E-01	C			1	0.1		1	Cresol, m-
6.0E-01	C			1	0.1		1	Cresol, o-
6.0E-01	C			1	0.1		1	Cresol, p-
				1	0.1		1	Cresol, p-chloro-m-
6.0E-01	C			1	0.1		0.9	Cresols
		V		1		1.7E+04	1	Crotonaldehyde, trans-
4.0E-01	I	V		1		2.7E+02	1	Cumene

				1	0.1		1	Cupferron
				1	0.1		1	Cyanazine
								Cyanides
				1			1	~Calcium Cyanide
				1			1	~Copper Cyanide
8.0E-04	S	V		1		9.5E+05	1	~Cyanide (CN-)
		V		1			1	~Cyanogen
		V		1			1	~Cyanogen Bromide
		V		1			1	~Cyanogen Chloride
8.0E-04	I	V		1		1.0E+07	1	~Hydrogen Cyanide
				1			1	~Potassium Cyanide
				0.04			1	~Potassium Silver Cyanide
				0.04			1	~Silver Cyanide
				1			1	~Sodium Cyanide
				1			0	~Thiocyanates
		V		1			1	~Thiocyanic Acid
				1			1	~Zinc Cyanide
6.0E+00	I	V		1		1.2E+02	1	Cyclohexane
6.0E+00	I	V		1		1.2E+02	1	Cyclohexane
				1	0.1		0.9	pentabromo-6-chloro-
7.0E-01	P	V		1		5.1E+03	1	Cyclohexanone
1.0E+00	X	V		1		2.8E+02	1	Cyclohexene
		V		1		2.9E+05	1	Cyclohexylamine
				1	0.1		0.7	Cyfluthrin
				1	0.1		0.5	Cyhalothrin
				1	0.1		0.7	Cypermethrin
				1	0.1		1	Cyromazine
				1	0.1		0.8	DDD
		V		1			0.8	DDE, p,p'-
				1	0.03		0.7	DDT
				1	0.1		1	Dalapon
				1	0.1		1	Daminozide
				1	0.1		0	209)
				1	0.1		0.8	Demeton
				1	0.1		0	Di(2-ethylhexyl)adipate
				1	0.1		0.9	Diallate
				1	0.1		0.9	Diazinon
		V		1			1	Dibenzothiophene
2.0E-04	I	V	M	1		9.8E+02	1	1,2-
		V		1		1.6E+02	0.9	Dibromobenzene, 1,3-
		V		1			0.9	Dibromobenzene, 1,4-
		V		1		8.0E+02	1	Dibromochloromethane

9.0E-03	I	V	1		1.3E+03	1	Dibromoethane, 1,2-
4.0E-03	X	V	1		2.8E+03	1	Bromide)
			1	0.1		0	Dibutyltin Compounds
			1	0.1		1	Dicamba
		V	1		5.5E+02	1	Dichloro-2-butene, 1,4-
		V	1		5.2E+02	1	Dichloro-2-butene, cis-1,4-
		V	1		7.6E+02	1	Dichloro-2-butene, trans-1,4-
			1	0.1		1	Dichloroacetic Acid
2.0E-01	H	V	1		3.8E+02	1	Dichlorobenzene, 1,2-
8.0E-01	I	V	1			1	Dichlorobenzene, 1,4-
			1	0.1		1	Dichlorobenzidine, 3,3'-
			1	0.1		0.9	Dichlorobenzophenone, 4,4'-
1.0E-01	X	V	1		8.5E+02	1	Dichlorodifluoromethane
		V	1		1.7E+03	1	Dichloroethane, 1,1-
7.0E-03	P	V	1		3.0E+03	1	Dichloroethane, 1,2-
2.0E-01	I	V	1		1.2E+03	1	Dichloroethylene, 1,1-
		V	1		2.4E+03	1	Dichloroethylene, 1,2-cis-
		V	1		1.9E+03	1	Dichloroethylene, 1,2-trans-
			1	0.1		1	Dichlorophenol, 2,4-
			1	0.05		1	2,4-
			1	0.1		0.9	Acid, 4-(2,4-
4.0E-03	I	V	1		1.4E+03	1	Dichloropropane, 1,2-
		V	1		1.5E+03	1	Dichloropropane, 1,3-
			1	0.1		1	Dichloropropanol, 2,3-
2.0E-02	I	V	1		1.6E+03	1	Dichloropropene, 1,3-
5.0E-04	I		1	0.1		1	Dichlorvos
			1	0.1		1	Dicrotophos
3.0E-04	X	V	1		2.6E+02	1	Dicyclopentadiene
			1	0.1		0.8	Dieldrin
5.0E-03	I		1	0.1		0	Diesel Engine Exhaust
2.0E-04	P		1	0.1		1	Diethanolamine
1.0E-04	P		1	0.1		1	Ether
3.0E-04	P		1	0.1		1	Ether
		V	1		1.1E+05	1	Diethylformamide
			1	0.1		0.9	Diethylstilbestrol
			1	0.1		1	Difenzoquat
			1	0.1		0.9	Diflubenzuron
4.0E+01	I	V	1		1.4E+03	1	Difluoroethane, 1,1-
		V	1			1	Dihydrosafrole
7.0E-01	P	V	1		2.3E+03	1	Diisopropyl Ether
		V	1		5.3E+02	1	Methylphosphonate
			1	0.1		1	Dimethipin

			1	0.1	1	Dimethoate
			1	0.1	1	Dimethoxybenzidine, 3,3'-
			1	0.1	1	Dimethyl methylphosphonate
			1	0.1	1	[p-]
			1	0.1	1	Dimethylaniline HCl, 2,4-
			1	0.1	1	Dimethylaniline, 2,4-
		V	1	8.3E+02	1	Dimethylaniline, N,N-
			1	0.1	1	Dimethylbenzidine, 3,3'-
3.0E-02	I	V	1	1.1E+05	1	Dimethylformamide
2.0E-06	X	V	1	1.7E+05	1	Dimethylhydrazine, 1,1-
		V	1	1.9E+05	1	Dimethylhydrazine, 1,2-
			1	0.1	1	Dimethylphenol, 2,4-
			1	0.1	1	Dimethylphenol, 2,6-
			1	0.1	1	Dimethylphenol, 3,4-
		V	1	4.7E+02	1	Dimethylvinylchloride
			1	0.1	1	Dinitro-o-cresol, 4,6-
			1	0.1	0.9	4,6-
			1	0.1	1	Dinitrobenzene, 1,2-
			1	0.1	1	Dinitrobenzene, 1,3-
			1	0.1	1	Dinitrobenzene, 1,4-
			1	0.1	1	Dinitrophenol, 2,4-
			1	0.1	1	2,4/2,6-
			1	0.102	1	Dinitrotoluene, 2,4-
			1	0.099	1	Dinitrotoluene, 2,6-
			1	0.006	1	Dinitrotoluene, 2-Amino-4,6-
			1	0.009	1	Dinitrotoluene, 4-Amino-2,6-
			1	0.1	0.8	grade
			1	0.1	0.9	Dinoseb
3.0E-02	I	V	1	1.2E+05	1	Dioxane, 1,4-
						Dioxins
			1	0.03	0	dioxin, Mixture
4.0E-08	C	V	1	0.03	0.5	~TCDD, 2,3,7,8-
4.0E-08	C	V	1	0.03	0.5	~TCDD, 2,3,7,8-
			1	0.1	1	Diphenamid
			1	0.1	1	Diphenyl Sulfone
			1	0.1	1	Diphenylamine
			1	0.1	1	Diphenylhydrazine, 1,2-
			1	0.1	1	Diquat
			1	0.1	1	Direct Black 38
			1	0.1	1	Direct Blue 6
			1	0.1	1	Direct Brown 95
			1	0.1	0.9	Disulfoton

		V	1			1	Dithiane, 1,4-
			1	0.1		1	Diuron
			1	0.1		1	Dodine
		V	1			1	EPTC
		V	1			0.9	Endosulfan
		V	1			0.9	Endosulfan
		V	1			0.9	Endosulfan
			1	0.1		1	Endothall
			1	0.1		0.8	Endrin
			1	0.1		0.8	Endrin
			1	0.1		0.8	Endrin
1.0E-03	I	V	1		1.1E+04	1	Epichlorohydrin
2.0E-02	I	V	1		1.5E+04	1	Epoxybutane, 1,2-
			1	0.1		1	methoxyethoxy)-
			1	0.1		1	Ethephon
			1	0.1		0.8	Ethion
6.0E-02	P	V	1		2.4E+04	1	Ethoxyethanol Acetate, 2-
2.0E-01	I	V	1		1.1E+05	1	Ethoxyethanol, 2-
7.0E-02	P	V	1		1.1E+04	1	Ethyl Acetate
8.0E-03	P	V	1		2.5E+03	1	Ethyl Acrylate
1.0E+01	I	V	1		2.1E+03	1	(Chloroethane)
		V	1		1.0E+04	1	Ethyl Ether
3.0E-01	P	V	1		1.1E+03	1	Ethyl Methacrylate
			1	0.1		0.8	Phosphonate
1.0E+00	I	V	1		4.8E+02	1	Ethylbenzene
			1	0.1		1	Ethylene Cyanohydrin
		V	1		1.9E+05	1	Ethylene Diamine
4.0E-01	C		1	0.1		1	Ethylene Glycol
1.6E+00	I		1	0.1		1	Ether
3.0E-02	C	V	1		1.2E+05	1	Ethylene Oxide
			1	0.1		1	Ethylene Thiourea
		V	1		1.5E+05	1	Ethyleneimine
			1	0.1		1	Ethylphthalyl Ethyl Glycolate
			1	0.1		0.9	Fenamiphos
			1	0.1		0.8	Fenpropathrin
			1	0.1		0.7	Fenvalerate
			1	0.1		1	Fluometuron
1.3E-02	C		1			1	Fluoride
1.3E-02	C		1			1	Fluorine (Soluble Fluoride)
			1	0.1		0.9	Fluridone
			1	0.1		0.9	Flurprimidol
			1	0.1		0.9	Flusilazole

			1	0.1		0.9	Flutolanil
			1	0.1		0.6	Fluvalinate
			1	0.1		1	Folpet
			1	0.1		1	Fomesafen
			1	0.1		0.9	Fonofos
9.8E-03	A	V	1		4.2E+04	1	Formaldehyde
3.0E-04	X	V	1		1.1E+05	1	Formic Acid
			1	0.1		1	Fosetyl-AL
							Furans
		V	1	0.03		1	~Dibenzofuran
		V	1	0.03	6.2E+03	1	~Furan
2.0E+00	I	V	1	0.03	1.7E+05	1	~Tetrahydrofuran
			1	0.1		1	Furazolidone
5.0E-02	H	V	1		1.0E+04	1	Furfural
			1	0.1		1	Furium
			1	0.1		0.9	Furmecyclox
			1	0.1		1	Glufosinate, Ammonium
8.0E-05	C		1	0.1		1	Glutaraldehyde
1.0E-03	H	V	1		1.1E+05	1	Glycidyl
			1	0.1		1	Glyphosate
		V	1			1	Guanidine
			1	0.1		1	Guanidine Chloride
			1	0.1		0.9	Haloxyfop, Methyl
		V	1			0.8	Heptachlor
		V	1			0.8	Heptachlor Epoxide
		V	1			0.7	Hexabromobenzene
			1	0.1		0	2,2',4,4',5,5'- (BDE-153)
		V	1			0.9	Hexachlorobenzene
		V	1		1.7E+01	0.9	Hexachlorobutadiene
			1	0.1		0.9	Alpha-
			1	0.1		0.9	Beta-
			1	0.04		0.9	Gamma- (Lindane)
			1	0.1		0.9	Technical
2.0E-04	I	V	1		1.6E+01	0.9	Hexachlorocyclopentadiene
3.0E-02	I	V	1			1	Hexachloroethane
			1	0.1		0	Hexachlorophene
			1	0.015		1	1,3,5-triazine (RDX)
1.0E-05	I	V	1		3.4E+03	1	Diisocyanate, 1,6-
			1	0.1		1	Hexamethylphosphoramide
7.0E-01	I	V	1		1.4E+02	1	Hexane, N-
			1	0.1		1	Hexanedioic Acid
3.0E-02	I	V	1		3.3E+03	1	Hexanone, 2-

			1	0.1		1	Hexazinone
			1	0.1		0.8	Hexythiazox
			1	0.1		1	Hydramethylnon
3.0E-05	P	V	1			1	Hydrazine
			1			1	Hydrazine Sulfate
2.0E-02	I	V	1			1	Hydrogen Chloride
1.4E-02	C	V	1			1	Hydrogen Fluoride
2.0E-03	I	V	1			1	Hydrogen Sulfide
			1	0.1		1	Hydroquinone
			1	0.1		0.9	Imazalil
			1	0.1		1	Imazaquin
			1	0.1		1	Imazethapyr
			1			1	Iodine
			1	0.1		0.9	Iprodione
			1			1	Iron
		V	1		1.0E+04	1	Isobutyl Alcohol
2.0E+00	C		1	0.1		1	Isophorone
		V	1			0.8	Isopropalin
2.0E-01	P	V	1		1.1E+05	1	Isopropanol
			1	0.1		1	Acid
			1	0.1		0.9	Isoxaben
3.0E-01	A	V	1			0	JP-7
			1	0.1		0.9	Lactofen
							Lead Compounds
2.0E-04	C	M	0.025			1	~Lead Chromate
			1			0.8	~Lead Phosphate
			1	0.1		1	~Lead acetate
			1			1	~Lead and Compounds
			1	0.1		1	~Lead subacetate
		V	1		2.4E+00	0.9	~Tetraethyl Lead
		V	1		3.8E+02	1	Lewisite
			1	0.1		0.9	Linuron
			1			1	Lithium
			1	0.1		1	MCPA
			1	0.1		0.9	MCPB
			1	0.1		1	MCPP
			1	0.1		1	Malathion
7.0E-04	C		1	0.1		1	Maleic Anhydride
			1	0.1		1	Maleic Hydrazide
			1	0.1		1	Malononitrile
			1	0.1		0.9	Mancozeb
			1	0.1		1	Maneb

5.0E-05	I			1			1	Manganese (Diet)
5.0E-05	I			0.04			1	Manganese (Non-diet)
				1	0.1		1	Mephosfolan
				1	0.1		1	Mepiquat Chloride
								Mercury Compounds
3.0E-04	S			0.07			1	other Mercury salts)
3.0E-04	I	V		1		3.1E+00	1	~Mercury (elemental)
				1			1	~Methyl Mercury
				1	0.1		1	~Phenylmercuric Acetate
		V		1			0.3	Merphos
				1	0.1		0.9	Merphos Oxide
				1	0.1		1	Metalaxyl
3.0E-02	P	V		1		4.6E+03	1	Methacrylonitrile
				1	0.1		1	Methamidophos
2.0E+01	I	V		1		1.1E+05	1	Methanol
				1	0.1		1	Methidathion
				1	0.1		1	Methomyl
				1	0.1		1	Methoxy-5-nitroaniline, 2-
				1	0.1		0.8	Methoxychlor
1.0E-03	P	V		1		1.2E+05	1	Methoxyethanol Acetate, 2-
2.0E-02	I	V		1		1.1E+05	1	Methoxyethanol, 2-
		V		1		2.9E+04	1	Methyl Acetate
2.0E-02	P	V		1		6.8E+03	1	Methyl Acrylate
5.0E+00	I	V		1		2.8E+04	1	Butanone)
2.0E-05	X	V		1		1.8E+05	1	Methyl Hydrazine
3.0E+00	I	V		1		3.4E+03	1	methyl-2-pentanone)
1.0E-03	C	V		1		1.0E+04	1	Methyl Isocyanate
7.0E-01	I	V		1		2.4E+03	1	Methyl Methacrylate
				1	0.1		1	Methyl Parathion
				1	0.1		1	Methyl Phosphonic Acid
4.0E-02	H	V		1		3.9E+02	0.8	Isomers)
				1	0.1		1	Methyl methanesulfonate
3.0E+00	I	V		1		8.9E+03	1	(MTBE)
				1	0.1		1	dihydrochloride, 2-
				1	0.1		1	Methyl-5-Nitroaniline, 2-
				1	0.1		1	nitrosoguanidine, N-
				1	0.1		1	2-
				1	0.1		1	Methylarsonic acid
				1	0.1		0	monohydrochloride, 2-
				1	0.1		0	sulfate, 2-
			M	1	0.1		0.8	Methylcholanthrene, 3-
6.0E-01	I	V	M	1		3.3E+03	1	Methylene Chloride

		M	1	0.1	0.9	chloroaniline), 4,4'-
			1	0.1	1	Aniline, 4,4'-
2.0E-02	C		1	0.1	1	4,4'-
6.0E-04	I		1	0.1	0.9	Diisocyanate
		V	1	5.0E+02	1	Methylstyrene, Alpha-
			1	0.1	1	Metolachlor
			1	0.1	1	Metribuzin
			1	0.1	1	Metsulfuron-methyl
		V	1	3.4E-01	1	Mineral oils
		V	1		0.5	Mirex
			1	0.1	1	Molinate
			1		1	Molybdenum
			1		1	Monochloramine
			1	0.1	1	Monomethylaniline
			1	0.1	1	Myclobutanil
			1	0.1	0.9	benzenediamine
		V	1		1	Naled
1.0E-01	P	V	1		0	Aromatic (HFAN)
			1	0.1	1	Naphthylamine, 2-
			1	0.1	0.9	Napropamide
1.4E-05	C		1	0.1	1	Nickel Acetate
1.4E-05	C		1	0.1	1	Nickel Carbonate
1.4E-05	C	V	1		0	Nickel Carbonyl
1.4E-05	C		0.04		1	Nickel Hydroxide
2.0E-05	C		0.04		1	Nickel Oxide
1.4E-05	C		0.04		0	Nickel Refinery Dust
9.0E-05	A		0.04		1	Nickel Soluble Salts
1.4E-05	C		0.04		1	Nickel Subsulfide
1.4E-05	C		1	0.1	0	Nickelocene
			1		1	Nitrate
			1		0	Nitrate + Nitrite (as N)
			1		1	Nitrite
5.0E-05	X		1	0.1	1	Nitroaniline, 2-
6.0E-03	P		1	0.1	1	Nitroaniline, 4-
9.0E-03	I	V	1	3.1E+03	1	Nitrobenzene
			1	0.1	1	Nitrocellulose
			1	0.1	1	Nitrofurantoin
			1	0.1	1	Nitrofurazone
			1	0.1	1	Nitroglycerin
			1	0.1	1	Nitroguanidine
5.0E-03	P	V	1	1.8E+04	1	Nitromethane
2.0E-02	I	V	1	4.9E+03	1	Nitropropane, 2-

			M	1	0.1		1	Nitroso-N-ethylurea, N-
			M	1	0.1		1	Nitroso-N-methylurea, N-
		V		1			1	Nitroso-di-N-butylamine, N-
				1	0.1		1	Nitroso-di-N-propylamine, N-
				1	0.1		1	Nitrosodiethanolamine, N-
			M	1	0.1		1	Nitrosodiethylamine, N-
4.0E-05	X	V	M	1		2.4E+05	1	Nitrosodimethylamine, N-
				1	0.1		1	Nitrosodiphenylamine, N-
		V		1		1.1E+05	1	Nitrosomethylethylamine, N-
				1	0.1		1	Nitrosomorpholine [N-]
				1	0.1		1	Nitrosopiperidine [N-]
				1	0.1		1	Nitrosopyrrolidine, N-
				1	0.1		1	Nitrotoluene, m-
		V		1		1.5E+03	1	Nitrotoluene, o-
				1	0.1		1	Nitrotoluene, p-
2.0E-02	P	V		1		6.9E+00	1	Nonane, n-
				1	0.1		1	Norflurazon
				1	0.1		0.3	Octabromodiphenyl Ether
				1	0.006		1	1,3,5,7-tetrazocine (HMX)
				1	0.1		1	de
				1	0.1		0.9	Oryzalin
				1	0.1		0.8	Oxadiazon
				1	0.1		1	Oxamyl
				1	0.1		0.8	Oxyfluorfen
				1	0.1		0.9	Paclobutrazol
				1	0.1		1	Paraquat Dichloride
				1	0.1		0.9	Parathion
		V		1			1	Pebulate
				1	0.1		0.9	Pendimethalin
		V		1		3.1E-01	0.6	Pentabromodiphenyl Ether
				1	0.1		0.6	2,2',4,4',5- (BDE-99)
		V		1			0.9	Pentachlorobenzene
		V		1		4.6E+02	1	Pentachloroethane
		V		1			0.9	Pentachloronitrobenzene
				1	0.25		0.9	Pentachlorophenol
				1	0.1		1	(PETN)
1.0E+00	P	V		1		3.9E+02	1	Pentane, n-
								Perchlorates
				1			1	~Ammonium Perchlorate
				1			1	~Lithium Perchlorate
				1			1	Salts
				1			1	~Potassium Perchlorate

		1		1	~Sodium Perchlorate
	V	1		1	Perfluorobutane Sulfonate
		1	0.1	0.6	Permethrin
		1	0.1	1	Phenacetin
		1	0.1	0.9	Phenmedipham
2.0E-01	C	1	0.1	1	Phenol
		1	0.1	1	methylcarbamate
		1	0.1	1	Phenothiazine
		1	0.1	1	Phenylenediamine, m-
		1	0.1	1	Phenylenediamine, o-
		1	0.1	1	Phenylenediamine, p-
		1	0.1	1	Phenylphenol, 2-
		1	0.1	0.9	Phorate
3.0E-04	I V	1	1.6E+03	1	Phosgene
		1	0.1	1	Phosmet
					Phosphates, Inorganic
		1		1	~Aluminum metaphosphate
		1		0	~Ammonium polyphosphate
		1		1	~Calcium pyrophosphate
		1		1	~Diammonium phosphate
		1		1	~Dicalcium phosphate
		1		1	~Dimagnesium phosphate
		1		1	~Dipotassium phosphate
		1		1	~Disodium phosphate
		1		1	~Monoaluminum phosphate
		1		1	~Monoammonium phosphate
		1		1	~Monocalcium phosphate
		1		1	phosphate
		1		1	~Monopotassium phosphate
		1		1	~Monosodium phosphate
		1		1	~Polyphosphoric acid
		1		0.9	~Potassium tripolyphosphate
		1		1	~Sodium acid pyrophosphate
		1		1	phosphate (acidic)
		1		0	phosphate (anhydrous)
		1		0.8	phosphate (tetrahydrate)
		1		0.9	hexametaphosphate
		1		1	~Sodium polyphosphate
		1		1	~Sodium trimetaphosphate
		1		1	~Sodium tripolyphosphate
		1		1	~Tetrapotassium phosphate
		1		1	~Tetrasodium pyrophosphate

			1	0.8	phate (dihydrate)
			1	1	~Tricalcium phosphate
			1	1	~Trimagnesium phosphate
			1	1	~Tripotassium phosphate
			1	1	~Trisodium phosphate
3.0E-04	I	V	1	1	Phosphine
1.0E-02	I		1	1	Phosphoric Acid
		V	1	1	Phosphorus, White
					Phthalates
			1	0.1	0.8	~Bis(2-ethylhexyl)phthalate
			1	0.1	0.9	~Butyl Benzyl Phthalate
			1	0.1	0.9	~Butylphthalyl Butylglycolate
			1	0.1	0.9	~Dibutyl Phthalate
			1	0.1	1	~Diethyl Phthalate
		V	1		1	~Dimethylterephthalate
			1	0.1	0	~Octyl Phthalate, di-N-
			1	0.1	1	~Phthalic Acid, P-
2.0E-02	C		1	0.1	1	~Phthalic Anhydride
			1	0.1	1	Picloram
			1	0.1	1	dinitrophenol)
			1	0.1	1	Trinitrophenol)
			1	0.1	0.9	Pirimiphos, Methyl
			1	0.1	0	Polybrominated Biphenyls
						(PCBs)
		V	1	0.14	0	~Aroclor 1016
		V	1	0.14	1	~Aroclor 1221
		V	1	0.14	1	~Aroclor 1232
		V	1	0.14	0.7	~Aroclor 1242
		V	1	0.14	0	~Aroclor 1248
		V	1	0.14	0.5	~Aroclor 1254
		V	1	0.14	0	~Aroclor 1260
		V	1	0.14	0.7	~Aroclor 5460
		V	1	0.14	0.5	~Aroclor 1254
1.3E-03	E	V	1	0.14	0	2,3,3',4,4',5,5'- (PCB 189)
1.3E-03	E	V	1	0.14	0	2,3',4,4',5,5'- (PCB 167)
1.3E-03	E	V	1	0.14	0	2,3,3',4,4',5'- (PCB 157)
1.3E-03	E	V	1	0.14	0	2,3,3',4,4',5- (PCB 156)
1.3E-06	E	V	1	0.14	0.1	3,3',4,4',5,5'- (PCB 169)
1.3E-03	E	V	1	0.14	0.4	2',3,4,4',5- (PCB 123)
1.3E-03	E	V	1	0.14	0.3	2,3',4,4',5- (PCB 118)
1.3E-03	E	V	1	0.14	0.5	2,3,3',4,4'- (PCB 105)
1.3E-03	E	V	1	0.14	0.4	2,3,4,4',5- (PCB 114)

4.0E-07	E	V		1	0.14	0.4	3,3',4,4',5- (PCB 126)
		V		1	0.14	0.7	(high risk)
		V		1	0.14	0.7	(high risk)
		V		1	0.14	0.7	(low risk)
		V		1	0.14	0.7	(lowest risk)
4.0E-04	E			1	0.14	0.6	3,3',4,4'- (PCB 77)
1.3E-04	E	V		1	0.14	0.7	3,4,4',5- (PCB 81)
6.0E-04	I			1	0.1	0	(PMDI)
							Hydrocarbons (PAHs)
		V		1	0.13	1	~Acenaphthene
		V		1	0.13	1	~Acenaphthene
		V		1	0.13	1	~Anthracene
		V	M	1	0.13	1	~Benz[a]anthracene
				1	0.13	0.9	~Benzo(j)fluoranthene
			M	1	0.13	1	~Benzo[a]pyrene
			M	1	0.13	1	~Benzo[a]pyrene
			M	1	0.13	1	~Benzo[b]fluoranthene
		V		1	0.13	1	~Pyrene
			M	1	0.13	0.9	~Benzo[k]fluoranthene
		V		1	0.13	1	~Chloronaphthalene, Beta-
			M	1	0.13	1	~Chrysene
			M	1	0.13	0.6	~Dibenz[a,h]anthracene
				1	0.13	0.3	~Dibenzo(a,e)pyrene
			M	1	0.13	0.9	, 7,12-
				1	0.13	1	~Fluoranthene
		V		1	0.13	1	~Fluorene
			M	1	0.13	0.6	~Indeno[1,2,3-cd]pyrene
		V		1	0.13	3.9E+02	1	~Methylnaphthalene, 1-
		V		1	0.13	1	~Methylnaphthalene, 2-
3.0E-03	I	V		1	0.13	1	~Naphthalene
				1	0.13	0.9	~Nitropyrene, 4-
		V		1	0.13	1	~Pyrene
		V		1	0.13	1	~Pyrene
				1	0.1	1	Sulfonate
				1	0.1	0.9	Prochloraz
		V		1		0.8	Profluralin
				1	0.1	1	Prometon
				1	0.1	0.9	Prometryn
				1	0.1	1	Propachlor
				1	0.1	1	Propanil
				1	0.1	0.8	Propargite
		V		1	1.1E+05	1	Propargyl Alcohol

				1	0.1		1	Propazine
				1	0.1		1	Propham
				1	0.1		0.9	Propiconazole
8.0E-03	I	V		1		3.3E+04	1	Propionaldehyde
1.0E+00	X	V		1		2.6E+02	1	Propyl benzene
3.0E+00	C	V		1		3.5E+02	1	Propylene
				1	0.1		1	Propylene Glycol
2.7E-04	A			1	0.1		1	Propylene Glycol Dinitrate
2.0E+00	I	V		1		1.1E+05	1	Monomethyl Ether
3.0E-02	I	V		1		7.8E+04	1	Propylene Oxide
				1	0.1		0.9	Propyzamide
		V		1		5.3E+05	1	Pyridine
				1	0.1		0.9	Quinalphos
				1	0.1		1	Quinoline
				1	0.1		0.9	Quizalofop-ethyl
3.0E-02	A			1			0	Refractory Ceramic Fibers
				1	0.1		0.7	Resmethrin
		V		1			0.8	Ronnel
				1	0.1		0.9	Rotenone
			M	1	0.1		1	Safrole
				1			1	Selenious Acid
2.0E-02	C			1			1	Selenium
2.0E-02	C			1			1	Selenium Sulfide
				1	0.1		0.9	Sethoxydim
3.0E-03	C			1			1	Silica (crystalline, respirable)
				0.04			1	Silver
				1	0.1		1	Simazine
				1	0.1		1	Sodium Acifluorfen
				1			1	Sodium Azide
2.0E-04	C		M	0.025			1	Sodium Dichromate
				1	0.1		1	Diethyldithiocarbamate
1.3E-02	C			1			1	Sodium Fluoride
				1	0.1		1	Sodium Fluoroacetate
				1			1	Sodium Metavanadate
				1			1	Sodium Tungstate
				1			1	Sodium Tungstate Dihydrate
				1	0.1		0.9	Stirofos (Tetrachlorovinphos)
2.0E-04	C		M	0.025			1	Strontium Chromate
				1			1	Strontium, Stable
				1	0.1		1	Strychnine
1.0E+00	I	V		1		8.7E+02	1	Styrene
				1	0.1		1	Trimer

2.0E-03	X		1	0.1		1	Sulfolane
			1	0.1		0.9	chlorobenzene), 1,1'-
1.0E-03	C	V	1			1	Sulfur Trioxide
1.0E-03	C		1			1	Sulfuric Acid
			1	0.1		0.8	methylethyl ester
			1	0.1		0.9	TCMTB
			1	0.1		1	Tebuthiuron
			1	0.1		0.7	Temephos
			1	0.1		1	Terbacil
		V	1		3.1E+01	0.9	Terbufos
			1	0.1		0.9	Terbutryn
			1	0.1		0.6	2,2',4,4'- (BDE-47)
		V	1			1	Tetrachlorobenzene, 1,2,4,5-
		V	1		6.8E+02	1	Tetrachloroethane, 1,1,1,2-
		V	1		1.9E+03	1	Tetrachloroethane, 1,1,2,2-
4.0E-02	I	V	1		1.7E+02	1	Tetrachloroethene
			1	0.1		0.9	Tetrachlorophenol, 2,3,4,6-
		V	1			0.9	alpha, alpha-
			1	0.1		0.9	Dithiopyrophosphate
8.0E+01	I	V	1		2.1E+03	1	Tetrafluoroethane, 1,1,1,2-
			1	0.00065		1	e)
			1			0.9	Thallic Oxide
			1			1	Thallium (I) Nitrate
			1			1	Thallium (Soluble Salts)
		V	1			1	Thallium Acetate
		V	1			1	Thallium Carbonate
			1			1	Thallium Chloride
			1			1	Thallium Selenite
			1			0.9	Thallium Sulfate
			1	0.1		1	Thifensulfuron-methyl
			1	0.1		0.9	Thiobencarb
			1	0.0075		1	Thiodiglycol
			1	0.1		1	Thiofanox
			1	0.1		1	Thiophanate, Methyl
			1	0.1		1	Thiram
			1			1	Tin
1.0E-04	A	V	1			1	Titanium Tetrachloride
5.0E+00	I	V	1		8.2E+02	1	Toluene
5.0E+00	I	V	1		8.2E+02	1	Toluene
8.0E-06	C	V	1			1	Toluene-2,4-diisocyante
			1	0.1		1	Toluene-2,5-diamine
8.0E-06	C	V	1		1.7E+03	1	Toluene-2,6-diisocyante

				1	0.1	1	2-)
				1	0.1	1	Toluidine, p-
		V		1	3.4E-01	1	High)
6.0E-01	P	V		1	1.4E+02	1	Low)
1.0E-01	P	V		1	6.9E+00	1	Medium)
				1	0.1	1	High)
3.0E-02	P	V		1	1.8E+03	1	Low)
3.0E-03	P	V		1		1	Medium)
				1	0.1	0.8	Toxaphene
				1	0.1	0.5	Tralomethrin
		V		1		0.9	Tri-n-butyltin
				1	0.1	1	Triacetin
				1	0.1	1	Triadimefon
		V		1		0.9	Triallate
				1	0.1	1	Triasulfuron
				1	0.1	1	Tribenuron-methyl
		V		1		0.9	Tribromobenzene, 1,2,4-
				1	0.1	0.9	Tributyl Phosphate
				1	0.1	0	Tributyltin Compounds
				1	0.1	1	Tributyltin Oxide
3.0E+01	H	V		1	9.1E+02	1	trifluoroethane, 1,1,2-
				1	0.1	1	Trichloroacetic Acid
				1	0.1	1	Trichloroaniline HCl, 2,4,6-
				1	0.1	1	Trichloroaniline, 2,4,6-
		V		1		1	Trichlorobenzene, 1,2,3-
2.0E-03	P	V		1	4.0E+02	1	Trichlorobenzene, 1,2,4-
5.0E+00	I	V		1	6.4E+02	1	Trichloroethane, 1,1,1-
2.0E-04	X	V		1	2.2E+03	1	Trichloroethane, 1,1,2-
2.0E-03	I	V	M	1	6.9E+02	1	Trichloroethene
		V		1	1.2E+03	1	Trichlorofluoromethane
				1	0.1	1	Trichlorophenol, 2,4,5-
				1	0.1	1	Trichlorophenol, 2,4,6-
				1	0.1	0.9	2,4,5-
				1	0.1	0.9	acid, -2,4,5
		V		1	1.3E+03	1	Trichloropropane, 1,1,2-
3.0E-04	I	V	M	1	1.4E+03	1	Trichloropropane, 1,2,3-
3.0E-04	P	V		1	3.1E+02	1	Trichloropropene, 1,2,3-
				1	0.1	0.8	Tricresyl Phosphate (TCP)
				1	0.1	0.8	Tridiphane
7.0E-03	I	V		1	2.8E+04	1	Triethylamine
				1	0.1	1	Triethylene Glycol
2.0E+01	P	V		1	4.8E+03	1	Trifluoroethane, 1,1,1-

		V		1			0.8	Trifluralin
				1	0.1		1	Trimethyl Phosphate
5.0E-03	P	V		1		2.9E+02	1	Trimethylbenzene, 1,2,3-
7.0E-03	P	V		1		2.2E+02	1	Trimethylbenzene, 1,2,4-
		V		1		1.8E+02	1	Trimethylbenzene, 1,3,5-
		V		1		3.0E+01	1	Trimethylpentene, 2,4,4-
				1	0.019		1	Trinitrobenzene, 1,3,5-
				1	0.032		1	Trinitrotoluene, 2,4,6-
				1	0.1		1	Triphenylphosphine Oxide
				1	0.1		0.9	Phosphate
				1	0.1		1	propyl)phosphate
		V		1		4.7E+02	1	dibromopropyl)phosphate
				1	0.1		1	Tris(2-chloroethyl)phosphate
				1	0.1		0	Tris(2-ethylhexyl)phosphate
				1			1	Tungsten
4.0E-05	A			1			1	Uranium (Soluble Salts)
			M		0.1		1	Urethane
7.0E-06	P			0.026			1	Vanadium Pentoxide
1.0E-04	A			0.026			1	Vanadium and Compounds
		V		1			1	Vernolate
				1	0.1		0.9	Vinclozolin
2.0E-01	I	V		1		2.8E+03	1	Vinyl Acetate
1.0E-03	I	V		1		2.5E+03	1	Vinyl Bromide
1.0E-01	I	V	M	1		3.9E+03	1	Vinyl Chloride
				1	0.1		1	Warfarin
1.0E-01	S	V		1		3.9E+02	1	Xylene, P-
1.0E-01	S	V		1		3.9E+02	1	Xylene, m-
1.0E-01	S	V		1		4.3E+02	1	Xylene, o-
1.0E-01	I	V		1		2.6E+02	1	Xylenes
				1			1	Zinc Phosphide
				1			1	Zinc and Compounds
				1	0.1		1	Zineb
				1			1	Zirconium

1E-06

Q=1.0

Csat (See User Guide)

aminant	Screening Levels							
CAS No.	(mg/kg)	key	(mg/kg)	key	(ug/m^3)	key	(ug/m^3)	key
30560-19-1	6.2E+01	c**	2.6E+02	c*				
75-07-0	1.1E+01	c**	4.9E+01	c**	1.3E+00	c**	5.6E+00	c**
34256-82-1	1.3E+03	n	1.6E+04	n				
67-64-1	6.1E+04	n	6.7E+05	nms	3.2E+04	n	1.4E+05	n
75-86-5	2.8E+06	nm	1.2E+07	nm	2.1E+00	n	8.8E+00	n
75-05-8	8.1E+02	n	3.4E+03	n	6.3E+01	n	2.6E+02	n
98-86-2	7.8E+03	ns	1.2E+05	nms				
53-96-3	1.4E-01	c	6.0E-01	c	2.2E-03	c	9.4E-03	c
107-02-8	1.4E-01	n	6.0E-01	n	2.1E-02	n	8.8E-02	n
79-06-1	2.4E-01	c	4.6E+00	c	1.0E-02	c	1.2E-01	c
79-10-7	9.9E+01	n	4.2E+02	n	1.0E+00	n	4.4E+00	n
107-13-1	2.5E-01	c*	1.1E+00	c*	4.1E-02	c*	1.8E-01	c*
111-69-3	8.5E+06	nm	3.6E+07	nm	6.3E+00	n	2.6E+01	n
15972-60-8	9.7E+00	c*	4.1E+01	c				
116-06-3	6.3E+01	n	8.2E+02	n				
1646-88-4	6.3E+01	n	8.2E+02	n				
1646-87-3								
309-00-2	3.9E-02	c*	1.8E-01	c	5.7E-04	c	2.5E-03	c
107-18-6	3.5E+00	n	1.5E+01	n	1.0E-01	n	4.4E-01	n
107-05-1	7.2E-01	c**	3.2E+00	c**	4.70E-01	c**	2.00E+00	c**
7429-90-5	7.7E+04	n	1.1E+06	nm	5.2E+00	n	2.2E+01	n
20859-73-8	3.1E+01	n	4.7E+02	n				
834-12-8	5.7E+02	n	7.4E+03	n				
92-67-1	2.6E-02	c	1.1E-01	c	4.7E-04	c	2.0E-03	c
591-27-5	5.1E+03	n	6.6E+04	n				
123-30-8	1.3E+03	n	1.6E+04	n				
33089-61-1	1.6E+02	n	2.1E+03	n				
7664-41-7					1.0E+02	n	4.4E+02	n
7773-06-0	1.6E+04	n	2.3E+05	nm				
75-85-4	8.2E+01	n	3.4E+02	n	3.1E+00	n	1.3E+01	n
62-53-3	9.5E+01	c**	4.0E+02	c*	1.0E+00	n	4.4E+00	n
84-65-1	1.4E+01	c**	5.7E+01	c*				
7440-36-0	3.1E+01	n	4.7E+02	n				
1314-60-9	3.9E+01	n	5.8E+02	n				
1332-81-6	3.1E+01	n	4.7E+02	n				
1309-64-4	2.8E+05	nm	1.2E+06	nm	2.1E-01	n	8.8E-01	n
7440-38-2	6.8E-01	c*R	3.0E+00	cR	6.5E-04	c*	2.9E-03	c*
7784-42-1	2.7E-01	n	4.1E+00	n	5.2E-02	n	2.2E-01	n

3337-71-1	3.2E+03	n	4.1E+04	n				
1912-24-9	2.4E+00	c	1.0E+01	c				
492-80-8	6.2E-01	c	2.6E+00	c	1.1E-02	c	4.9E-02	c
65195-55-3	2.5E+01	n	3.3E+02	n				
86-50-0	1.9E+02	n	2.5E+03	n	1.0E+01	n	4.4E+01	n
103-33-3	5.6E+00	c	2.6E+01	c	9.1E-02	c	4.0E-01	c
123-77-3	8.6E+03	n	4.0E+04	n	7.3E-03	n	3.1E-02	n
7440-39-3	1.5E+04	n	2.2E+05	nm	5.2E-01	n	2.2E+00	n
10294-40-3	3.0E-01	c	6.2E+00	c	6.8E-06	c	8.2E-05	c
1861-40-1	2.3E+04	n	3.5E+05	nm				
17804-35-2	3.2E+03	n	4.1E+04	n				
83055-99-6	1.3E+04	n	1.6E+05	nm				
25057-89-0	1.9E+03	n	2.5E+04	n				
100-52-7	1.7E+02	c*	8.2E+02	c				
71-43-2	1.2E+00	c*	5.1E+00	c*	3.6E-01	c*	1.6E+00	c*
6369-59-1	5.4E+00	c**	2.3E+01	c*				
108-98-5	7.8E+01	n	1.2E+03	n				
92-87-5	5.3E-04	c	1.0E-02	c	1.5E-05	c	1.8E-04	c
65-85-0	2.5E+05	nm	3.3E+06	nm				
98-07-7	5.3E-02	c	2.5E-01	c				
100-51-6	6.3E+03	n	8.2E+04	n				
100-44-7	1.1E+00	c*	4.8E+00	c*	5.7E-02	c*	2.5E-01	c*
7440-41-7	1.6E+02	n	2.3E+03	n	1.2E-03	c*	5.1E-03	c*
42576-02-3	5.7E+02	n	7.4E+03	n				
82657-04-3	9.5E+02	n	1.2E+04	n				
92-52-4	4.7E+01	n	2.0E+02	n	4.2E-01	n	1.8E+00	n
108-60-1	3.1E+03	ns	4.7E+04	ns				
111-91-1	1.9E+02	n	2.5E+03	n				
111-44-4	2.3E-01	c	1.0E+00	c	8.5E-03	c	3.7E-02	c
542-88-1	8.3E-05	c	3.6E-04	c	4.5E-05	c	2.0E-04	c
80-05-7	3.2E+03	n	4.1E+04	n				
7440-42-8	1.6E+04	n	2.3E+05	nm	2.1E+01	n	8.8E+01	n
10294-34-5	1.6E+05	nm	2.3E+06	nm	2.1E+01	n	8.8E+01	n
7637-07-2	3.1E+03	n	4.7E+04	n	1.4E+01	n	5.7E+01	n
15541-45-4	9.9E-01	c	4.7E+00	c				
107-04-0	2.6E-02	c	1.1E-01	c	4.7E-03	c	2.0E-02	c
108-86-1	2.9E+02	n	1.8E+03	ns	6.3E+01	n	2.6E+02	n
74-97-5	1.5E+02	n	6.3E+02	n	4.2E+01	n	1.8E+02	n
75-27-4	2.9E-01	c	1.3E+00	c	7.6E-02	c	3.3E-01	c
75-25-2	1.9E+01	c*	8.6E+01	c	2.6E+00	c	1.1E+01	c
74-83-9	6.8E+00	n	3.0E+01	n	5.2E+00	n	2.2E+01	n
2104-96-3	3.9E+02	n	5.8E+03	n				

1689-84-5	1.3E+03	n	1.6E+04	n				
1689-99-2	1.6E+03	n	2.3E+04	n				
106-99-0	5.8E-02	c*	2.6E-01	c*	9.4E-02	c*	4.1E-01	c*
71-36-3	7.8E+03	ns	1.2E+05	nms				
78-92-2	1.3E+05	nms	1.5E+06	nms	3.1E+04	n	1.3E+05	n
2008-41-5	3.9E+03	n	5.8E+04	n				
25013-16-5	2.7E+03	c	1.1E+04	c	4.9E+01	c	2.2E+02	c
128-37-0	1.5E+02	c	6.4E+02	c				
104-51-8	3.9E+03	ns	5.8E+04	ns				
135-98-8	7.8E+03	ns	1.2E+05	nms				
98-06-6	7.8E+03	ns	1.2E+05	nms				
75-60-5	1.3E+03	n	1.6E+04	n				
7440-43-9	7.1E+01	n	9.8E+02	n				
7440-43-9					1.6E-03	c**	6.8E-03	c**
13765-19-0	3.0E-01	c	6.2E+00	c	6.8E-06	c	8.2E-05	c
105-60-2	3.1E+04	n	4.0E+05	nm	2.3E+00	n	9.6E+00	n
2425-06-1	3.6E+00	c*	1.5E+01	c	6.5E-02	c	2.9E-01	c
133-06-2	2.4E+02	c*	1.0E+03	c	4.3E+00	c	1.9E+01	c
63-25-2	6.3E+03	n	8.2E+04	n				
1563-66-2	3.2E+02	n	4.1E+03	n				
75-15-0	7.7E+02	ns	3.5E+03	ns	7.3E+02	n	3.1E+03	n
56-23-5	6.5E-01	c	2.9E+00	c	4.7E-01	c	2.0E+00	c
463-58-1	6.7E+01	n	2.8E+02	n	1.0E+02	n	4.4E+02	n
55285-14-8	6.3E+02	n	8.2E+03	n				
5234-68-4	6.3E+03	n	8.2E+04	n				
1306-38-3	1.3E+06	nm	5.4E+06	nm	9.4E-01	n	3.9E+00	n
302-17-0	7.8E+03	n	1.2E+05	nm				
133-90-4	9.5E+02	n	1.2E+04	n				
118-75-2	1.3E+00	c	5.7E+00	c				
12789-03-6	1.7E+00	c*	7.7E+00	c*	2.8E-02	c*	1.2E-01	c*
5103-71-9	1.7E+00	c*	7.7E+00	c*	2.8E-02	c*	1.2E-01	c*
5566-34-7	1.7E+00	c*	7.7E+00	c*	2.8E-02	c*	1.2E-01	c*
143-50-0	5.4E-02	c	2.3E-01	c	6.1E-04	c	2.7E-03	c
470-90-6	4.4E+01	n	5.7E+02	n				
90982-32-4	1.3E+03	n	1.6E+04	n				
7782-50-5	1.8E-01	n	7.8E-01	n	1.5E-01	n	6.4E-01	n
10049-04-4	2.3E+03	n	3.4E+04	n	2.1E-01	n	8.8E-01	n
7758-19-2	2.3E+03	n	3.5E+04	n				
75-68-3	5.4E+04	ns	2.3E+05	nms	5.2E+04	n	2.2E+05	n
126-99-8	1.0E-02	c	4.4E-02	c	9.4E-03	c	4.1E-02	c
3165-93-3	1.2E+00	c	5.0E+00	c				
95-69-2	5.4E+00	c*	2.3E+01	c	3.6E-02	c	1.6E-01	c

107-20-0	2.6E+00	c	1.2E+01	c				
79-11-8								
532-27-4	4.3E+04	n	1.8E+05	nm	3.1E-02	n	1.3E-01	n
106-47-8	2.7E+00	c*	1.1E+01	c				
108-90-7	2.8E+02	n	1.3E+03	ns	5.2E+01	n	2.2E+02	n
510-15-6	4.9E+00	c	2.1E+01	c	9.1E-02	c	4.0E-01	c
74-11-3	1.9E+03	n	2.5E+04	n				
98-56-6	2.1E+02	n	2.5E+03	ns	3.1E+02	n	1.3E+03	n
109-69-3	3.1E+03	ns	4.7E+04	ns				
75-45-6	4.9E+04	ns	2.1E+05	nms	5.2E+04	n	2.2E+05	n
107-07-3	1.6E+03	n	2.3E+04	n				
67-66-3	3.2E-01	c	1.4E+00	c	1.2E-01	c	5.3E-01	c
74-87-3	1.1E+02	n	4.6E+02	n	9.4E+01	n	3.9E+02	n
107-30-2	2.0E-02	c	8.9E-02	c	4.1E-03	c	1.8E-02	c
88-73-3	1.8E+00	c	7.7E+00	c	1.0E-02	n	4.4E-02	n
100-00-5	9.0E+00	c**	3.8E+01	c*	2.1E+00	n	8.8E+00	n
95-57-8	3.9E+02	n	5.8E+03	n				
76-06-2	2.0E+00	n	8.2E+00	n	4.2E-01	n	1.8E+00	n
1897-45-6	1.8E+02	c**	7.4E+02	c*	3.2E+00	c	1.4E+01	c
95-49-8	1.6E+03	ns	2.3E+04	ns				
106-43-4	1.6E+03	ns	2.3E+04	ns				
54749-90-5	2.3E-03	c	9.6E-03	c	4.1E-05	c	1.8E-04	c
101-21-3	1.3E+04	n	1.6E+05	nm				
2921-88-2	6.3E+01	n	8.2E+02	n				
5598-13-0	6.3E+02	n	8.2E+03	n				
64902-72-3	3.2E+03	n	4.1E+04	n				
1861-32-1	6.3E+02	n	8.2E+03	n				
60238-56-4	5.1E+01	n	6.6E+02	n				
16065-83-1	1.2E+05	nm	1.8E+06	nm				
18540-29-9	3.0E-01	c	6.3E+00	c	1.2E-05	c	1.5E-04	c
7440-47-3								
74115-24-5	8.2E+02	n	1.1E+04	n				
7440-48-4	2.3E+01	n	3.5E+02	n	3.1E-04	c*	1.4E-03	c*
8007-45-2					1.6E-03	c	2.0E-02	c
7440-50-8	3.1E+03	n	4.7E+04	n				
108-39-4	3.2E+03	n	4.1E+04	n	6.3E+02	n	2.6E+03	n
95-48-7	3.2E+03	n	4.1E+04	n	6.3E+02	n	2.6E+03	n
106-44-5	6.3E+03	n	8.2E+04	n	6.3E+02	n	2.6E+03	n
59-50-7	6.3E+03	n	8.2E+04	n				
1319-77-3	6.3E+03	n	8.2E+04	n	6.3E+02	n	2.6E+03	n
123-73-9	3.7E-01	c	1.7E+00	c				
98-82-8	1.9E+03	ns	9.9E+03	ns	4.2E+02	n	1.8E+03	n

135-20-6	2.5E+00	c	1.0E+01	c	4.5E-02	c	1.9E-01	c
21725-46-2	6.5E-01	c	2.7E+00	c				
592-01-8	7.8E+01	n	1.2E+03	n				
544-92-3	3.9E+02	n	5.8E+03	n				
57-12-5	2.3E+01	n	1.5E+02	n	8.3E-01	n	3.5E+00	n
460-19-5	7.8E+01	n	1.2E+03	n				
506-68-3	7.0E+03	n	1.1E+05	nm				
506-77-4	3.9E+03	n	5.8E+04	n				
74-90-8	2.3E+01	n	1.5E+02	n	8.3E-01	n	3.5E+00	n
151-50-8	1.6E+02	n	2.3E+03	n				
506-61-6	3.9E+02	n	5.8E+03	n				
506-64-9	7.8E+03	n	1.2E+05	nm				
143-33-9	7.8E+01	n	1.2E+03	n				
NA	1.6E+01	n	2.3E+02	n				
463-56-9	1.6E+01	n	2.3E+02	n				
557-21-1	3.9E+03	n	5.8E+04	n				
110-82-7	6.5E+03	ns	2.7E+04	ns	6.3E+03	n	2.6E+04	n
108-87-2	6.5E+03	ns	2.7E+04	ns	6.3E+03	n	2.6E+04	n
87-84-3	2.4E+01	c	1.0E+02	c				
108-94-1	2.8E+04	ns	1.3E+05	nms	7.3E+02	n	3.1E+03	n
110-83-8	3.1E+02	ns	3.1E+03	ns	1.0E+03	n	4.4E+03	n
108-91-8	1.6E+04	n	2.3E+05	nm				
68359-37-5	1.6E+03	n	2.1E+04	n				
68085-85-8	6.2E+02	n	1.1E+03	n				
52315-07-8	6.3E+02	n	8.2E+03	n				
66215-27-8	4.7E+02	n	6.2E+03	n				
72-54-8	2.3E+00	c	9.6E+00	c	4.1E-02	c	1.8E-01	c
72-55-9	2.0E+00	c	9.3E+00	c	2.9E-02	c	1.3E-01	c
50-29-[illegible]	1.9E+00	c*	8.5E+00	c*	2.9E-02	c	1.3E-01	c
75-99-[illegible]	1.0E+03	n	2.5E+04	n				
1596-84-5	3.0E+01	c	1.3E+02	c	5.5E-01	c	2.4E+00	c
1163-19-5	4.4E+02	n	3.3E+03	c**				
8065-48-3	2.5E+00	n	3.3E+01	n				
103-23-1	4.5E+02	c*	1.9E+03	c				
2303-16-4	8.9E+00	c	3.8E+01	c				
333-41-5	4.4E+01	n	5.7E+02	n				
132-65-0	7.8E+02	n	1.2E+04	n				
96-12-8	5.3E-03	c	6.4E-02	c	1.7E-04	c	2.0E-03	c
108-36-1	3.1E+01	n	4.7E+02	ns				
106-37-6	7.8E+02	n	1.2E+04	n				
124-48-1	8.3E+00	c	3.9E+01	c				

CR=1E-06
THQ=1.0

106-93-4	3.6E-02	c	1.6E-01	c	4.7E-03	c	2.0E-02	c
74-95-3	2.4E+01	n	9.9E+01	n	4.2E+00	n	1.8E+01	n
NA	1.9E+01	n	2.5E+02	n				
1918-00-9	1.9E+03	n	2.5E+04	n				
764-41-0	2.1E-03	c	9.4E-03	c	6.7E-04	c	2.9E-03	c
1476-11-5	7.4E-03	c	3.2E-02	c	6.7E-04	c	2.9E-03	c
110-57-6	7.4E-03	c	3.2E-02	c	6.7E-04	c	2.9E-03	c
79-43-6	1.1E+01	c*	4.6E+01	c*				
95-50-1	1.8E+03	ns	9.3E+03	ns	2.1E+02	n	8.8E+02	n
106-46-7	2.6E+00	c	1.1E+01	c	2.6E-01	c	1.1E+00	c
91-94-1	1.2E+00	c	5.1E+00	c	8.3E-03	c	3.6E-02	c
90-98-2	5.7E+02	n	7.4E+03	n				
75-71-8	8.7E+01	n	3.7E+02	n	1.0E+02	n	4.4E+02	n
75-34-3	3.6E+00	c	1.6E+01	c	1.8E+00	c	7.7E+00	c
107-06-2	4.6E-01	c*	2.0E+00	c*	1.1E-01	c*	4.7E-01	c*
75-35-4	2.3E+02	n	1.0E+03	n	2.1E+02	n	8.8E+02	n
156-59-2	1.6E+02	n	2.3E+03	n				
156-60-5	1.6E+03	n	2.3E+04	ns				
120-83-2	1.9E+02	n	2.5E+03	n				
94-75-7	7.0E+02	n	9.6E+03	n				
94-82-6	5.1E+02	n	6.6E+03	n				
78-87-5	1.0E+00	c*	4.4E+00	c*	2.8E-01	c*	1.2E+00	c*
142-28-9	1.6E+03	ns	2.3E+04	ns				
616-23-9	1.9E+02	n	2.5E+03	n				
542-75-6	1.8E+00	c*	8.2E+00	c*	7.0E-01	c*	3.1E+00	c*
62-73-7	1.9E+00	c*	7.9E+00	c*	3.4E-02	c*	1.5E-01	c*
141-66-2	6.3E+00	n	8.2E+01	n				
77-73-6	1.3E+00	n	5.4E+00	n	3.1E-01	n	1.3E+00	n
60-57-1	3.4E-02	c*	1.4E-01	c	6.1E-04	c	2.7E-03	c
NA					9.4E-03	c	4.1E-02	c
111-42-2	1.3E+02	n	1.6E+03	n	2.1E-01	n	8.8E-01	n
112-34-5	1.9E+03	n	2.4E+04	n	1.0E-01	n	4.4E-01	n
111-90-0	3.8E+03	n	4.8E+04	n	3.1E-01	n	1.3E+00	n
617-84-5	7.8E+01	n	1.2E+03	n				
56-53-1	1.6E-03	c	6.6E-03	c	2.8E-05	c	1.2E-04	c
43222-48-6	5.1E+03	n	6.6E+04	n				
35367-38-5	1.3E+03	n	1.6E+04	n				
75-37-6	4.8E+04	ns	2.0E+05	nms	4.2E+04	n	1.8E+05	n
94-58-6	9.9E+00	c	4.5E+01	c	2.2E-01	c	9.4E-01	c
108-20-3	2.2E+03	n	9.4E+03	ns	7.3E+02	n	3.1E+03	n
1445-75-6	6.3E+03	ns	9.3E+04	ns				
55290-64-7	1.3E+03	n	1.6E+04	n				

60-51-5	1.3E+01	n	1.6E+02	n				
119-90-4	3.4E-01	c	1.4E+00	c				
756-79-6	3.2E+02	c*	1.4E+03	c*				
60-11-7	1.2E-01	c	5.0E-01	c	2.2E-03	c	9.4E-03	c
21436-96-4	9.4E-01	c	4.0E+00	c				
95-68-1	2.7E+00	c*	1.1E+01	c				
121-69-7	1.6E+02	n	2.3E+03	ns				
119-93-7	4.9E-02	c	2.1E-01	c				
68-12-2	2.6E+03	n	1.5E+04	n	3.1E+01	n	1.3E+02	n
57-14-7	5.7E-02	n	2.4E-01	n	2.1E-03	n	8.8E-03	n
540-73-8	8.8E-04	c	4.1E-03	c	1.8E-05	c	7.7E-05	c
105-67-9	1.3E+03	n	1.6E+04	n				
576-26-1	3.8E+01	n	4.9E+02	n				
95-65-8	6.3E+01	n	8.2E+02	n				
513-37-1	1.1E+00	c	4.8E+00	c	2.2E-01	c	9.4E-01	c
53[illegible]-5[illegible]-1	5.1E+0[illegible]	n	6.6E+01	n				
13[illegible]-89-5	1.3E+0[illegible]	n	1.6E+03	n				
52[illegible]-29-0	6.3E+00	n	8.2E+01	n				
99-65-0	6.3E+00	n	8.2E+01	n				
100-25-4	6.3E+00	n	8.2E+01	n				
51[illegible]28-5	1.[illegible]E+02	n	1.[illegible]E+03	n				
NA	8.0E-01	c	3.[illegible]E+00	c				
12[illegible]-14-2	1.[illegible]E+00	c*	7.[illegible]E+00	c	3.2E-02	c	1.4E-01	c
606-20-2	3.6E-01	c*	1.5E+00	c				
35572-78-2	1.5E+02	n	2.3E+03	n				
19406-51-0	1.5E+02	n	2.3E+03	n				
25321-14-6	1.2E+00	c*	5.1E+00	c				
88-85-7	6.3E+01	n	8.2E+02	n				
123-91-1	5.3E+00	c	2.4E+01	c	5.6E-01	c*	2.5E+00	c*
NA	1.0E-04	c	4.7E-04	c	2.2E-06	c	9.4E-06	c
1746-01-6	4.8E-06	c*	2.2E-05	c*	7.4E-08	c	3.2E-07	c
1746-01-6	4.8E-06	c*	2.2E-05	c*	7.4E-08	c	3.2E-07	c
957-51-7	1.9E+03	n	2.5E+04	n				
127-63-9	5.1E+01	n	6.6E+02	n				
122-39-4	1.6E+03	n	2.1E+04	n				
122-66-7	6.8E-01	c	2.9E+00	c	1.3E-02	c	5.6E-02	c
85-00-7	1.4E+02	n	1.8E+03	n				
1937-37-7	7.6E-02	c	3.2E-01	c	2.0E-05	c	8.8E-05	c
2602-46-2	7.3E-02	c	3.1E-01	c	2.0E-05	c	8.8E-05	c
16071-86-6	8.1E-02	c	3.4E-01	c	2.0E-05	c	8.8E-05	c
298-04-4	2.5E+00	n	3.3E+01	n				

R=1E-06

HQ=1.0

505-29-3	7.8E+02	n	1.2E+04	n				
330-54-1	1.3E+02	n	1.6E+03	n				
2439-10-3	2.5E+02	n	3.3E+03	n				
759-94-4	2.0E+03	n	2.9E+04	n				
115-29-7	4.7E+02	n	7.0E+03	n				
959-98-8	4.7E+02	n	7.0E+03	n				
33213-65-9	4.7E+02	n	7.0E+03	n				
145-73-3	1.3E+03	n	1.6E+04	n				
72-20-8	1.9E+01	n	2.5E+02	n				
7421-93-4	1.9E+01	n	2.5E+02	n				
53494-70-5	1.9E+01	n	2.5E+02	n				
106-89-8	1.9E+01	n	8.2E+01	n	1.0E+00	n	4.4E+00	n
106-88-7	1.6E+02	n	6.7E+02	n	2.1E+01	n	8.8E+01	n
111-77-3	2.5E+03	n	3.3E+04	n				
16672-87-0	3.2E+02	n	4.1E+03	n				
563-12-2	3.2E+01	n	4.1E+02	n				
111-15-9	2.6E+03	n	1.4E+04	n	6.3E+01	n	2.6E+02	n
110-80-5	5.2E+03	n	4.7E+04	n	2.1E+02	n	8.8E+02	n
141-78-6	6.2E+02	n	2.6E+03	n	7.3E+01	n	3.1E+02	n
140-88-5	4.7E+01	n	2.1E+02	n	8.3E+00	n	3.5E+01	n
75-00-3	1.4E+04	ns	5.7E+04	ns	1.0E+04	n	4.4E+04	n
60-29-7	1.6E+04	ns	2.3E+05	nms				
97-63-2	1.8E+03	ns	7.6E+03	ns	3.1E+02	n	1.3E+03	n
2104-64-5	6.3E-01	n	8.2E+00	n				
100-41-4	5.8E+00	c	2.5E+01	c	1.1E+00	c	4.9E+00	c
109-78-4	4.4E+03	n	5.7E+04	n				
107-15-3	7.0E+03	n	1.1E+05	nm				
107-21-1	1.3E+05	nm	1.6E+06	nm	4.2E+02	n	1.8E+03	n
111-76-2	6.3E+03	n	8.2E+04	n	1.7E+03	n	7.0E+03	n
75-21-8	1.8E-01	c	7.9E-01	c	3.2E-02	c	1.4E-01	c
96-45-7	5.1E+00	n	5.1E+01	c**	2.2E-01	c	9.4E-01	c
151-56-4	2.7E-03	c	1.2E-02	c	1.5E-04	c	6.5E-04	c
84-72-0	1.9E+05	nm	2.5E+06	nm				
22224-92-6	1.6E+01	n	2.1E+02	n				
39515-41-8	1.6E+03	n	2.1E+04	n				
51630-58-1	1.6E+03	n	2.1E+04	n				
2164-17-2	8.2E+02	n	1.1E+04	n				
16984-48-8	3.1E+03	n	4.7E+04	n	1.4E+01	n	5.7E+01	n
7782-41-4	4.7E+03	n	7.0E+04	n	1.4E+01	n	5.7E+01	n
59756-60-4	5.1E+03	n	6.6E+04	n				
56425-91-3	1.3E+03	n	1.6E+04	n				
85509-19-9	4.4E+01	n	5.7E+02	n				

66332-96-5	3.8E+03	n	4.9E+04	n				
69409-94-5	6.3E+02	n	8.2E+03	n				
133-07-3	1.6E+02	c*	6.6E+02	c				
72178-02-0	2.9E+00	c	1.2E+01	c				
944-22-9	1.3E+02	n	1.6E+03	n				
50-00-0	1.7E+01	c*	7.3E+01	c*	2.2E-01	c*	9.4E-01	c*
64-18-6	2.9E+01	n	1.2E+02	n	3.1E-01	n	1.3E+00	n
39148-24-8	1.9E+05	nm	2.5E+06	nm				
132-64-9	7.3E+01	n	1.0E+03	n				
110-00-9	7.3E+01	n	1.0E+03	n				
[illegible]-99-[illegible]	1.8E+04	n	9.4E+04	n	2.1E+03	n	8.8E+03	n
[illegible]7-45-8	1.4E-01	c	6.0E-01	c				
[illegible]8-01-1	2.1E+02	n	2.6E+03	n	2.2E+01	n	2.2E+02	n
531-82-8	3.6E-01	c	1.5E+00	c	6.5E-03	c	2.9E-02	c
60568-05-0	1.8E+01	c	7.7E+01	c	3.3E-01	c	1.4E+00	c
77182-82-2	2.5E+01	n	3.3E+02	n				
[illegible]11-30-[illegible]	1.1E+05	nm	4.8E+05	nm	3.3E-02	n	3.5E-01	n
[illegible]65-34-[illegible]	2.3E+01	n	2.1E+02	n	1.0E+00	n	4.4E+00	n
1071-83-6	6.3E+03	n	8.2E+04	n				
113-00-8	7.8E+02	n	1.2E+04	n				
50-01-1	1.3E+03	n	1.6E+04	n				
69806-40-2	3.2E+00	n	4.1E+01	n				
76-44-8	1.3E-01	c	6.3E-01	c	2.2E-03	c	9.4E-03	c
1024-57-3	7.0E-02	c*	3.3E-01	c*	1.1E-03	c	4.7E-03	c
87-82-1	1.6E+02	n	2.3E+03	n				
68631-49-2	1.3E+01	n	1.6E+02	n				
118-74-1	2.1E-01	c	9.6E-01	c	6.1E-03	c	2.7E-02	c
87-68-3	1.2E+00	c*	5.3E+00	c	1.3E-01	c	5.6E-01	c
319-84-6	8.6E-02	c	3.6E-01	c	1.6E-03	c	6.8E-03	c
319-85-7	3.0E-01	c	1.3E+00	c	5.3E-03	c	2.3E-02	c
58-89-9	5.7E-01	c*	2.5E+00	c	9.1E-03	c	4.0E-02	c
608-73-1	3.0E-01	c	1.3E+00	c	5.5E-03	c	2.4E-02	c
77-47-4	1.8E+00	n	7.5E+00	n	2.1E-01	n	8.8E-01	n
67-72-1	1.8E+00	c*	8.0E+00	c*	2.6E-01	c	1.1E+00	c
70-30-4	1.9E+01	n	2.5E+02	n				
121-82-4	6.1E+00	c*	2.8E+01	c				
822-06-0	3.1E+00	n	1.3E+01	n	1.0E-02	n	4.4E-02	n
680-31-9	2.5E+01	n	3.3E+02	n				
110-54-3	6.1E+02	ns	2.5E+03	ns	7.3E+02	n	3.1E+03	n
124-04-9	1.3E+05	nm	1.6E+06	nm				
591-78-6	2.0E+02	n	1.3E+03	n	3.1E+01	n	1.3E+02	n

TR = 1 E-06

THQ = 1.0

51235-04-2	2.1E+03	n	2.7E+04	n				
78587-05-0	1.6E+03	n	2.1E+04	n				
67485-29-4	1.9E+01	n	2.5E+02	n				
302-01-2	2.3E-01	c	1.1E+00	c	5.7E-04	c*	2.5E-03	c*
10034-93-2	2.3E-01	c	1.1E+00	c	5.7E-04	c	2.5E-03	c
7647-01-0	2.8E+07	nm	1.2E+08	nm	2.1E+01	n	8.8E+01	n
7664-39-3	3.1E+03	n	4.7E+04	n	1.5E+01	n	6.1E+01	n
7783-06-4	2.8E+06	nm	1.2E+07	nm	2.1E+00	n	8.8E+00	n
123-31-9	9.0E+00	c	3.8E+01	c				
35554-44-0	8.2E+02	n	1.1E+04	n				
81335-37-7	1.6E+04	n	2.1E+05	nm				
81335-77-5	1.6E+04	n	2.1E+05	nm				
7553-56-2	7.8E+02	n	1.2E+04	n				
36734-19-7	2.5E+03	n	3.3E+04	n				
7439-89-6	5.5E+04	n	8.2E+05	nm				
78-83-1	2.3E+04	ns	3.5E+05	nms				
78-59-1	5.7E+02	c*	2.4E+03	c*	2.1E+03	n	8.8E+03	n
33820-53-0	1.2E+03	n	1.8E+04	n				
67-63-0	5.6E+03	n	2.4E+04	n	2.1E+02	n	8.8E+02	n
1832-54-8	6.3E+03	n	8.2E+04	n				
82558-50-7	3.2E+03	n	4.1E+04	n				
NA	4.3E+08	nm	1.8E+09	nm	3.1E+02	n	1.3E+03	n
77501-63-4	1.3E+02	n	1.6E+03	n				
7758-97-6	3.0E-01	c	6.2E+00	c	6.8E-06	c	8.2E-05	c
7446-27-7	8.2E+01	c	3.8E+02	c	2.3E-01	c	1.0E+00	c
301-04-2	6.4E+01	c	2.7E+02	c	2.3E-01	c	1.0E+00	c
7439-92-1	4.0E+02	L	8.0E+02	L	1.5E-01	L		
1335-32-6	6.4E+01	c	2.7E+02	c	2.3E-01	c	1.0E+00	c
78-00-2	7.8E-03	n	1.2E-01	n				
541-25-3	3.9E-01	n	5.8E+00	n				
330-55-2	1.3E+02	n	1.6E+03	n				
7439-93-2	1.6E+02	n	2.3E+03	n				
94-74-6	3.2E+01	n	4.1E+02	n				
94-81-5	6.3E+02	n	8.2E+03	n				
93-65-2	6.3E+01	n	8.2E+02	n				
121-75-5	1.3E+03	n	1.6E+04	n				
108-31-6	6.3E+03	n	8.0E+04	n	7.3E-01	n	3.1E+00	n
123-33-1	3.2E+04	n	4.1E+05	nm				
109-77-3	6.3E+00	n	8.2E+01	n				
8018-01-7	1.9E+03	n	2.5E+04	n				
12427-38-2	3.2E+02	n	4.1E+03	n				

TR = 1E-06

HQ = 1.0

7439-96-5								
7439-96-5	1.8E+03	n	2.6E+04	n	5.2E-02	n	2.2E-01	n
950-10-7	5.7E+00	n	7.4E+01	n				
24307-26-4	1.9E+03	n	2.5E+04	n				
7487-94-7	2.8E+01	n	3.5E+02	n	1.1E-01	n	1.3E+00	n
7439-97-6	1.1E+01	ns	4.6E+01	ns	3.1E-01	n	1.3E+00	n
22967-92-6	7.8E+00	n	1.2E+02	n				
62-38-4	5.1E+00	n	6.6E+01	n				
150-50-5	2.3E+00	n	3.5E+01	n				
78-48-8	1.9E+00	n	2.5E+01	n				
57837-19-1	3.8E+03	n	4.9E+04	n				
126-98-7	7.5E+00	n	1.0E+02	n	3.1E+01	n	1.3E+02	n
10265-92-6	3.2E+00	n	4.1E+01	n				
67-56-1	1.2E+05	nms	1.2E+06	nms	2.1E+04	n	8.8E+04	n
950-37-8	6.3E+01	n	8.2E+02	n				
16752-77-5	1.6E+03	n	2.1E+04	n				
99-59-2	1.1E+01	c	4.7E+01	c	2.0E-01	c	8.8E-01	c
72-43-5	3.2E+02	n	4.1E+03	n				
110-49-6	1.1E+02	n	5.1E+02	n	1.0E+00	n	4.4E+00	n
109-86-4	3.3E+02	n	3.5E+03	n	2.1E+01	n	8.8E+01	n
79-20-9	7.8E+04	ns	1.2E+06	nms				
96-33-3	1.5E+02	n	6.1E+02	n	2.1E+01	n	8.8E+01	n
78-93-3	2.7E+04	n	1.9E+05	nms	5.2E+03	n	2.2E+04	n
60-34-4	1.4E-01	c**	6.2E-01	c**	2.8E-03	c**	1.2E-02	c**
108-10-1	3.3E+04	ns	1.4E+05	nms	3.1E+03	n	1.3E+04	n
624-83-9	4.6E+00	n	1.9E+01	n	1.0E+00	n	4.4E+00	n
80-62-6	4.4E+03	ns	1.9E+04	ns	7.3E+02	n	3.1E+03	n
298-00-0	1.6E+01	n	2.1E+02	n				
993-13-5	3.8E+03	n	4.9E+04	n				
25013-15-4	3.2E+02	n	2.6E+03	ns	4.2E+01	n	1.8E+02	n
66-27-3	5.5E+00	c	2.3E+01	c	1.0E-01	c	4.4E-01	c
1634-04-4	4.7E+01	c	2.1E+02	c	1.1E+01	c	4.7E+01	c
615-45-2	1.9E+01	n	2.5E+02	n				
99-55-8	6.0E+01	c*	2.6E+02	c*				
70-25-7	6.5E-02	c	2.8E-01	c	1.2E-03	c	5.1E-03	c
636-21-5	4.2E+00	c	1.8E+01	c	7.6E-02	c	3.3E-01	c
124-58-3	6.3E+02	n	8.2E+03	n				
74612-12-7	1.3E+01	n	1.6E+02	n				
615-50-9	5.4E+00	c**	2.3E+01	c*				
56-49-5	5.5E-03	c	1.0E-01	c	1.6E-04	c	1.9E-03	c
75-09-2	5.7E+01	c**	1.0E+03	c**	1.0E+02	c**	1.2E+03	c**

101-14-4	1.2E+00	c	2.3E+01	c*	2.4E-03	c	2.9E-02	c
101-61-1	1.2E+01	c	5.0E+01	c	2.2E-01	c	9.4E-01	c
101-77-9	3.4E-01	c	1.4E+00	c	6.1E-03	c	2.7E-02	c
101-68-8	8.5E+05	nm	3.6E+06	nm	6.3E-01	n	2.6E+00	n
98-83-9	5.5E+03	ns	8.2E+04	ns				
51218-45-2	9.5E+03	n	1.2E+05	nm				
21087-64-9	1.6E+03	n	2.1E+04	n				
74223-64-6	1.6E+04	n	2.1E+05	nm				
8012-95-1	2.3E+05	nms	3.5E+06	nms				
2385-85-5	3.6E-02	c	1.7E-01	c	5.5E-04	c	2.4E-03	c
2212-67-1	1.3E+02	n	1.6E+03	n				
7439-98-7	3.9E+02	n	5.8E+03	n				
10599-90-3	7.8E+03	n	1.2E+05	nm				
100-61-8	1.3E+02	n	1.6E+03	n				
88671-89-0	1.6E+03	n	2.1E+04	n				
74-31-7	1.9E+01	n	2.5E+02	n				
300-76-5	1.6E+02	n	2.3E+03	n				
64742-95-6	2.3E+03	n	3.5E+04	n	1.0E+02	n	4.4E+02	n
91-59-8	3.0E-01	c	1.3E+00	c				
15299-99-7	6.3E+03	n	8.2E+04	n				
373-02-4	6.7E+02	n	8.1E+03	n	1.1E-02	c**	4.7E-02	c**
3333-67-3	6.7E+02	n	8.1E+03	n	1.1E-02	c**	4.7E-02	c**
13463-39-3	8.2E+02	n	1.1E+04	n	1.1E-02	c**	4.7E-02	c**
12054-48-7	8.2E+02	n	1.1E+04	n	1.1E-02	c**	4.7E-02	c**
1313-99-1	8.4E+02	n	1.2E+04	n	1.1E-02	c**	4.7E-02	c**
NA	8.2E+02	n	1.1E+04	n	1.2E-02	c**	5.1E-02	c**
7440-02-0	1.5E+03	n	2.2E+04	n	1.1E-02	c**	4.7E-02	c**
12035-72-2	4.1E-01	c	1.9E+00	c	5.8E-03	c**	2.6E-02	c**
1271-28-9	6.7E+02	n	8.1E+03	n	1.1E-02	c**	4.7E-02	c**
14797-55-8	1.3E+05	nm	1.9E+06	nm				
NA								
14797-65-0	7.8E+03	n	1.2E+05	nm				
88-74-4	6.3E+02	n	8.0E+03	n	5.2E-02	n	2.2E-01	n
100-01-6	2.7E+01	c**	1.1E+02	c*	6.3E+00	n	2.6E+01	n
98-95-3	5.1E+00	c*	2.2E+01	c*	7.0E-02	c	3.1E-01	c
9004-70-0	1.9E+08	nm	2.5E+09	nm				
67-20-9	4.4E+03	n	5.7E+04	n				
59-87-0	4.2E-01	c	1.8E+00	c	7.6E-03	c	3.3E-02	c
55-63-0	6.3E+00	n	8.2E+01	n				
56-88-7	6.3E+03	n	8.2E+04	n				
7[illegible]-52-5	5.4E+00	c*	2.[illegible]E+01	c*	3.2E-01	c*	1.4E+00	c*
79-46-9	1.4E-02	c	6.0E-02	c	1.0E-03	c	4.5E-03	c

TR = 1 E-06

759-73-9	4.5E-03	c	8.5E-02	c	1.3E-04	c	1.6E-03	c
684-93-5	1.0E-03	c	1.9E-02	c	3.0E-05	c	3.6E-04	c
924-16-3	9.9E-02	c	4.6E-01	c	1.8E-03	c	7.7E-03	c
621-64-7	7.8E-02	c	3.3E-01	c	1.4E-03	c	6.1E-03	c
1116-54-7	1.9E-01	c	8.2E-01	c	3.5E-03	c	1.5E-02	c
55-18-5	8.1E-04	c	1.5E-02	c	2.4E-05	c	2.9E-04	c
62-75-9	2.0E-03	c	3.4E-02	c	7.2E-05	c	8.8E-04	c
86-30-6	1.1E+02	c	4.7E+02	c	1.1E+00	c	4.7E+00	c
10595-95-6	2.0E-02	c	9.1E-02	c	4.5E-04	c	1.9E-03	c
59-89-2	8.1E-02	c	3.4E-01	c	1.5E-03	c	6.5E-03	c
100-75-4	5.8E-02	c	2.4E-01	c	1.0E-03	c	4.5E-03	c
930-55-2	2.6E-01	c	1.1E+00	c	4.6E-03	c	2.0E-02	c
99-08-1	6.3E+00	n	8.2E+01	n				
88-72-2	3.2E+00	c*	1.5E+01	c*				
99-99-0	3.4E+01	c**	1.4E+02	c*				
111-84-2	1.1E+01	ns	7.2E+01	ns	2.1E+01	n	8.8E+01	n
27314-13-2	2.5E+03	n	3.3E+04	n				
32536-52-0	1.9E+02	n	2.5E+03	n				
2691-41-0	3.9E+03	n	5.7E+04	n				
152-16-9	1.3E+02	n	1.6E+03	n				
19044-88-3	3.2E+03	n	4.1E+04	n				
19666-30-9	3.2E+02	n	4.1E+03	n				
23135-22-0	1.6E+03	n	2.1E+04	n				
42874-03-3	1.9E+02	n	2.5E+03	n				
76738-62-0	8.2E+02	n	1.1E+04	n				
1910-42-5	2.8E+02	n	3.7E+03	n				
56-38-2	3.8E+02	n	4.9E+03	n				
1114-71-2	3.9E+03	n	5.8E+04	n				
40487-42-1	2.5E+03	n	3.3E+04	n				
32534-81-9	1.6E+02	ns	2.3E+03	ns				
60348-60-9	6.3E+00	n	8.2E+01	n				
608-93-5	6.3E+01	n	9.3E+02	n				
76-01-7	7.7E+00	c	3.6E+01	c				
82-68-8	2.7E+00	c*	1.3E+01	c				
87-86-5	1.0E+00	c	4.0E+00	c	5.5E-01	c	2.4E+00	c
78-11-5	1.3E+02	n	5.7E+02	c**				
109-66-0	8.1E+02	ns	3.4E+03	ns	1.0E+03	n	4.4E+03	n
7790-98-9	5.5E+01	n	8.2E+02	n				
7791-03-9	5.5E+01	n	8.2E+02	n				
14797-73-0	5.5E+01	n	8.2E+02	n				
7778-74-7	5.5E+01	n	8.2E+02	n				

THQ=1.0

7601-89-0	5.5E+01	n	8.2E+02	n				
375-73-5	1.6E+03	n	2.3E+04	n				
52645-53-1	3.2E+03	n	4.1E+04	n				
62-44-2	2.5E+02	c	1.0E+03	c	4.5E+00	c	1.9E+01	c
13684-63-4	1.6E+04	n	2.1E+05	nm				
108-95-2	1.9E+04	n	2.5E+05	nm	2.1E+02	n	8.8E+02	n
114-26-1	2.5E+02	n	3.3E+03	n				
92-84-2	3.2E+01	n	4.1E+02	n				
108-45-2	3.8E+02	n	4.9E+03	n				
95-54-5	1.2E+01	c	4.9E+01	c				
106-50-3	1.2E+04	n	1.6E+05	nm				
90-43-7	2.8E+02	c	1.2E+03	c				
298-02-2	1.3E+01	n	1.6E+02	n				
75-44-5	3.1E-01	n	1.3E+00	n	3.1E-01	n	1.3E+00	n
732-11-6	1.3E+03	n	1.6E+04	n				
13776-88-0	3.8E+06	nm	5.7E+07	nm				
68333-79-9	3.8E+06	nm	5.7E+07	nm				
7790-76-3	3.8E+06	nm	5.7E+07	nm				
7783-28-0	3.8E+06	nm	5.7E+07	nm				
7757-93-9	3.8E+06	nm	5.7E+07	nm				
7782-75-4	3.8E+06	nm	5.7E+07	nm				
7758-11-4	3.8E+06	nm	5.7E+07	nm				
7558-79-4	3.8E+06	nm	5.7E+07	nm				
13530-50-2	3.8E+06	nm	5.7E+07	nm				
7722-76-1	3.8E+06	nm	5.7E+07	nm				
7758-23-8	3.8E+06	nm	5.7E+07	nm				
7757-86-0	3.8E+06	nm	5.7E+07	nm				
7778-77-0	3.8E+06	nm	5.7E+07	nm				
7558-80-7	3.8E+06	nm	5.7E+07	nm				
8017-16-1	3.8E+06	nm	5.7E+07	nm				
13845-36-8	3.8E+06	nm	5.7E+07	nm				
7758-16-9	3.8E+06	nm	5.7E+07	nm				
7785-88-8	3.8E+06	nm	5.7E+07	nm				
10279-59-1	3.8E+06	nm	5.7E+07	nm				
18905-76-7	3.8E+06	nm	5.7E+07	nm				
10124-56-8	3.8E+06	nm	5.7E+07	nm				
68515-31-1	3.8E+06	nm	5.7E+07	nm				
7785-84-4	3.8E+06	nm	5.7E+07	nm				
7758-29-4	3.8E+06	nm	5.7E+07	nm				
7320-34-5	3.8E+06	nm	5.7E+07	nm				
7722-88-5	3.8E+06	nm	5.7E+07	nm				

TR=1E-06

THQ=1.0

15136-87-5	3.8E+06	nm	5.7E+07	nm				
7758-87-4	3.8E+06	nm	5.7E+07	nm				
7757-87-1	3.8E+06	nm	5.7E+07	nm				
7778-53-2	3.8E+06	nm	5.7E+07	nm				
7601-54-9	3.8E+06	nm	5.7E+07	nm				
7803-51-2	2.3E+01	n	3.5E+02	n	3.1E-01	n	1.3E+00	n
7664-38-2	3.0E+06	nm	2.9E+07	nm	1.0E+01	n	4.4E+01	n
7723-14-0	1.6E+00	n	2.3E+01	n				
117-81-7	3.9E+01	c*	1.6E+02	c	1.2E+00	c	5.1E+00	c
85-68-7	2.9E+02	c*	1.2E+03	c				
85-70-1	6.3E+04	n	8.2E+05	nm				
84-74-2	6.3E+03	n	8.2E+04	n				
84-66-2	5.1E+04	n	6.6E+05	nm				
120-61-6	7.8E+03	n	1.2E+05	nm				
117-84-0	6.3E+02	n	8.2E+03	n				
100-21-0	6.3E+04	n	8.2E+05	nm				
85-44-9	1.3E+05	nm	1.6E+06	nm	2.1E+01	n	8.8E+01	n
1918-02-1	4.4E+03	n	5.7E+04	n				
96-91-3	6.3E+00	n	8.2E+01	n				
88-89-1	5.7E+01	n	7.4E+02	n				
29232-93-7	6.3E+02	n	8.2E+03	n				
59536-65-1	1.8E-02	c*	7.7E-02	c*	3.3E-04	c	1.4E-03	c
12674-11-2	4.1E+00	n	2.7E+01	c**	1.4E-01	c	6.1E-01	c
11104-28-2	2.0E-01	c	8.3E-01	c	4.9E-03	c	2.1E-02	c
11141-16-5	1.7E-01	c	7.2E-01	c	4.9E-03	c	2.1E-02	c
53469-21-9	2.3E-01	c	9.5E-01	c	4.9E-03	c	2.1E-02	c
12672-29-6	2.3E-01	c	9.5E-01	c	4.9E-03	c	2.1E-02	c
11097-69-1	2.4E-01	c**	9.7E-01	c*	4.9E-03	c	2.1E-02	c
11096-82-5	2.4E-01	c	9.9E-01	c	4.9E-03	c	2.1E-02	c
11126-42-4	3.5E+01	n	4.4E+02	n				
11097-69-1	2.4E-01	c**	9.7E-01	c*	4.9E-03	c	2.1E-02	c
39635-31-9	1.3E-01	c*	5.2E-01	c*	2.5E-03	c	1.1E-02	c
52663-72-6	1.2E-01	c*	5.1E-01	c*	2.5E-03	c	1.1E-02	c
69782-90-7	1.2E-01	c*	5.0E-01	c*	2.5E-03	c	1.1E-02	c
38380-08-4	1.2E-01	c*	5.0E-01	c*	2.5E-03	c	1.1E-02	c
32774-16-6	1.2E-04	c*	5.1E-04	c*	2.5E-06	c	1.1E-05	c
65510-44-3	1.2E-01	c*	4.9E-01	c*	2.5E-03	c	1.1E-02	c
31508-00-6	1.2E-01	c*	4.9E-01	c*	2.5E-03	c	1.1E-02	c
32598-14-4	1.2E-01	c*	4.9E-01	c*	2.5E-03	c	1.1E-02	c
74472-37-0	1.2E-01	c*	5.0E-01	c*	2.5E-03	c	1.1E-02	c

57465-28-8	3.6E-05	c*	1.5E-04	c*	7.4E-07	c	3.2E-06	c
1336-36-3	2.3E-01	c	9.4E-01	c	4.9E-03	c	2.1E-02	c
1336-36-3	2.3E-01	c	9.4E-01	c	4.9E-03	c	2.1E-02	c
1336-36-3					2.8E-02	c	1.2E-01	c
1336-36-3					1.4E-01	c	6.1E-01	c
32598-13-3	3.8E-02	c*	1.6E-01	c*	7.4E-04	c	3.2E-03	c
70362-50-4	1.2E-02	c*	4.8E-02	c*	2.5E-04	c	1.1E-03	c
9016-87-9	8.5E+05	nm	3.6E+06	nm	6.3E-01	n	2.6E+00	n
83-32-9	3.6E+03	n	4.5E+04	n				
83-32-9	3.6E+03	n	4.5E+04	n				
120-12-7	1.8E+04	n	2.3E+05	nm				
56-55-3	1.6E-01	c	2.9E+00	c	9.2E-03	c	1.1E-01	c
205-82-3	4.2E-01	c	1.8E+00	c	2.6E-02	c	1.1E-01	c
50-32-8	1.6E-02	c	2.9E-01	c	9.2E-04	c	1.1E-02	c
50-32-8	1.6E-02	c	2.9E-01	c	9.2E-04	c	1.1E-02	c
205-99-2	1.6E-01	c	2.9E+00	c	9.2E-03	c	1.1E-01	c
129-00-0	1.8E+03	n	2.3E+04	n				
207-08-9	1.6E+00	c	2.9E+01	c	9.2E-03	c	1.1E-01	c
91-58-7	4.8E+03	n	6.0E+04	n				
218-01-9	1.6E+01	c	2.9E+02	c	9.2E-02	c	1.1E+00	c
53-70-3	1.6E-02	c	2.9E-01	c	8.4E-04	c	1.0E-02	c
192-65-4	4.2E-02	c	1.8E-01	c	2.6E-03	c	1.1E-02	c
57-97-6	4.6E-04	c	8.4E-03	c	1.4E-05	c	1.7E-04	c
206-44-0	2.4E+03	n	3.0E+04	n				
86-73-7	2.4E+03	n	3.0E+04	n				
193-39-5	1.6E-01	c	2.9E+00	c	9.2E-03	c	1.1E-01	c
90-12-0	1.8E+01	c	7.[illegible]E+01	c				
91-57-6	2.4E+02	n	3.[illegible]E+03	n				
91-20-3	3.8E+00	c	1.[illegible]E+01	c*	8.3E-02	c*	3.6E-01	c*
57835-92-4	4.2E-01	c	1.8E+00	c	2.6E-02	c	1.1E-01	c
129-00-0	1.8E+03	n	2.3E+04	n				
129-00-0	1.8E+03	n	2.3E+04	n				
29420-49-3	1.3E+03	n	1.6E+04	n				
67747-09-5	3.6E+00	c	1.5E+01	c				
26399-36-0	4.7E+02	n	7.0E+03	n				
1610-18-0	9.5E+02	n	1.2E+04	n				
7287-19-6	2.5E+02	n	3.3E+03	n				
1918-16-7	8.2E+02	n	1.1E+04	n				
709-98-8	3.2E+02	n	4.1E+03	n				
2312-35-8	1.3E+03	n	1.6E+04	n				
107-19-7	1.6E+02	n	2.3E+03	n				

TR=1E-06
THQ=1.0

139-40-2	1.3E+03	n	1.6E+04	n				
122-42-9	1.3E+03	n	1.6E+04	n				
60207-90-1	8.2E+02	n	1.1E+04	n				
123-38-6	7.5E+01	n	3.1E+02	n	8.3E+00	n	3.5E+01	n
103-65-1	3.8E+03	ns	2.4E+04	ns	1.0E+03	n	4.4E+03	n
115-07-1	2.2E+03	ns	9.3E+03	ns	3.1E+03	n	1.3E+04	n
57-55-6	1.3E+06	nm	1.6E+07	nm				
6423-43-4	3.9E+05	nm	1.6E+06	nm	2.8E-01	n	1.2E+00	n
107-98-2	4.1E+04	n	3.7E+05	nms	2.1E+03	n	8.8E+03	n
75-56-9	2.1E+00	c	9.7E+00	c	7.6E-01	c*	3.3E+00	c*
23950-58-5	4.7E+03	n	6.2E+04	n				
110-86-1	7.8E+01	n	1.2E+03	n				
13593-03-8	3.2E+01	n	4.1E+02	n				
91-22-5	1.8E-01	c	7.7E-01	c				
76578-14-8	5.7E+02	n	7.4E+03	n				
NA	4.3E+07	nm	1.8E+08	nm	3.1E+01	n	1.3E+02	n
10453-86-8	1.9E+03	n	2.5E+04	n				
299-84-3	3.9E+03	n	5.8E+04	n				
83-79-4	2.5E+02	n	3.3E+03	n				
94-59-7	5.5E-01	c	1.0E+01	c	1.6E-02	c	1.9E-01	c
7783-00-8	3.9E+02	n	5.8E+03	n				
7782-49-2	3.9E+02	n	5.8E+03	n	2.1E+01	n	8.8E+01	n
7446-34-6	3.9E+02	n	5.8E+03	n	2.1E+01	n	8.8E+01	n
74051-80-2	5.7E+03	n	7.4E+04	n				
7631-86-9	4.3E+06	nm	1.8E+07	nm	3.1E+00	n	1.3E+01	n
7440-22-4	3.9E+02	n	5.8E+03	n				
122-34-9	4.5E+00	c*	1.9E+01	c				
62476-59-9	8.2E+02	n	1.1E+04	n				
26628-22-8	3.1E+02	n	4.7E+03	n				
10588-01-9	3.0E-01	c	6.2E+00	c	6.8E-06	c	8.2E-05	c
148-18-5	2.0E+00	c	8.5E+00	c				
7681-49-4	3.9E+03	n	5.8E+04	n	1.4E+01	n	5.7E+01	n
62-74-8	1.3E+00	n	1.6E+01	n				
13718-26-8	7.8E+01	n	1.2E+03	n				
13472-45-2	6.3E+01	n	9.3E+02	n				
10213-10-2	6.3E+01	n	9.3E+02	n				
961-11-5	2.3E+01	c*	9.6E+01	c				
7789-06-2	3.0E-01	c	6.2E+00	c	6.8E-06	c	8.2E-05	c
7440-24-6	4.7E+04	n	7.0E+05	nm				
57-24-9	1.9E+01	n	2.5E+02	n				
100-42-5	6.0E+03	ns	3.5E+04	ns	1.0E+03	n	4.4E+03	n
NA	1.9E+02	n	2.5E+03	n				

126-33-0	6.3E+01	n	8.2E+02	n	2.1E+00	n	8.8E+00	n
80-07-9	5.1E+01	n	6.6E+02	n				
7446-11-9	1.4E+06	nm	6.0E+06	nm	1.0E+00	n	4.4E+00	n
7664-93-9	1.4E+06	nm	6.0E+06	nm	1.0E+00	n	4.4E+00	n
140-57-8	2.2E+01	c	9.2E+01	c	4.0E-01	c	1.7E+00	c
21564-17-0	1.9E+03	n	2.5E+04	n				
34014-18-1	4.4E+03	n	5.7E+04	n				
3383-96-8	1.3E+03	n	1.6E+04	n				
5902-51-2	8.2E+02	n	1.1E+04	n				
13071-79-9	2.0E+00	n	2.9E+01	n				
886-50-0	6.3E+01	n	8.2E+02	n				
5436-43-1	6.3E+00	n	8.2E+01	n				
95-94-3	2.3E+01	n	3.5E+02	n				
630-20-6	2.0E+00	c	8.8E+00	c	3.8E-01	c	1.7E+00	c
79-34-5	6.0E-01	c	2.7E+00	c	4.8E-02	c	2.1E-01	c
127-18-4	2.4E+01	c**	1.0E+02	c**	1.1E+01	c**	4.7E+01	c**
58-90-2	1.9E+03	n	2.5E+04	n				
5216-25-1	3.5E-02	c	1.6E-01	c				
3689-24-5	3.2E+01	n	4.1E+02	n				
811-97-2	1.0E+05	nms	4.3E+05	nms	8.3E+04	n	3.5E+05	n
470-45-8	1.6E+02	n	2.3E+03	n				
134-32-5	1.6E+00	n	2.3E+01	n				
10102-45-[illegible]	7.8E-01	n	1.2E+01	n				
7440-28-0	7.8E-01	n	1.2E+01	n				
563-68-8	7.8E-01	n	1.2E+01	n				
6533-73-9	1.6E+00	n	2.3E+01	n				
7791-12-0	7.8E-01	n	1.2E+01	n				
12039-52-[illegible]	7.8E-01	n	1.2E+01	n				
7446-18-6	1.6E+00	n	2.3E+01	n				
79277-27-3	8.2E+02	n	1.1E+04	n				
28249-77-6	6.3E+02	n	8.2E+03	n				
111-48-8	5.4E+03	n	7.9E+04	n				
39196-18-4	1.9E+01	n	2.5E+02	n				
23564-05-8	5.1E+03	n	6.6E+04	n				
137-26-8	3.2E+02	n	4.1E+03	n				
7440-31-5	4.7E+04	n	7.0E+05	nm				
7550-45-0	1.4E+05	nm	6.0E+05	nm	1.0E-01	n	4.4E-01	n
108-88-3	4.9E+03	ns	4.7E+04	ns	5.2E+03	n	2.2E+04	n
108-88-3	4.9E+03	ns	4.7E+04	ns	5.2E+03	n	2.2E+04	n
584-84-9	6.4E+00	n	2.7E+01	n	8.3E-03	n	3.5E-02	n
95-70-5	3.0E+00	c**	1.3E+01	c*				
91-08-7	5.3E+00	n	2.2E+01	n	8.3E-03	n	3.5E-02	n

TR=1E-06

THQ=1.0

95-53-4	3.4E+01	c	1.4E+02	c	5.5E-02	c	2.4E-01	c
106-49-0	1.8E+01	c*	7.7E+01	c*				
NA	2.3E+05	nms	3.5E+06	nms				
NA	5.2E+02	ns	2.2E+03	ns	6.3E+02	n	2.6E+03	n
NA	9.6E+01	ns	4.4E+02	ns	1.0E+02	n	4.4E+02	n
NA	2.5E+03	n	3.3E+04	n				
NA	8.2E+01	n	4.2E+02	n	3.1E+01	n	1.3E+02	n
NA	1.1E+02	n	6.0E+02	n	3.1E+00	n	1.3E+01	n
8001-35-2	4.9E-01	c	2.1E+00	c	8.8E-03	c	3.8E-02	c
66841-25-6	4.7E+02	n	6.2E+03	n				
688-73-3	2.3E+01	n	3.5E+02	n				
102-76-1	5.1E+06	nm	6.6E+07	nm				
43121-43-3	1.9E+03	n	2.5E+04	n				
2303-17-5	1.0E+03	n	1.5E+04	n				
82097-50-5	6.3E+02	n	8.2E+03	n				
101200-48-0	5.1E+02	n	6.6E+03	n				
615-54-3	3.9E+02	n	5.8E+03	n				
126-73-8	6.0E+01	c*	2.6E+02	c*				
NA	1.9E+01	n	2.5E+02	n				
56-35-9	1.9E+01	n	2.5E+02	n				
76-13-1	4.0E+04	ns	1.7E+05	nms	3.1E+04	n	1.3E+05	n
76-03-9	7.8E+00	c	3.3E+01	c				
33663-50-2	1.9E+01	c	7.9E+01	c				
634-93-5	1.9E+00	n	2.5E+01	n				
87-61-6	6.3E+01	n	9.3E+02	n				
120-82-1	2.4E+01	c**	1.1E+02	c**	2.1E+00	n	8.8E+00	n
71-55-6	8.1E+03	ns	3.6E+04	ns	5.2E+03	n	2.2E+04	n
79-00-5	1.1E+00	c**	5.0E+00	c**	1.8E-01	c**	7.7E-01	c**
79-01-6	9.4E-01	c**	6.0E+00	c**	4.8E-01	c**	3.0E+00	c**
75-69-4	2.3E+04	ns	3.5E+05	nms				
95-95-4	6.3E+03	n	8.2E+04	n				
88-06-2	4.9E+01	c**	2.1E+02	c**	9.1E-01	c	4.0E+00	c
93-76-5	6.3E+02	n	8.2E+03	n				
93-72-1	5.1E+02	n	6.6E+03	n				
598-77-6	3.9E+02	n	5.8E+03	ns				
96-18-4	5.1E-03	c	1.1E-01	c	3.1E-01	n	1.3E+00	n
96-19-5	7.3E-01	n	3.1E+00	n	3.1E-01	n	1.3E+00	n
1330-78-5	1.3E+03	n	1.6E+04	n				
58138-08-2	1.9E+02	n	2.5E+03	n				
121-44-8	1.2E+02	n	4.8E+02	n	7.3E+00	n	3.1E+01	n
112-27-6	1.3E+05	nm	1.6E+06	nm				
420-46-2	1.5E+04	ns	6.2E+04	ns	2.1E+04	n	8.8E+04	n

1582-09-8	9.0E+01	c**	4.2E+02	c*				
512-56-1	2.7E+01	c*	1.1E+02	c*				
526-73-8	4.9E+01	n	2.1E+02	n	5.2E+00	n	2.2E+01	n
95-63-6	5.8E+01	n	2.4E+02	ns	7.3E+00	n	3.1E+01	n
108-67-8	7.8E+02	ns	1.2E+04	ns				
25167-70-8	7.8E+02	ns	1.2E+04	ns				
99-35-4	2.2E+03	n	3.2E+04	n				
118-96-7	2.1E+01	c**	9.6E+01	c**				
791-28-6	1.3E+03	n	1.6E+04	n				
13674-87-8	1.3E+03	n	1.6E+04	n				
13674-84-5	6.3E+02	n	8.2E+03	n				
126-72-7	2.8E-01	c	1.3E+00	c	4.3E-03	c	1.9E-02	c
115-96-8	2.7E+01	c*	1.1E+02	c*				
78-42-2	1.7E+02	c*	7.2E+02	c				
7440-33-7	6.3E+01	n	9.3E+02	n				
NA	2.3E+02	n	3.5E+03	n	4.2E-02	n	1.8E-01	n
51-79-6	1.2E-01	c	2.3E+00	c	3.5E-03	c	4.2E-02	c
1314-62-1	4.6E+02	c**	2.0E+03	c**	3.4E-04	c*	1.5E-03	c*
7440-62-2	3.9E+02	n	5.8E+03	n	1.0E-01	n	4.4E-01	n
1929-77-7	7.8E+01	n	1.2E+03	n				
50471-44-8	1.6E+03	n	2.1E+04	n				
108-05-4	9.1E+02	n	3.8E+03	ns	2.1E+02	n	8.8E+02	n
593-60-2	1.2E-01	c*	5.2E-01	c*	8.8E-02	c*	3.8E-01	c*
75-01-4	5.9E-02	c	1.7E+00	c	1.7E-01	c	2.8E+00	c
81-81-2	1.9E+01	n	2.5E+02	n				
106-42-3	5.6E+02	ns	2.4E+03	ns	1.0E+02	n	4.4E+02	n
103-	5.5E+02	ns	2.4E+03	ns	1.0E+02	n	4.4E+02	n
95-47-6	6.5E+02	ns	2.8E+03	ns	1.0E+02	n	4.4E+02	n
1330-20-7	5.8E+02	ns	2.5E+03	ns	1.0E+02	n	4.4E+02	n
1314-84-7	2.3E+01	n	3.5E+02	n				
7440-66-6	2.3E+04	n	3.5E+05	nm				
12122-67-7	3.2E+03	n	4.1E+04	n				
7440-67-7	6.3E+00	n	9.3E+01	n				

			Protection of Ground Water SSLs		
(ug/L)	key	(ug/L)	(mg/kg)	key	(mg/kg)
8.9E+00	c**		2.0E-03	c**	
2.6E+00	c**		5.2E-04	c**	
3.5E+02	n		2.8E-01	n	
1.4E+04	n		2.9E+00	n	
1.3E+02	n		2.6E-02	n	
1.9E+03	n		5.8E-01	n	
1.6E-02	c		7.2E-05	c	
4.2E-02	n		8.4E-06	n	
5.0E-02	c		1.1E-05	c	
2.1E+00	n		4.2E-04	n	
5.2E-02	c*		1.1E-05	c*	
1.1E+00	c	2.0E+00	8.7E-04	c	1.6E-03
2.0E+01	n	3.0E+00	4.9E-03	n	7.5E-04
2.0E+01	n	2.0E+00	4.4E-03	n	4.4E-04
		4.0E+00			8.8E-04
9.2E-04	c		1.5E-04	c	
2.1E-01	n		4.2E-05	n	
7.3E-01	c**		2.3E-04	c**	
2.0E+04	n		3.0E+04	n	
8.0E+00	n			n	
1.5E+02	n		1.6E-01	n	
3.0E-03	c		1.5E-05	c	
1.6E+03	n		6.1E-01	n	
4.0E+02	n		1.5E-01	n	
8.2E+00	n		4.2E+00	n	
4.0E+03	n			n	
6.3E+00	n		1.3E-03	n	
1.3E+01	c*		4.6E-03	c*	
1.4E+00	c*		1.4E-02	c*	
7.8E+00	n	6.0E+00	3.5E-01	n	2.7E-01
9.7E+00	n			n	
7.8E+00	n			n	
5.2E-02	c	1.0E+01	1.5E-03	c	2.9E-01
7.0E-02	n			n	

1.0E+03	n		2.6E-01	n	
3.0E-01	c	3.0E+00	2.0E-04	c	1.9E-03
6.7E-02	c		6.1E-04	c	
8.0E+00	n		1.4E+01	n	
5.6E+01	n		1.7E-02	n	
1.2E-01	c		9.3E-04	c	
2.0E+04	n		6.8E+00	n	
3.8E+03	n	2.0E+03	1.6E+02	n	8.2E+01
4.1E-02	c			c	
1.7E+03	n		5.6E+01	n	
9.7E+02	n		8.5E-01	n	
3.9E+03	n		1.0E+00	n	
5.7E+02	n		1.2E-01	n	
1.9E+01	c		4.1E-03	c	
4.6E-01	c*	5.0E+00	2.3E-04	c*	2.6E-03
7.8E-01	c**		2.2E-04	c**	
1.7E+01	n		1.1E-02	n	
1.1E-04	c		2.8E-07	c	
7.5E+04	n		1.5E+01	n	
3.0E-03	c		6.6E-06	c	
2.0E+03	n		4.8E-01	n	
8.9E-02	c*		9.8E-05	c*	
2.5E+01	n	4.0E+00	1.9E+01	n	3.2E+00
1.0E+02	n		7.6E-01	n	
3.0E+02	n		1.4E+03	n	
8.3E-01	n		8.7E-03	n	
7.1E+02	n		2.6E-01	n	
5.9E+01	n		1.3E-02	n	
1.4E-02	c		3.6E-06	c	
7.2E-05	c		1.7E-08	c	
7.7E+02	n		5.8E+01	n	
4.0E+03	n		1.3E+01	n	
4.2E+01	n			n	
2.6E+01	n			n	
1.1E-01	c	1.0E+01	8.5E-04	c	7.7E-02
7.4E-03	c		2.1E-06	c	
6.2E+01	n		4.2E-02	n	
8.3E+01	n		2.1E-02	n	
1.3E-01	c	8.0E+01(F)	3.6E-05	c	2.2E-02
3.3E+00	c	8.0E+01(F)	8.7E-04	c	2.1E-02
7.5E+00	n		1.9E-03	n	
3.5E+01	n		1.5E-01	n	

3.3E+02	n		2.8E-01	n	
1.4E+02	n		1.2E+00	n	
1.8E-02	c		9.9E-06	c	
2.0E+03	n		4.1E-01	n	
2.4E+04	n		5.0E+00	n	
4.6E+02	n		4.5E-01	n	
1.5E+02	c		2.9E-01	c	
3.4E+00	c		1.0E-01	c	
1.0E+03	n		3.2E+00	n	
2.0E+03	n		5.9E+00	n	
6.9E+02	n		1.6E+00	n	
4.0E+02	n		1.1E-01	n	
9.2E+00	n	5.0E+00	6.9E-01	n	3.8E-01
4.1E-02	c			c	
9.9E+03	n		2.5E+00	n	
4.0E-01	c*		7.1E-04	c*	
3.1E+01	c*		2.2E-02	c*	
1.8E+03	n		1.7E+00	n	
9.4E+01	n	4.0E+01	3.7E-02	n	1.6E-02
8.1E+02	n		2.4E-01	n	
4.6E-01	c	5.0E+00	1.8E-04	c	1.9E-03
2.1E+02	n		5.1E-01	n	
5.1E+01	n		1.2E+00	n	
1.9E+03	n		1.0E+00	n	
2.0E+03	n		4.0E-01	n	
2.9E+02	n		7.0E-02	n	
1.8E-01	c		1.5E-04	c	
2.0E-02	c*	2.0E+00	2.7E-03	c*	2.7E-01
2.0E-02	c*	2.0E+00	2.7E-03	c*	2.7E-01
2.0E-02	c*	2.0E+00	2.7E-03	c*	2.7E-01
3.5E-03	c		1.2E-04	c	
1.1E+01	n		3.1E-02	n	
3.9E+02	n		1.3E-01	n	
3.0E-01	n		1.4E-04	n	
4.2E-01	n			n	
6.0E+02	n	1.0E+03		n	
1.0E+05	n		5.2E+01	n	
1.9E-02	c		9.8E-06	c	
1.7E-01	c		1.5E-04	c	
7.0E-01	c*		4.0E-04	c*	

2.9E-01	c	6.0E+01	5.8E-05	c	1.2E-02
3.7E-01	c		1.6E-04	c	
7.8E+01	n	1.0E+02	5.3E-02	n	6.8E-02
3.1E-01	c		1.0E-03	c	
5.1E+02	n		1.3E-01	n	
3.5E+01	n		1.2E-01	n	
6.4E+02	n		2.6E-01	n	
1.0E+05	n		4.3E+01	n	
4.0E+02	n		8.1E-02	n	
2.2E-01	c	8.0E+01(F)	6.1E-05	c	2.2E-02
1.9E+02	n		4.9E-02	n	
6.5E-03	c		1.4E-06	c	
2.4E-01	c		2.2E-04	c	
1.2E+00	c*		1.1E-03	c*	
9.1E+01	n		8.9E-02	n	
8.3E-01	n		2.5E-04	n	
2.2E+01	c*		5.0E-02	c*	
2.4E+02	n		2.3E-01	n	
2.5E+02	n		2.4E-01	n	
3.2E-04	c		7.1E-08	c	
2.8E+03	n		2.6E+00	n	
8.4E+00	n		1.2E-01	n	
1.2E+02	n		5.4E-01	n	
9.9E+02	n		8.3E-01	n	
1.2E+02	n		1.5E-01	n	
2.8E+00	n		7.3E-02	n	
2.2E+04	n	1.0E+02	4.0E+07	n	1.8E+05
3.5E-02	c		6.7E-04	c	
		1.0E+02			1.8E+05
2.3E+02	n		1.4E+01	n	
6.0E+00	n		2.7E-01	n	
8.0E+02	n	1.3E+03	2.8E+01	n	4.6E+01
9.3E+02	n		7.4E-01	n	
9.3E+02	n		7.5E-01	n	
1.9E+03	n		1.5E+00	n	
1.4E+03	n		1.7E+00	n	
1.5E+03	n		1.3E+00	n	
4.0E-02	c		8.2E-06	c	
4.5E+02	n		7.4E-01	n	

3.5E-01	c		6.1E-04	c	
8.8E-02	c		4.1E-05	c	
2.0E+01	n			n	
1.0E+02	n			n	
1.5E+00	n	2.0E+02	1.5E-02	n	2.0E+00
2.0E+01	n			n	
1.8E+03	n			n	
1.0E+03	n			n	
1.5E+00	n		1.5E-02	n	
4.0E+01	n			n	
8.2E+01	n			n	
1.8E+03	n			n	
2.0E+01	n	2.0E+02		n	
4.0E+00	n			n	
4.0E+00	n			n	
1.0E+03	n			n	
1.3E+04	n		1.3E+01	n	
1.3E+04	n		1.3E+01	n	
2.4E+00	c		1.4E-02	c	
1.4E+03	n		3.4E-01	n	
7.0E+01	n		4.6E-02	n	
3.8E+03	n		1.0E+00	n	
1.2E+02	n		3.1E+01	n	
1.0E+02	n		6.8E+01	n	
2.0E+02	n		3.2E+01	n	
1.5E+02	n		3.8E-02	n	
3.2E-02	c		7.5E-03	c	
4.6E-02	c		1.1E-02	c	
2.3E-01	c*		7.7E-02	c*	
6.0E+02	n	2.0E+02	1.2E-01	n	4.1E-02
4.3E+00	c		9.5E-04	c	
1.1E+02	c**		6.2E+01	c**	
4.2E-01	n			n	
6.5E+01	c	4.0E+02	4.7E+00	c	2.9E+01
5.4E-01	c		8.0E-04	c	
1.0E+01	n		6.5E-02	n	
6.5E+01	n		1.2E+00	n	
3.3E-04	c	2.0E-01	1.4E-07	c	8.6E-05
5.3E+00	n		5.1E-03	n	
1.3E+02	n		1.2E-01	n	
8.7E-01	c	8.0E+01(F)	2.3E-04	c	2.1E-02

7.5E-03	c	5.0E-02	2.1E-06	c	1.4E-05
8.3E+00	n		2.1E-03	n	
6.0E+00	n			n	
5.7E+02	n		1.5E-01	n	
1.3E-03	c		6.6E-07	c	
1.3E-03	c		6.2E-07	c	
1.3E-03	c		6.2E-07	c	
1.5E+00	c*	6.0E+01	3.1E-04	c*	1.2E-02
3.0E+02	n	6.0E+02	3.0E-01	n	5.8E-01
4.8E-01	c	7.5E+01	4.6E-04	c	7.2E-02
1.3E-01	c		8.2E-04	c	
7.8E+01	n		4.7E-01	n	
2.0E+02	n		3.0E-01	n	
2.8E+00	c		7.8E-04	c	
1.7E-01	c*	5.0E+00	4.8E-05	c*	1.4E-03
2.8E+02	n	7.0E+00	1.0E-01	n	2.5E-03
3.6E+01	n	7.0E+01	1.1E-02	n	2.1E-02
3.6E+02	n	1.0E+02	1.1E-01	n	3.1E-02
4.6E+01	n		2.3E-02	n	
1.7E+02	n	7.0E+01	4.5E-02	n	1.8E-02
1.2E+02	n		1.1E-01	n	
4.4E-01	c*	5.0E+00	1.5E-04	c*	1.7E-03
3.7E+02	n		1.3E-01	n	
5.9E+01	n		1.3E-02	n	
4.7E-01	c*		1.7E-04	c*	
2.6E-01	c*		8.1E-05	c*	
2.0E+00	n		4.7E-04	n	
6.3E-01	n		2.2E-03	n	
1.8E-03	c		7.1E-05	c	
4.0E+01	n		8.1E-03	n	
6.0E+02	n		1.3E-01	n	
1.2E+03	n		2.4E-01	n	
2.0E+01	n		4.1E-03	n	
5.1E-05	c		2.8E-05	c	
1.6E+03	n		2.5E+02	n	
2.9E+02	n		3.3E-01	n	
8.3E+04	n		2.8E+01	n	
3.0E-01	c		1.9E-04	c	
1.5E+03	n		3.7E-01	n	
1.6E+03	n		4.5E-01	n	
4.0E+02	n		8.8E-02	n	

4.0E+00	n		9.0E-04	n	
4.7E-02	c		5.8E-05	c	
4.6E+01	c*		9.6E-03	c*	
5.0E-03	c		2.1E-05	c	
1.3E-01	c		1.2E-04	c	
3.7E-01	c		2.1E-04	c	
3.5E+01	n		1.3E-02	n	
6.5E-03	c		4.3E-05	c	
6.1E+01	n		1.2E-02	n	
4.2E-03	n		9.3E-07	n	
2.8E-05	c		6.5E-09	c	
3.6E+02	n		4.2E-01	n	
1.1E+01	n		1.3E-02	n	
1.8E+01	n		2.1E-02	n	
3.3E-01	c		1.1E-04	c	
1.5E+00	n		2.6E-03	n	
2.3E+01	n		7.7E-01	n	
1.9E+00	n		1.8E-03	n	
2.0E+00	n		1.8E-03	n	
2.0E+00	n		1.8E-03	n	
3.9E+01	n		4.4E-02	n	
1.1E-01	c		1.5E-04	c	
2.4E-01	c		3.2E-04	c	
4.9E-02	c		6.7E-05	c	
3.9E+01	n		3.0E-02	n	
3.9E+01	n		3.0E-02	n	
1.0E-01	c		1.4E-04	c	
1.5E+01	n	7.0E+00	1.3E-01	n	6.2E-02
4.6E-01	c		9.4E-05	c	
1.3E-05	c		1.7E-05	c	
1.2E-07	c	3.0E-05	5.9E-08	c	1.5E-05
1.2E-07	c	3.0E-05	5.9E-08	c	1.5E-05
5.3E+02	n		5.2E+00	n	
1.5E+01	n		3.6E-02	n	
3.1E+02	n		5.8E-01	n	
7.8E-02	c		2.5E-04	c	
4.4E+01	n	2.0E+01	8.3E-01	n	3.7E-01
1.1E-02	c		5.3E+00	c	
1.1E-02	c		1.7E+01	c	
1.2E-02	c		1.6E-01	c	
5.0E-01	n		9.4E-04	n	

2.0E+02	n		9.7E-02	n	
3.6E+01	n		1.5E-02	n	
8.0E+01	n		4.1E-01	n	
3.8E+02	n		2.0E-01	n	
1.0E+02	n		1.4E+00	n	
1.0E+02	n		1.4E+00	n	
1.0E+02	n		1.4E+00	n	
3.8E+02	n	1.0E+02	9.1E-02	n	2.4E-02
2.3E+00	n	2.0E+00	9.2E-02	n	8.1E-02
2.3E+00	n	2.0E+00	9.2E-02	n	8.1E-02
2.3E+00	n	2.0E+00	9.2E-02	n	8.1E-02
2.0E+00	n		4.5E-04	n	
4.2E+01	n		9.2E-03	n	
8.0E+02	n		1.6E-01	n	
1.0E+02	n		2.1E-02	n	
4.3E+00	n		8.5E-03	n	
1.2E+02	n		2.5E-02	n	
3.4E+02	n		6.8E-02	n	
1.4E+02	n		3.1E-02	n	
1.4E+01	n		3.2E-03	n	
2.1E+04	n		5.9E+00	n	
3.9E+03	n		8.8E-01	n	
6.3E+02	n		1.5E-01	n	
8.9E-02	n		2.8E-03	n	
1.5E+00	c	7.0E+02	1.7E-03	c	7.8E-01
1.4E+03	n		2.8E-01	n	
1.8E+03	n		4.1E-01	n	
4.0E+04	n		8.1E+00	n	
2.0E+03	n		4.1E-01	n	
5.1E-02	c		1.1E-05	c	
1.6E+00	n		3.6E-04	n	
2.4E-04	c		5.2E-08	c	
5.8E+04	n		1.3E+02	n	
4.4E+00	n		4.3E-03	n	
6.4E+01	n		2.9E+00	n	
5.0E+02	n		3.2E+02	n	
2.4E+02	n		1.9E-01	n	
8.0E+02	n		1.2E+02	n	
1.2E+03	n	4.0E+03	1.8E+02	n	6.0E+02
1.4E+03	n		1.6E+02	n	
3.4E+02	n		1.6E+00	n	
1.1E+01	n		1.8E+00	n	

9.5E+02	n		5.0E+00	n	
2.0E+02	n		2.9E+02	n	
2.0E+01	c*		4.7E-03	c*	
3.9E-01	c		1.3E-03	c	
2.4E+01	n		4.7E-02	n	
4.3E-01	c*		8.7E-05	c*	
6.3E-01	n		1.3E-04	n	
6.0E+04	n		7.9E+02	n	
7.9E+00	n		1.5E-01	n	
1.9E+01	n		7.3E-03	n	
3.4E+03	n		7.5E-01	n	
2.0E-02	c		3.9E-05	c	
3.8E+01	n		8.1E-03	n	
5.1E-02	c		6.8E-05	c	
1.1E+00	c		1.2E-03	c	
8.0E+00	n		1.8E-03	n	
1.7E+00	n		3.3E-04	n	
2.0E+03	n	7.0E+02	8.8E+00	n	3.1E+00
2.0E+02	n		4.5E-02	n	
4.0E+02	n			n	
7.6E-01	n		8.4E-03	n	
1.4E-03	c	4.0E-01	1.2E-04	c	3.3E-02
1.4E-03	c*	2.0E-01	2.8E-05	c*	4.1E-03
4.0E+01	n		2.3E-01	n	
4.0E+00	n			n	
9.8E-03	c	1.0E+00	1.2E-04	c	1.3E-02
1.4E-01	c*		2.7E-04	c*	
7.2E-03	c		4.2E-05	c	
2.5E-02	c		1.5E-04	c	
4.2E-02	c*	2.0E-01	2.4E-04	c*	1.2E-03
2.5E-02	c		1.5E-04	c	
4.1E-01	n	5.0E+01	1.3E-03	n	1.6E-01
3.3E-01	c*		2.0E-04	c*	
6.0E+00	n		8.0E+00	n	
7.0E-01	c*		2.7E-04	c*	
2.1E-02	n		2.1E-04	n	
8.0E+00	n		1.8E-03	n	
1.5E+03	n		1.0E+01	n	
4.0E+04	n		9.9E+00	n	
3.8E+01	n		8.8E-03	n	

6.4E+02	n		3.0E-01	n	
1.1E+02	n		5.0E-01	n	
5.9E+00	n		2.1E+03	n	
1.1E-03	c*			c*	
2.6E-02	c			c	
4.2E+01	n			n	
2.8E+01	n			n	
4.2E+00	n			n	
1.3E+00	c		8.7E-04	c	
1.9E+02	n		3.2E+00	n	
4.9E+03	n		2.4E+01	n	
4.7E+03	n		4.1E+00	n	
2.0E+02	n		1.2E+01	n	
7.4E+02	n		2.2E-01	n	
1.4E+04	n		3.5E+02	n	
5.9E+03	n		1.2E+00	n	
7.8E+01	c*		2.6E-02	c*	
4.0E+01	n		9.2E-01	n	
4.1E+02	n		8.4E-02	n	
2.0E+03	n		4.3E-01	n	
7.3E+02	n		2.0E+00	n	
6.3E+02	n			n	
2.5E+01	n		1.2E+00	n	
4.1E-02	c			c	
9.1E+00	c			c	
9.2E+00	c		1.8E-03	c	
1.5E+01	L	1.5E+01		L	1.4E+01
9.2E+00	c		2.0E-03	c	
1.3E-03	n		4.7E-06	n	
9.0E-02	n		3.8E-05	n	
3.3E+01	n		2.9E-02	n	
4.0E+01	n		1.2E+01	n	
7.5E+00	n		2.0E-03	n	
1.5E+02	n		5.8E-02	n	
1.6E+01	n		4.7E-03	n	
3.9E+02	n		1.0E-01	n	
1.9E+03	n		3.8E-01	n	
1.0E+04	n		2.1E+00	n	
2.0E+00	n		4.1E-04	n	
5.4E+02	n		7.6E-01	n	
9.8E+01	n		1.4E-01	n	

4.3E+02	n		2.8E+01	n	
1.8E+00	n		2.6E-03	n	
6.0E+02	n		2.0E-01	n	
5.7E+00	n	2.0E+00		n	
6.3E-01	n	2.0E+00	3.3E-02	n	1.0E-01
2.0E+00	n			n	
1.6E+00	n		5.0E-04	n	
6.0E-01	n		5.9E-02	n	
8.5E-02	n		4.2E-04	n	
1.2E+03	n		3.3E-01	n	
1.9E+00	n		4.3E-04	n	
1.0E+00	n		2.1E-04	n	
2.0E+04	n		4.1E+00	n	
1.9E+01	n		4.7E-03	n	
5.0E+02	n		1.1E-01	n	
1.5E+00	c		5.3E-04	c	
3.7E+01	n	4.0E+01	2.0E+00	n	2.2E+00
2.1E+00	n		4.2E-04	n	
2.9E+01	n		5.9E-03	n	
2.0E+04	n		4.1E+00	n	
4.2E+01	n		8.9E-03	n	
5.6E+03	n		1.2E+00	n	
5.6E-03	c**		1.3E-06	c**	
6.3E+03	n		1.4E+00	n	
2.1E+00	n		5.9E-04	n	
1.4E+03	n		3.0E-01	n	
4.5E+00	n		7.4E-03	n	
1.2E+03	n		2.4E-01	n	
2.3E+01	n		3.8E-02	n	
7.9E-01	c		1.6E-04	c	
1.4E+01	c		3.2E-03	c	
6.0E+00	n		3.6E-03	n	
8.2E+00	c*		4.6E-03	c*	
9.4E-03	c		3.2E-06	c	
6.0E-01	c		2.6E-04	c	
2.0E+02	n		5.8E-02	n	
4.0E+00	n			n	
7.8E-01	c**			c**	
1.1E-03	c		2.2E-03	c	
1.1E+01	c**	5.0E+00	2.9E-03	c**	1.3E-03

1.6E-01	c		1.8E-03	c
4.8E-01	c		2.6E-03	c
4.7E-02	c		2.1E-04	c
7.8E+02	n		1.2E+00	n
2.7E+03	n		3.2E+00	n
4.9E+02	n		1.5E-01	n
4.9E+03	n		1.9E+00	n
6.0E+04	n		2.4E+03	n
8.8E-04	c		6.3E-04	c
3.0E+01	n		1.7E-02	n
1.0E+02	n		2.0E+00	n
2.0E+03	n	4.0E+03		n
3.8E+01	n		1.4E-02	n
4.5E+02	n		5.6E+00	n
3.6E+00	n		3.7E-01	n
4.0E+01	n		1.8E-02	n
1.5E+02	n			n
3.9E-02	c		2.0E-04	c
1.6E+03	n		1.1E+01	n
2.2E+02	n		4.5E-02	n
2.2E+02	n			n
2.2E-02	c**			c**
2.0E+02	n			n
2.0E+02	n			n
2.2E+02	n		3.2E+01	n
3.9E+02	n		2.6E+01	n
4.5E-02	c			c
2.2E+02	n			n
3.2E+04	n	1.0E+04		n
		1.0E+04		
2.0E+03	n	1.0E+03		n
1.9E+02	n		8.0E-02	n
3.8E+00	c*		1.6E-03	c*
1.4E-01	c*		9.2E-05	c*
6.0E+07	n		1.3E+04	n
1.4E+03	n		6.1E-01	n
6.0E-02	c		5.4E-05	c
2.0E+00	n		8.5E-04	n
2.0E+03	n		4.8E-01	n
6.4E-01	c*		1.4E-04	c*
2.1E-03	c		5.4E-07	c

9.2E-04	c		2.2E-07	c	
2.1E-04	c		4.6E-08	c	
2.7E-03	c		5.5E-06	c	
1.1E-02	c		8.1E-06	c	
2.8E-02	c		5.6E-06	c	
1.7E-04	c		6.1E-08	c	
1.1E-04	c		2.7E-08	c	
1.2E+01	c		6.7E-02	c	
7.1E-04	c		2.0E-07	c	
1.2E-02	c		2.8E-06	c	
8.2E-03	c		4.4E-06	c	
3.7E-02	c		1.4E-05	c	
1.7E+00	n		1.6E-03	n	
3.1E-01	c*		3.0E-04	c*	
4.3E+00	c*		4.0E-03	c*	
5.3E+00	n		7.5E-02	n	
7.7E+02	n		5.0E+00	n	
6.0E+01	n		1.2E+01	n	
1.0E+03	n		1.3E+00	n	
4.0E+01	n		9.6E-03	n	
8.1E+02	n		1.5E+00	n	
4.7E+01	n		4.8E-01	n	
5.0E+02	n	2.0E+02	1.1E-01	n	4.4E-02
3.2E+01	n		2.5E+00	n	
2.3E+02	n		4.6E-01	n	
9.0E+01	n		1.2E+00	n	
8.6E+01	n		4.3E-01	n	
5.6E+02	n		4.5E-01	n	
1.8E+02	n		2.1E+00	n	
4.0E+01	n		1.7E+00	n	
2.0E+00	n		8.7E-02	n	
3.2E+00	n		2.4E-02	n	
6.5E-01	c		3.1E-04	c	
1.2E-01	c		1.5E-03	c	
4.1E-02	c	1.0E+00	5.7E-05	c	1.4E-03
1.9E+01	c**		2.8E-02	c**	
2.1E+03	n		1.0E+01	n	
1.4E+01	n			n	
1.4E+01	n			n	
1.4E+01	n	1.5E+01(F)		n	
1.4E+01	n			n	

1.4E+01	n			n
3.8E+02	n		2.1E-01	n
1.0E+03	n		2.4E+02	n
3.4E+01	c		9.7E-03	c
4.0E+03	n		2.1E+01	n
5.8E+03	n		3.3E+00	n
7.8E+01	n		2.5E-02	n
4.3E+00	n		1.4E-02	n
1.2E+02	n		3.2E-02	n
1.6E+00	c		4.4E-04	c
3.8E+03	n		1.0E+00	n
3.0E+01	c		4.1E-01	c
3.0E+00	n		3.4E-03	n
3.7E+02	n		8.2E-02	n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n
9.7E+05	n			n

9.7E+05	n			n	
9.7E+05	n			n	
9.7E+05	n			n	
9.7E+05	n			n	
9.7E+05	n			n	
5.7E-01	n			n	
9.7E+05	n			n	
4.0E-01	n		1.5E-03	n	
5.6E+00	c*	6.0E+00	1.3E+00	c*	1.4E+00
1.6E+01	c		2.4E-01	c	
1.3E+04	n		3.1E+02	n	
9.0E+02	n		2.3E+00	n	
1.5E+04	n		6.1E+00	n	
1.9E+03	n		4.9E-01	n	
2.0E+02	n		5.7E+01	n	
1.9E+04	n		6.8E+00	n	
3.9E+04	n		8.5E+00	n	
1.4E+03	n	5.0E+02	3.8E-01	n	1.4E-01
2.0E+00	n		1.3E-03	n	
1.8E+01	n		8.4E-02	n	
1.2E+02	n		1.2E-01	n	
2.6E-03	c*			c*	
2.2E-01	c**		2.1E-02	c**	
4.7E-03	c		8.0E-05	c	
4.7E-03	c		8.0E-05	c	
7.8E-03	c		1.2E-03	c	
7.8E-03	c		1.2E-03	c	
7.8E-03	c*		2.0E-03	c*	
7.8E-03	c		5.5E-03	c	
1.2E+01	n		2.0E+00	n	
7.8E-03	c*		2.0E-03	c*	
4.0E-03	c		2.8E-03	c	
4.0E-03	c		1.7E-03	c	
4.0E-03	c		1.7E-03	c	
4.0E-03	c		1.7E-03	c	
4.0E-06	c		1.7E-06	c	
4.0E-03	c		1.0E-03	c	
4.0E-03	c		1.0E-03	c	
4.0E-03	c		1.0E-03	c	
4.0E-03	c		1.0E-03	c	

1.2E-06	c		3.0E-07	c	
4.4E-02	c	5.0E-01	6.8E-03	c	7.8E-02
6.0E-03	c*		9.4E-04	c*	
4.0E-04	c		6.2E-05	c	
5.3E+02	n		5.5E+00	n	
5.3E+02	n		5.5E+00	n	
1.8E+03	n		5.8E+01	n	
1.2E-02	c		4.2E-03	c	
6.5E-02	c		7.8E-02	c	
3.4E-03	c	2.0E-01	4.0E-03	c	2.4E-01
3.4E-03	c	2.0E-01	4.0E-03	c	2.4E-01
3.4E-02	c		4.1E-02	c	
1.2E+02	n		1.3E+01	n	
3.4E-01	c		4.0E-01	c	
7.5E+02	n		3.9E+00	n	
3.4E+00	c		1.2E+00	c	
3.4E-03	c		1.3E-02	c	
6.5E-03	c		8.4E-02	c	
1.0E-04	c		9.9E-05	c	
8.0E+02	n		8.9E+01	n	
2.9E+02	n		5.4E+00	n	
3.4E-02	c		1.3E-01	c	
1.1E+00	c		6.0E-03	c	
3.6E+01	n		1.9E-01	n	
1.7E-01	c*		5.4E-04	c*	
1.9E-02	c		3.3E-03	c	
1.2E+02	n		1.3E+01	n	
1.2E+02	n		1.3E+01	n	
4.0E+02	n		2.2E-01	n	
3.8E-01	c		1.9E-03	c	
2.6E+01	n		1.6E+00	n	
2.5E+02	n		1.2E-01	n	
6.0E+01	n		9.0E-02	n	
2.5E+02	n		1.5E-01	n	
8.2E+01	n		4.5E-02	n	
1.6E+02	n		1.2E+01	n	
4.0E+01	n		8.1E-03	n	

3.4E+02	n		3.0E-01	n	
3.5E+02	n		2.2E-01	n	
2.1E+02	n		6.9E-01	n	
1.7E+01	n		3.4E-03	n	
6.6E+02	n		1.2E+00	n	
6.3E+03	n		6.0E+00	n	
4.0E+05	n		8.1E+01	n	
3.2E+03	n		6.5E-01	n	
2.7E-01	c		5.6E-05	c	
1.2E+03	n		1.2E+00	n	
2.0E+01	n		6.8E-03	n	
5.1E+00	n		4.3E-02	n	
2.4E-02	c		7.8E-05	c	
1.2E+02	n		1.9E+00	n	
6.7E+01	n		4.2E+01	n	
4.1E+02	n		3.7E+00	n	
6.1E+01	n		3.2E+01	n	
9.6E-02	c		5.9E-05	c	
1.0E+02	n			n	
1.0E+02	n	5.0E+01	5.2E-01	n	2.6E-01
1.0E+02	n			n	
1.0E+03	n		9.3E+00	n	
9.4E+01	n		8.0E-01	n	
6.1E-01	c	4.0E+00	3.0E-04	c	2.0E-03
2.6E+02	n		2.1E+00	n	
8.0E+01	n			n	
4.1E-02	c			c	
2.9E-01	c		1.8E-04	c	
1.0E+03	n			n	
4.0E-01	n		8.1E-05	n	
2.0E+01	n			n	
1.6E+01	n			n	
1.6E+01	n			n	
2.8E+00	c		8.2E-03	c	
4.1E-02	c			c	
1.2E+04	n		4.2E+02	n	
5.9E+00	n		6.5E-02	n	
1.2E+03	n	1.0E+02	1.3E+00	n	1.1E-01
4.8E+01	n			n	

2.0E+01	n		4.4E-03	n	
1.1E+01	n		6.5E-02	n	
2.1E+00	n			n	
1.3E+00	c		1.5E-02	c	
4.8E+02	n		3.3E+00	n	
1.4E+03	n		3.9E-01	n	
4.0E+02	n		7.6E+01	n	
2.5E+02	n		7.5E-02	n	
2.4E-01	n		5.2E-04	n	
1.3E+01	n		1.9E-02	n	
2.0E+00	n		5.3E-02	n	
1.7E+00	n		7.9E-03	n	
5.7E-01	c		2.2E-04	c	
7.6E-02	c		3.0E-05	c	
1.1E+01	c**	5.0E+00	5.1E-03	c**	2.3E-03
2.4E+02	n		1.8E-01	n	
1.3E-03	c		4.5E-06	c	
7.1E+00	n		5.2E-03	n	
1.7E+05	n		9.3E+01	n	
3.9E+01	n		3.7E-01	n	
4.0E-01	n			n	
2.0E-01	n			n	
2.0E-01	n	2.0E+00	1.4E-02	n	1.4E-01
2.0E-01	n		4.1E-05	n	
4.0E-01	n		8.3E-05	n	
2.0E-01	n			n	
2.0E-01	n			n	
4.0E-01	n			n	
2.6E+02	n		7.8E-02	n	
1.6E+02	n		5.5E-01	n	
1.4E+03	n		2.8E-01	n	
5.3E+00	n		1.8E-03	n	
1.6E+03	n		1.4E+00	n	
9.8E+01	n		1.4E-01	n	
1.2E+04	n		3.0E+03	n	
2.1E-01	n			n	
1.1E+03	n	1.0E+03	7.6E-01	n	6.9E-01
1.1E+03	n	1.0E+03	7.6E-01	n	6.9E-01
1.7E-02	n		2.5E-04	n	
4.3E-01	c**		1.3E-04	c**	
1.7E-02	n		2.6E-04	n	

4.7E+00	c		2.0E-03	c	
2.5E+00	c*		1.1E-03	c*	
6.0E+04	n		2.4E+03	n	
1.3E+03	n		8.8E+00	n	
1.0E+02	n		1.5E+00	n	
8.0E+02	n		8.9E+01	n	
3.3E+01	n		1.7E-02	n	
5.5E+00	n		2.3E-02	n	
7.1E-02	c	3.0E+00	1.1E-02	c	4.6E-01
1.5E+02	n		5.8E+01	n	
3.7E+00	n		8.2E-02	n	
1.6E+06	n		4.5E+02	n	
5.5E+02	n		4.4E-01	n	
1.2E+02	n		2.6E-01	n	
2.0E+02	n		2.1E-01	n	
1.6E+02	n		6.1E-02	n	
4.5E+01	n		6.4E-02	n	
5.2E+00	c*		2.5E-02	c*	
6.0E+00	n			n	
5.7E+00	n		2.9E+02	n	
5.5E+04	n		1.4E+02	n	
1.1E+00	c	6.0E+01	2.2E-04	c	1.2E-02
2.7E+00	c		7.4E-03	c	
4.0E-01	n		3.6E-03	n	
7.0E+00	n		2.1E-02	n	
1.2E+00	c**	7.0E+01	3.4E-03	c**	2.0E-01
8.0E+03	n	2.0E+02	2.8E+00	n	7.0E-02
2.8E-01	c**	5.0E+00	8.9E-05	c**	1.6E-03
4.9E-01	c**	5.0E+00	1.8E-04	c**	1.8E-03
5.2E+03	n		3.3E+00	n	
1.2E+03	n		4.0E+00	n	
4.1E+00	c**		4.0E-03	c**	
1.6E+02	n		6.8E-02	n	
1.1E+02	n	5.0E+01	6.1E-02	n	2.8E-02
8.8E+01	n		3.5E-02	n	
7.5E-04	c		3.2E-07	c	
6.2E-01	n		3.1E-04	n	
1.6E+02	n		1.5E+01	n	
1.8E+01	n		1.3E-01	n	
1.5E+01	n		4.4E-03	n	
4.0E+04	n		8.8E+00	n	
4.2E+04	n		1.3E+02	n	

2.6E+00	c*		8.4E-02	c*	
3.9E+00	c*		8.6E-04	c*	
1.0E+01	n		1.5E-02	n	
1.5E+01	n		2.1E-02	n	
1.2E+02	n		1.7E-01	n	
6.5E+01	n		2.2E-01	n	
5.9E+02	n		2.1E+00	n	
2.5E+00	c**		1.5E-02	c**	
3.6E+02	n		1.5E+00	n	
3.6E+02	n		8.0E+00	n	
1.9E+02	n		6.5E-01	n	
6.8E-03	c		1.3E-04	c	
3.8E+00	c*		3.8E-03	c*	
2.4E+01	c*		1.2E+02	c*	
1.6E+01	n		2.4E+00	n	
6.0E+01	n	3.0E+01	2.7E+01	n	1.4E+01
2.5E-02	c		5.6E-06	c	
1.5E+02	n			n	
8.6E+01	n		8.6E+01	n	
1.1E+01	n		8.9E-03	n	
4.4E+02	n		3.4E-01	n	
4.1E+02	n		8.7E-02	n	
1.8E-01	c*		5.1E-05	c*	
1.9E-02	c	2.0E+00	6.5E-06	c	6.9E-04
5.6E+00	n		5.9E-03	n	
1.9E+02	n		1.9E-01	n	
1.9E+02	n		1.9E-01	n	
1.9E+02	n		1.9E-01	n	
1.9E+02	n	1.0E+04	1.9E-01	n	9.9E+00
6.0E+00	n			n	
6.0E+03	n		3.7E+02	n	
9.9E+02	n		2.9E+00	n	
1.6E+00	n		4.8E+00	n	

TABLE 2.1
OCCURANCE DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SURFACE SOILS
DES MOINES TCE SITE, DES MOINES IOWA

Exposure Area	Analyte Class	Cas Number	Analyte Name	Minimum Concentration (Qualifier)[1]	Maximum Concentration (Qualifier)[1]	Units	Location of Maximum	Frequency of Detection	Range of Detection Limits	Screening Concentration[2]	Screening Value[3, 4(Basis)] mg/kg		COPC	Rationale[5]
Dico Property	Dioxin	1746-01-6	2,3,7,8-TCDD Equivalent	0.00000001	0.00005	mg/kg -dry	SB-14 (0-2)	14/16	0.00000001	0.00005	0.0000048	c*	Y	ASL
Dico Property	Herbicide	93-76-5	2,4,5-T (Trichlorophenoxyacetic Acid)	0.078 J	0.078 J	mg/kg -dry	SB-13 (0-2)	1/17	0.036-0.2	0.078	630	n	N	BSL
Dico Property	Herbicide	94-75-7	2,4-D (Dichlorophenoxyacetic Acid)	0.38 J	0.38 J	mg/kg -dry	SB-13 (0-2)	1/17	0.036-0.2	0.38	700	n	N	BSL
Dico Property	Pesticide	309-00-2	Aldrin	0.0037	0.0048	mg/kg -dry	SB-17 (0-2)	2/17	0.0019-0.021	0.0048	0.039	c*	N	BSL
Dico Property	Pesticide	5103-71-9	alpha-Chlordane	0.0024	0.0068	mg/kg -dry	SB-14 (0-2)	3/17	0.0019-0.021	0.0068	1.7	c*	N	BSL
Dico Property	Pesticide	319-85-7	Beta BHC (beta Hexachlorocyclohexane)	0.0024	0.0024	mg/kg -dry	SB-16 (0-2)	1/17	0.0019-0.021	0.0024	0.3	c	N	BSL
Dico Property	Pesticide	60-57-1	Dieldrin	0.012	0.012	mg/kg -dry	SB-14 (0-2)	1/17	0.0036-0.04	0.012	0.034	c*	N	BSL
Dico Property	Pesticide	115-29-7	Endosulfan Sulfate	0.0075	0.0075	mg/kg -dry	SB-14 (0-2)	1/17	0.0036-0.04	0.0075	470	n	N	BSL
Dico Property	Pesticide	7421-93-4	Endrin Aldehyde	0.0045 J	0.0061	mg/kg -dry	SB-14 (0-2)	2/17	0.0036-0.04	0.0061	19	n	N	BSL
Dico Property	Pesticide	53494-70-5	Endrin Ketone	0.0052	0.014 J	mg/kg -dry	SB-14 (0-2)	2/17	0.0036-0.04	0.014	19	n	N	BSL
Dico Property	Pesticide	58-89-9	Gamma BHC (Lindane)	0.0028 J	0.0028 J	mg/kg -dry	SB-9 (0-2)	1/17	0.0019-0.021	0.0028	0.57	c*	N	BSL
Dico Property	Pesticide	12789-03-6	gamma-Chlordane	0.0027	0.0077	mg/kg -dry	SB-14 (0-2)	7/17	0.0019-0.021	0.0077	1.7	c*	N	BSL
Dico Property	Pesticide	1024-57-3	Heptachlor Epoxide	0.0024 J	0.0024 J	mg/kg -dry	SB-9 (0-2)	1/17	0.0019-0.021	0.0024	0.07	c*	N	BSL
Dico Property	Pesticide	72-54-8	p,p'-DDD	0.006	0.083	mg/kg -dry	SB-11 (0-2)	8/17	0.0036-0.04	0.083	2.3	c	N	BSL
Dico Property	Pesticide	72-55-9	p,p'-DDE	0.0041	1.4	mg/kg -dry	SB-12 (0-2)	2/17	0.0036-0.0056	1.4	2.0	c	N	BSL
Dico Property	Pesticide	50-29-3	p,p'-DDT	0.0052	3.3	mg/kg -dry	SB-12 (0-2)	9/17	0.0036-0.028	3.3	1.9	c*	Y	ASL
Dico Property	VOC	71-55-6	1,1,1-Trichloroethane	0.41	0.41	mg/kg -dry	SB-13 (0-2)	1/17	0.0044-1.2	0.41	8100	ns	N	BSL
Dico Property	VOC	107-06-2	1,2-Dichloroethane	0.0073	0.0073	mg/kg -dry	SB-11 (8-10)	1/17	0.0044-1.2	0.0073	0.46	c*	N	BSL
Dico Property	VOC	67-64-1	Acetone	0.011	0.19	mg/kg -dry	SB-9 (0-2)	11/17	0.011-2.4	0.19	61000	n	N	BSL
Dico Property	VOC	75-15-0	Carbon Disulfide	0.0079	0.0079	mg/kg -dry	SB-2 (0-2)	1/17	0.0046-1.2	0.0079	770	ns	N	BSL
Dico Property	VOC	67-66-3	Chloroform	0.74	0.74	mg/kg -dry	SB-12 (0-2)	1/17	0.0044-1.2	0.74	0.32	c	Y	ASL
Dico Property	VOC	156-59-2	cis-1,2-Dichloroethylene	0.15	24	mg/kg -dry	SB-17 (0-2)	2/17	0.0044-0.38	24	160	n	Y	ASL
Dico Property	VOC	79-20-9	Methyl Acetate	0.31	0.31	mg/kg -dry	SB-15 (0-2)	1/17	0.0044-1.2	0.31	78000	ns	N	BSL
Dico Property	VOC	78-93-3	Methyl Ethyl Ketone (2-Butanone)	0.0096	0.03	mg/kg -dry	SB-9 (0-2)	5/17	0.0092-2.4	0.03	27000	n	N	BSL
Dico Property	VOC	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.012 J	0.012 J	mg/kg -dry	SB-9 (0-2)	1/17	0.0088-2.4	0.012	33000	ns	N	BSL
Dico Property	VOC	127-18-4	Tetrachloroethene	0.013	7.3	mg/kg -dry	SB-12 (0-2)	5/17	0.0044-1.2	7.3	24	c**	N	BSL
Dico Property	VOC	156-60-5	Trans-1,2-Dichloroethene	0.012	0.94	mg/kg -dry	SB-14 (0-2)	2/17	0.0044-1.2	0.94	1600	n	N	BSL
Dico Property	VOC	79-01-6	Trichloroethene	0.015	15	mg/kg -dry	SB-14 (0-2)	9/17	0.0044-1.2	15	0.94	c**	Y	ASL

Notes:
* Soil samples taken 0-2 feet below ground surface
Shaded constituents indicate chemicals of potential concern.

1. Minimum/maximum detected concentration.
2. Maximum detected concentration used as the screening concentration.
3. Screening value the RSL for residential receptors
   Screening Value Basis Codes:
   - c Cancer endpoint and a target cancer risk of 1 x 10^{-6}
   - c* Cancer endpoint where: nc SL < 100X ca SL
   - c** Cancer endpoint where nc SL < 10X ca SL
   - nc non-cancer endpoint and a target hazard quotient of 0.1
4. The following surrogate values were used for screening:
   Chlordane was used as a surrogate for alpha-Chlordane and gamma-Chlordane.
   Endosulfan was used as a surrogate for endosulfan sulfate.
   Endrin was used as a surrogate for endrin aldehyde and endrin ketone
5. Rationale Codes for selection or exclusion as COPC:
   Selection:
   - ASL Above screening level
   - NSC No screening criteria

Definitions:
- CAS Chemical Abstract Service
- COPC Chemical of potential concern
- J Estimated value(+/- bias)
- mg/kg Milligram per kilogram
- RSL Regional Screening Level
- VOC Volatile organic compound

Deletion:
- BSL Below screening level

Source:
U.S. Environmental Protection Agency (EPA). 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 2.2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - ALL SOILS
DES MOINES TCE SITE, DES MOINES, IOWA

Exposure Area	Analyte Class	Cas Number	Analyte Name	Minimum Concentration (Qualifier)[1]	Maximum Concentration (Qualifier)[1]	Units	Location of Maximum	Frequency of Detection	Range of Detection Limits	Screening Concentration[2]	Screening Value[3, 4] (Basis) mg/kg		COPC	Rationale[5]
Dico Property	Dioxin	1746-01-6	2,3,7,8-TCDD Equivalent	0.00000001	0.00005	mg/kg -dry	SB-14 (0-2)	14/16	0.00000001	0.00005	0.0000048	c*	Y	ASL
Dico Property	Herbicide	93-76-5	2,4,5-T (Trichlorophenoxyacetic Acid)	0.078J	0.078J	mg/kg -dry	SB-13 (0-2)	1/34	0.036-0.2	0.078	630	n	N	BSL
Dico Property	Herbicide	94-75-7	2,4-D (Dichlorophenoxyacetic Acid)	0.11	0.38J	mg/kg -dry	SB-13 (0-2)	2/34	0.036-0.2	0.38	700	n	N	BSL
Dico Property	Pesticide	309-00-2	Aldrin	0.0037	0.031	mg/kg -dry	SB-17 (8-10)	3/34	0.0019-0.021	0.031	0.039	c*	N	BSL
Dico Property	Pesticide	319-85-7	Beta BHC (beta Hexachlorocyclohexane)	0.0024	0.034	mg/kg -dry	SB-17 (8-10)	2/34	0.0019-0.021	0.034	0.3	c	N	BSL
Dico Property	Pesticide	5103-71-9	Chlordane; Alpha-	0.0024	0.015	mg/kg -dry	SB-13 (8-10)	6/34	0.0019-0.021	0.015	1.7	c*	N	BSL
Dico Property	Pesticide	12789-03-6	Chlordane; Gamma-	0.0021	0.091	mg/kg -dry	SB-17 (8-10)	16/34	0.0019-0.021	0.091	1.7	c*	N	BSL
Dico Property	Pesticide	60-57-1	Dieldrin	0.0056	0.012	mg/kg -dry	SB-15 (0-2)	2/34	0.0036-0.04	0.012	0.034	c*	N	BSL
Dico Property	Pesticide	115-29-7	Endosulfan Sulfate	0.0075	0.23	mg/kg -dry	SB-17 (8-10)	2/34	0.0036-0.04	0.23	470	n	N	BSL
Dico Property	Pesticide	72-20-8	Endrin	0.0043	0.056J	mg/kg -dry	SB-17 (8-10)	2/34	0.0036-0.04	0.056	19.0	n	N	BSL
Dico Property	Pesticide	7421-93-4	Endrin Aldehyde	0.0045J	0.01	mg/kg -dry	SB-6 (8-10)	3/34	0.0036-0.04	0.01	19.0	n	N	BSL
Dico Property	Pesticide	53494-70-5	Endrin Ketone	0.0044	0.26J	mg/kg -dry	SB-17 (8-10)	5/34	0.0036-0.04	0.26	19.0	n	N	BSL
Dico Property	Pesticide	58-89-9	Gamma BHC (Lindane)	0.0028J	0.0028J	mg/kg -dry	SB-9 (0-2)	1/34	0.0019-0.021	0.0028	0.57	c*	N	BSL
Dico Property	Pesticide	1024-57-3	Heptachlor Epoxide	0.0024J	0.0024J	mg/kg -dry	SB-9 (0-2)	1/34	0.0019-0.021	0.0024	0.07	c*	N	BSL
Dico Property	Pesticide	72-43-5	Methoxychlor	0.54	0.54	mg/kg -dry	SB-17 (8-10)	1/34	0.019-0.21	0.54	320	n	N	BSL
Dico Property	Pesticide	72-54-8	p,p'-DDD	0.0055	0.16	mg/kg -dry	SB-14 (8-10)	16/34	0.0036-0.04	0.16	2.3	c	N	BSL
Dico Property	Pesticide	72-55-9	p,p'-DDE	0.0041	1.4	mg/kg -dry	SB-12 (0-2)	9/34	0.0036-0.039	1.4	2.0	c	N	BSL
Dico Property	Pesticide	50-29-3	p,p'-DDT	0.0051J	3.3	mg/kg -dry	SB-12 (0-2)	15/34	0.0036-0.028	3.3	1.9	c*	Y	ASL
Dico Property	VOC	71-55-6	1,1,1-Trichloroethane	0.41	12	mg/kg -dry	SB-13 (8-10)	2/34	0.0044-1.2	12	8100	ns	N	BSL
Dico Property	VOC	107-06-2	1,2-Dichloroethane	0.0073	0.0073	mg/kg -dry	SB-11 (8-10)	1/34	0.0044-1.2	0.0073	0.46	c*	N	BSL
Dico Property	VOC	67-64-1	Acetone	0.011	0.19	mg/kg -dry	SB-9 (0-2)	23/34	0.011-2.4	0.19	61000	n	N	BSL
Dico Property	VOC	75-15-0	Carbon Disulfide	0.0079	0.0079	mg/kg -dry	SB-2 (0-2)	1/34	0.0046-1.2	0.0079	770	ns	N	BSL
Dico Property	VOC	67-66-3	Chloroform	0.74	0.74	mg/kg -dry	SB-12 (0-2)	1/34	0.0044-1.2	0.74	0.32	c	Y	ASL
Dico Property	VOC	156-59-2	cis-1,2-Dichloroethylene	0.0077	24	mg/kg -dry	SB-17 (0-2)	5/34	0.0044-0.38	24	160	n	Y	ASL
Dico Property	VOC	100-41-4	Ethylbenzene	0.95	0.95	mg/kg -dry	SB-12 (0-2)	1/34	0.0044-1.2	0.95	5.8	c	N	BSL
Dico Property	VOC	98-82-8	Isopropylbenzene (Cumene)	0.69	0.69	mg/kg -dry	SB-12 (0-2)	1/34	0.0044-1.2	0.69	1900	ns	N	BSL
Dico Property	VOC	106-42-3	m, p Xylenes	3	3	mg/kg -dry	SB-12 (0-2)	1/34	0.0044-1.2	3	560	ns	N	BSL
Dico Property	VOC	79-20-9	Methyl Acetate	0.31	0.63	mg/kg -dry	SB-13 (8-10)	3/34	0.0044-1.2	0.63	78000	ns	N	BSL
Dico Property	VOC	78-93-3	Methyl Ethyl Ketone (2-Butanone)	0.0096	0.03	mg/kg -dry	SB-9 (0-2)	12/34	0.0092-2.4	0.03	27000	n	N	BSL
Dico Property	VOC	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.012J	0.012J	mg/kg -dry	SB-9 (0-2)	1/34	0.0088-2.4	0.012	33000	ns	N	BSL
Dico Property	VOC	95-47-6	o-Xylene	0.73	0.73	mg/kg -dry	SB-12 (8-10)	1/34	0.0044-1.2	0.73	650	ns	N	BSL
Dico Property	VOC	127-18-4	Tetrachloroethene	0.0053	7.3	mg/kg -dry	SB-12 (0-2)	8/34	0.0044-1.2	7.3	24	c**	N	BSL
Dico Property	VOC	156-60-5	Trans-1,2-Dichloroethene	0.012	0.94	mg/kg -dry	SB-14 (0-2)	2/34	0.0044-1.2	0.94	1600	n	N	BSL
Dico Property	VOC	79-01-6	Trichloroethene	0.015	15	mg/kg -dry	SB-14 (0-2)	14/34	0.0044-1.2	15	0.94	c**	Y	ASL

Dico Property	Dico Property	VOC	75-01-4	Vinyl Chloride	0.0047	0.0047	mg/kg -dry	SB-5 (8-10)	1/34	0.0044-1.2	0.0047	0.059	c	N	BSL

Notes: **Notes:**

* Soil samples taken [illegible] below ground surface

Shaded constituents [illegible] of potential concern.

1. Minimum/maximum [illegible] detected concentration.
2. Maximum detected [illegible] screening concentration.
3. Screening value [illegible] residential RSL value

Screening Value Basis Codes:

c	c	Cancer endpoint and a target cancer risk of 1 x 10^{-6}
c*	c*	Cancer endpoint where: nc SL < 100X ca SL
c**	c**	Cancer endpoint where nc SL < 10X ca SL
nc	nc	non-cancer endpoint and a target hazard quotient of 0.1

4. The following [illegible] used for screening:

Chlordane was used [illegible] gamma-Chlordane.

Endosulfan was used [illegible] endosulfan sulfate.

Endrin was used [illegible] and endrin ketone

5. Rationale Codes [illegible] exclusion as COPC:

Selection:

ASL ASL Above screening level

Definitions:

CAS	Chemical Abstract Service
COPC	Chemical of potential concern
J	Estimated value(+/- bias)
mg/kg	Milligram per kilogram
NA	Not applicable
RSL	Regional Screening Level
U	Analyzed for, but not detected
VOC	Volatile organic compound

Deletion:

BSL Below screening level

Source: **Source:**

U.S. Environmental [illegible] Regional Screening Level [illegible] tables-may-2016

TABLE 2.3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SEDIMENT
DES MOINES TCE SITE, DES MOINES, IOWA

Exposure Area	Analyte Class	CAS Number	Analyte Name	Minimum Concentration (Qualifier)[1]	Maximum Concentration (Qualifier)[1]	Units	Location of Maximum	Frequency of Detection	Range of Detection Limits	Screening Concentration[2]	Screening Value[3, 4(Basis)] mg/kg		COPC	Rationale[5]
South Pond	Pesticide	309-00-2	Aldrin	0.0016	15	mg/kg -dry	SD-5	11/11	-	15	0.04	c*	Y	ASL
South Pond	Pesticide	959-98-8	alpha-Endosulfan	0.0029	0.0029	mg/kg -dry	SD-4	1/11	0.0028-0.33	0.0029	470	n	N	BSL
South Pond	Pesticide	5103-71-9	alpha-Chlordane	0.11	2.2	mg/kg -dry	SD-5	11/11	-	2.2	1.7	c*	Y	ASL
South Pond	Pesticide	33213-65-9	beta-Endosulfan	0.0054	0.0054	mg/kg -dry	SD-4	1/11	0.0055-0.64	0.0054	470	n	N	BSL
South Pond	Pesticide	60-57-1	Dieldrin	0.086	9.5	mg/kg -dry	SD-2	11/11	-	9.5	0.03	c*	Y	ASL
South Pond	Pesticide	72-20-8	Endrin	0.0095 J	0.0095 J	mg/kg -dry	SD-10	1/11	0.0048-0.64	0.0095	19.0	n	N	BSL
South Pond	Pesticide	53494-70-5	Endrin Ketone	0.064 J	0.066 J	mg/kg -dry	SD-2	2/11	0.0048-0.64	0.066	19.0	n	N	BSL
South Pond	Pesticide	5566-34-7	gamma-Chlordane	0.1	2.5	mg/kg -dry	SD-5	11/11	-	2.5	1.7	c*	Y	ASL
South Pond	Pesticide	1024-57-3	Heptachlor Epoxide	0.0056	0.034	mg/kg -dry	SD-2	4/11	0.0025-0.33	0.034	0.07	c*	N	BSL
South Pond	Pesticide	72-54-8	p,p'-DDD	0.012 J	0.81	mg/kg -dry	SD-2	11/11	-	0.81	2.3	c	N	BSL
South Pond	Pesticide	72-55-9	p,p'-DDE	0.012 J	0.24 J	mg/kg -dry	SD-9	8/11	0.041-0.64	0.24	2.0	c	N	BSL
South Pond	Pesticide	50-29-3	p,p'-DDT	0.0061 J	0.44 J	mg/kg -dry	SD-2	8/11	0.041-0.64	0.44	1.9	c*	N	BSL
South Pond	VOC	67-64-1	Acetone	0.1	1	mg/kg -dry	SD-3	11/11	-	1	61000	n	N	BSL
South Pond	VOC	156-59-2	cis-1,2-Dichloroethylene	0.049	0.049	mg/kg -dry	SD-4	1/11	0.0082-0.032	0.049	160	n	N	BSL
South Pond	VOC	79-20-9	Methyl Acetate	0.011 J	0.054	mg/kg -dry	SD-3	2/11	0.0082-0.015	0.054	78000	ns	N	BSL
South Pond	VOC	78-93-3	Methyl Ethyl Ketone (2-Butanone)	0.018	0.17	mg/kg -dry	SD-3	7/11	0.02-0.026	0.17	27000	n	N	BSL
South Pond	VOC	108-88-3	Tolune	0.014	0.13	mg/kg -dry	SD-3	4/11	0.0082-0.015	0.13	4900	ns	N	BSL
South Pond	VOC	79-01-6	Trichloroethene	0.027	0.027	mg/kg -dry	SD-4	1/11	0.0082-0.032	0.027	0.94	c**	N	BSL

Notes:
Shaded constituents indicate chemicals of potential concern.

1. Minimum/maximum detected concentration.
2. Maximum detected concentration used as the screening concentration.
3. Screening value is the residential RSL value
   Screening Value Basis Codes:
   - c Cancer endpoint and a target cancer risk of 1×10^{-6}
   - c* Cancer endpoint where: nc SL < 100X ca SL
   - c** Cancer endpoint where nc SL < 10X ca SL
   - nc non-cancer endpoint and a target hazard quotient of 0.1
4. The following surrogate values were used for screening:
   Chlordane was used as a surrogate for alpha-Chlordane and gamma-Chlordane.
   Endosulfan was used as a surrogate for alpha-Endosulfan.
   Endrin was used as a surrogate for Endrin ketone
5. Rationale Codes for selection or exclusion as COPC:

Selection:
ASL Above screening level

Definitions:
CAS Chemical Abstract Service
COPC Chemical of potential concern
J Estimated value(+/- bias)
mg/kg Milligram per kilogram
RSL Regional Screening Level

Deletion:
BSL Below screening level

Source:
U.S. Environmental Protection Agency (EPA). 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 2.4
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SURFACE WATER
DES MOINES TCE SITE, DES MOINES, IOWA

Exposure Area	Analyte Class	CAS Number	Analyte Name	Minimum Concentration (Qualifier)[1]	Maximum Concentration (Qualifier)[1]	Units	Location of Maximum	Frequency of Detection	Range of Detection Limits	Screening Concentration[2]	Screening Value[3,4(Basis)] µg/L		COPC	Rationale[5]
South Pond	Pesticide	5103-71-9	alpha-Chlordane	0.054	0.11	µg/L	SW-1	2/2	-	0.11	0.02	c*	Y	ASL
South Pond	Pesticide	60-57-1	Dieldrin	0.15	0.26	µg/L	SW-1	2/2	-	0.26	0.002	c	Y	ASL
South Pond	Pesticide	12789-03-6	gamma-Chlordane	0.098	0.098	µg/L	SW-1	1/2	0.00005	0.098	0.02	c*	Y	ASL
South Pond	VOC	67-64-1	Acetone	6.5	6.5	µg/L	SW-2	1/2	0.005	6.5	14000	n	N	BSL

Notes:
Shaded constituents indicate chemicals of potential concern.

1. Minimum/maximum detected concentration.
2. Maximum detected concentration used as the screening concentration.
3. Screening value the lower of the RSL or MCL values
   Screening Value Basis Codes:
   - c Cancer endpoint and a target cancer risk of 1×10^{-6}
   - c* Cancer endpoint where: nc SL < 100X ca SL
   - c** Cancer endpoint where nc SL < 10X ca SL
   - nc non-cancer endpoint and a target hazard quotient of 0.1
4. The following surrogate values were used for screening:
   Chlordane was used as a surrogate for alpha-Chlordane and gamma-Chlordane.
5. Rationale Codes for selection or exclusion as COPC:

Selection:
ASL Above screening level

Definitions:
µg/L Microgram per liter
CAS Chemical Abstract Service
COPC Chemical of potential concern
MCL Maximum Contaminant Level
RSL Regional Screening Level

Deletion:
BSL Below screening level

Source:
U.S. Environmental Protection Agency (EPA). 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 2.5
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - GROUNDWATER
DES MOINES TCE SITE, DES MOINES, IOWA

Exposure Area	Analyte Class	CAS Number	Analyte Name	Minimum Concentration (Qualifier)[1]	Maximum Concentration (Qualifier)[1]	Units	Location of Maximum	Frequency of Detection	Range of Detection Limits	Screening Concentration[2]	Screening Value[3, 4(Basis)] µg/L		COPC	Rationale[5]
Groundwater	VOC	107-06-2	1,2-Dichloroethane	0.6	0.6	µg/L	P-9	1/14	0.5 - 5	0.6	0.17	c*	Y	ASL
Groundwater	VOC	156-59-2	1,2-Dichloroethylene (total)	3.9	71	µg/L	ERW-6	11/14	0.5	71	36.000	n	Y	ASL
Groundwater	VOC	79-01-6	Trichloroethene	0.8	480	µg/L	ERW-7	8/14	0.5	480	0.49	c**	Y	ASL
Groundwater	VOC	75-01-4	Vinyl Chloride	1.5	3.4	µg/L	NW-22	3/14	0.5 - 5	3.4	0	c	Y	ASL

Notes:
Shaded constituents indicate chemicals of potential concern.

1. Minimum/maximum detected concentration.
2. Maximum detected concentration used as the screening concentration.
3. Screening value the lower of the RSL or MCL values
   Screening Value Basis Codes:
   - c Cancer endpoint and a target cancer risk of 1×10^{-6}
   - c* Cancer endpoint where: nc SL < 100X ca SL
   - c** Cancer endpoint where nc SL < 10X ca SL
   - nc non-cancer endpoint and a target hazard quotient of 0.1
4. The following surrogate values were used for screening:
   Chlordane was used as a surrogate for alpha-Chlordane and gamma-Chlordane.
5. Rationale Codes for selection or exclusion as COPC:

Selection:
ASL Above screening level

Deletion:
BSL Below screening level

Definitions:

µg/L	Microgram per Liter
CAS	Chemical Abstract Service
COPC	Chemical of potential concern
µg/L	Microgram per Liter
RSL	Regional Screening Level

Source:
U.S. Environmental Protection Agency (EPA). 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 3.1: EPA RAGS PART D TABLE 3, EXPOSURE POINT CONCENTRATION SUMMARY - SURFACE SOIL
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe:	Current/Future
Medium:	Surface Soil
Exposure Medium:	Surface Soil

Exposure Point	Analyte Class	CAS Number	Chemical of Potential Concern	Frequency of Detection	Number of High Censored Results (a)	Arithmetic Mean (b)	95 UCL Distribution (c)		Maximum Concentration (qualifier)	Exposure Point Concentration		
										Value	Statistic	Method (d)
Dico Property	Dioxins	1746-01-6	2,3,7,8-TCDD Equivalent	14/16	0	1.19E-05	1.92E-05	N	5.40E-05	1.92E-05	95 UCL	(8)
Dico Property	Pesticide	50-29-3	p,p'-DDT	9/17	0	2.49E-01	2.26E+00	NP	3.30E+00	2.26E+00	95 UCL	(15)
Dico Property	VOC	67-66-3	Chloroform	1/38	0	--	--	--	7.40E-01	7.40E-01	Maximum	(1)
Dico Property	VOC	156-59-2	cis-1,2-Dichloroethylene	4/17	0	1.68E+00	1.20E+01	G	2.40E+01	1.20E+01	95 UCL	(16)
Dico Property	VOC	79-01-6	Trichloroethene	9/17	0	2.35E+00	4.41E+00	N	1.50E+01	4.41E+00	95 UCL	(8)

Notes:

All concentrations in milligrams per kilogram.
Surface soils are those soils from 0 to 2 feet below ground surface.
The maximum detected value was selected as the EPC unless the number of samples collected is ≥ 10 and the number of detections is ≥ 4. If these conditions are met, the EPC is calculated in accordance with EPA guidance (2002, 2013).

-- Not applicable
CAS Chemical Abstract Service
EPA U.S. Environmental Protection Agency
EPC Exposure point concentration
RAGS Risk Assessment Guidance for Superfund
95 UCL One-sided 95 percent upper confidence limit of the mean. Following EPA (2002, 2013), this value may be estimated by either a 95, 97.5, or 99 percent UCL depending on sample size, skewness, and degree of censorship.

a Number of censored (nondetect) results that exceeded the maximum detected concentration. These results are excluded from statistical calculations.
b The arithmetic mean is based on the Kaplan-Meier (KM) mean for chemicals with non-detected values in the dataset.
c Distribution codes as follows: N=Normal, G=Gamma, LN=Lognormal, and NP=Non-parametric
d All methods follow EPA (2002, 2013).
Method (Statistic) Codes are defined as follows (some method codes may not be used in the table):
(1) Maximum detected concentration
(2) 95 percent UCL calculated using Student's t distribution
(3) 95 percent UCL calculated using the approximate gamma method
(4) 95 percent UCL calculated using the adjusted gamma method
(5) 95 percent UCL calculated using the Hall's Bootstrap (or Bootstrap t) method
(6) 95 percent UCL calculated using the KM mean and a BCa bootstrap to estimate the UCL
(7) 95 percent UCL calculated using the KM mean and a percentile bootstrap to estimate the UCL
(8) 95 percent UCL calculated using the KM mean and Student's t cutoff for the UCL
(9) 95 percent UCL calculated using the KM mean and the nonparametric Chebyshev method to estimate the UCL
(10) 95 percent UCL calculated using Land's H statistic
(11) 95 percent UCL calculated using the nonparametric Chebyshev method
(12) 97.5 percent UCL calculated using the nonparametric Chebyshev method
(13) 99 percent UCL calculated using the nonparametric Chebyshev method
(14) 97.5 percent UCL calculated using the KM mean and the nonparametric Chebyshev method to estimate the UCL
(15) 99 percent UCL calculated using the KM mean and the nonparametric Chebyshev method to estimate the UCL
(16) 95 percent UCL calculated using the Gamma Adjusted KM method

References:

U.S. Environmental Protection Agency (EPA). 2002. "Calculating Exposure Point Concentrations at Hazardous Waste Sites." OSWER 9285.6-10. Office of Emergency and Remedial Response. Washington, DC. December.
Prepared by Singh, A. and A.K. Singh. EPA/600/R-07/041. October.

TABLE 3.2: EPA RAGS PART D TABLE 3, EXPOSURE POINT CONCENTRATION SUMMARY - ALL SOIL
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe:	Future
Medium:	All Soils
Exposure Medium:	All Soils

Exposure Point	Analyte Class	CAS Number	Chemical of Potential Concern	Frequency of Detection	Number of High Censored Results (a)	Arithmetic Mean (b)	95 UCL Distribution (c)		Maximum Concentration (qualifier)	Exposure Point Concentration Value	Statistic	Method (d)
Dico Property	Dioxins	1746-01-6	2,3,7,8-TCDD Equivalent	14/16	0	1.19E-05	1.92E-05	N	5.40E-05	1.92E-05	95 UCL	(8)
Dico Property	Pesticide	50-29-3	p,p'-DDT	15/34	0	1.35E-01	5.75E-01	L	3.30E+00	5.75E-01	95 UCL	(9)
Dico Property	VOC	67-66-3	Chloroform	1/34	0	--	--	--	7.40E-01	7.40E-01	Maximum	(1)
Dico Property	VOC	156-59-2	cis-1,2-Dichloroethylene	5/34	0	8.42E-01	5.14E+00	G	2.40E+01	5.14E+00	95 UCL	(4)
Dico Property	VOC	79-01-6	Trichloroethene	14/34	0	1.45E+00	2.18E+00	G	1.50E+01	2.18E+00	95 UCL	(4)

Notes:

All concentrations in milligrams per kilogram.
All soils are those soils between 0 and 10 feet below ground surface
The maximum detected value was selected as the EPC unless the number of samples collected is ≥ 10 and the number of detections is ≥ 4. If these conditions are met, the EPC is calculated in accordance with EPA guidance (2002, 2013).

-- Not applicable
CAS Chemical Abstract Service
EPA U.S. Environmental Protection Agency
EPC Exposure point concentration
RAGS Risk Assessment Guidance for Superfund
95 UCL One-sided 95 percent upper confidence limit of the mean. Following EPA (2002, 2013), this value may be estimated by either a 95, 97.5, or 99 percent UCL depending on sample size, skewness, and degree of censorship.

a Number of censored (nondetect) results that exceeded the maximum detected concentration. These results are excluded from statistical calculations.
b The arithmetic mean is based on the Kaplan-Meier (KM) mean for chemicals with non-detected values in the dataset.
c Distribution codes as follows: N=Normal, G=Gamma, LN=Lognormal, and NP=Non-parametric
d All methods follow EPA (2002, 2013).
Method (Statistic) Codes are defined as follows (some method codes may not be used in the table):
(1) Maximum detected concentration
(2) 95 percent UCL calculated using Student's t distribution
(3) 95 percent UCL calculated using the approximate gamma method
(4) 95 percent UCL calculated using the adjusted gamma method
(5) 95 percent UCL calculated using the Hall's Bootstrap (or Bootstrap t) method
(6) 95 percent UCL calculated using the KM mean and a BCa bootstrap to estimate the UCL
(7) 95 percent UCL calculated using the KM mean and a percentile bootstrap to estimate the UCL
(8) 95 percent UCL calculated using the KM mean and Student's t cutoff for the UCL
(9) 95 percent UCL calculated using the KM mean and the nonparametric Chebyshev method to estimate the UCL

References:

U.S. Environmental Protection Agency (EPA). 2002. "Calculating Exposure Point Concentrations at Hazardous Waste Sites." OSWER 9285.6-10. Office of Emergency and Remedial Response. Washington, DC. December.
EPA. 2013. ProUCL Version 5.1 Technical Guide statistical software for Environmental Applications for Data Sets with and without Nondetect Observations.
Prepared by Singh, A. and A.K. Singh. EPA/600/R-07/041. October.

TABLE 3.3: EPA RAGS PART D TABLE 3, EXPOSURE POINT CONCENTRATION SUMMARY - SEDIMENT
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Point	Analyte Class	CAS Number	Chemical of Potential Concern	Frequency of Detection	Number of High Censored Results (a)	Arithmetic Mean (b)	95 UCL Distribution (c)		Maximum Concentration (qualifier)	Exposure Point Concentration		
										Value	Statistic	Method (d)
South Pond	Pesticide	309-00-2	Aldrin	11/11	0	2.35E+00	9.04E+00	G	1.50E+01	9.04E+00	95 UCL	(4)
South Pond	Pesticide	5103-71-9	alpha-Chlordane	11/11	0	6.95E-01	1.33E+00	G	2.20E+00	1.33E+00	95 UCL	(4)
South Pond	Pesticide	60-57-1	Dieldrin	11/11	0	2.38E+00	6.09E+00	G	9.50E+00	6.09E+00	95 UCL	(4)
South Pond	Pesticide	12789-03-6	gamma-Chlordane	11/11	0	6.98E-01	1.51E+00	G	2.50E+00	1.51E+00	95 UCL	(4)

Notes: All concentrations in milligrams per kilogram.

The maximum detected value was selected as the EPC unless the number of samples collected is ≥ 10 and the number of detections is ≥ 4. If these conditions are met, the EPC is calculated in accordance with EPA guidance (2002, 2013).

-- Not applicable
CAS Chemical Abstract Service
EPA U.S. Environmental Protection Agency
EPC Exposure point concentration
RAGS Risk Assessment Guidance for Superfund
95 UCL One-sided 95 percent upper confidence limit of the mean. Following EPA (2002, 2013), this value may be estimated by either a 95, 97.5, or 99 percent UCL depending on sample size, skewness, and degree of censorship.

a Number of censored (nondetect) results that exceeded the maximum detected concentration. These results are excluded from statistical calculations.
b The arithmetic mean is based on the Kaplan-Meier (KM) mean for chemicals with non-detected values in the dataset.
c Distribution codes as follows: N=Normal, G=Gamma, LN=Lognormal, and NP=Non-parametric
d All methods follow EPA (2002, 2013).

Method (Statistic) Codes are defined as follows (some method codes may not be used in the table):
(1) Maximum detected concentration
(2) 95 percent UCL calculated using Student's t distribution
(3) 95 percent UCL calculated using the approximate gamma method
(4) 95 percent UCL calculated using the adjusted gamma method

References:

U.S. Environmental Protection Agency (EPA). 2002. "Calculating Exposure Point Concentrations at Hazardous Waste Sites." OSWER 9285.6-10. Office of Emergency and Remedial Response. Washington, DC. December.
Prepared by Singh, A. and A.K. Singh. EPA/600/R-07/041. October.

TABLE 3.4: EPA RAGS PART D TABLE 3, EXPOSURE POINT CONCENTRATION SUMMARY - SURFACE WATER
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe:	Curent/Future
Medium:	Surface Water
Exposure Medium:	Surface Water

Exposure Area	Analyte Class	CAS Number	Chemical of Potential Concern	Frequency of Detection	Number of High Censored Results (a)	Arithmetic Mean (b)	95 UCL Distribution (c)		Maximum Concentration (qualifier)	Exposure Point Concentration		
										Value	Statistic	Method (d)
South Pond	Pesticide	5103-71-9	alpha-Chlordane	2/2	0	--	--	--	1.10E-01	1.10E-01	Maximum	(1)
South Pond	Pesticide	60-57-1	Dieldrin	2/2	0	--	--	--	2.60E-01	2.60E-01	Maximum	(1)
South Pond	Pesticide	12789-03-6	gamma-Chlordane	1/2	0	--	--	--	9.80E-02	9.80E-02	Maximum	(1)

Notes:

All concentrations in micrograms per liter.
The maximum detected value was selected as the EPC unless the number of samples collected is ≥ 8 and the number of detections is ≥ 3.
If these conditions are met, the EPC is calculated in accordance with EPA guidance (2002, 2013).

-- Not applicable
CAS Chemical Abstract Service
EPA U.S. Environmental Protection Agency
EPC Exposure point concentration
RAGS Risk Assessment Guidance for Superfund

a Number of censored (nondetect) results that exceeded the maximum detected concentration. These results are excluded from statistical calculations.
b The arithmetic mean is based on the Kaplan-Meier (KM) mean for chemicals with non-detected values in the dataset.
c Distribution codes as follows: N=Normal, G=Gamma, LN=Lognormal, and NP=Non-parametric
d All methods follow EPA (2002, 2013).
Method (Statistic) Codes are defined as follows (some method codes may not be used in the table):
(1) Maximum detected concentration

References:

U.S. Environmental Protection Agency (EPA). 2002. "Calculating Exposure Point Concentrations at Hazardous Waste Sites." OSWER 9285.6-10. Office of Emergency and Remedial Response. Washington, DC. December.
Prepared by Singh, A. and A.K. Singh. EPA/600/R-07/041. October.

TABLE 3.5: EPA RAGS PART D TABLE 3, EXPOSURE POINT CONCENTRATION SUMMARY - GROUNDWATER
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Analyte Class	CAS Number	Chemical of Potential Concern	Frequency of Detection	Number of High Censored Results (a)	Arithmetic Mean (b)	95 UCL Distribution (c)		Maximum Concentration (qualifier)	Exposure Point Concentration		
										Value	Statistic	Method (d)
Groundwater	VOC	107-06-2	1,2-Dichloroethane	1/14	2	--	--	--	6.00E-01	6.00E-01	Maximum	(1)
Groundwater	VOC	540-59-0	1,2-Dichloroethylene (total)	11/14	0	--	--	--	7.10E+01	7.10E+01	Maximum	(1)
Groundwater	VOC	79-01-6	Trichloroethene	8/14	0	--	--	--	4.80E+02	4.80E+02	Maximum	(1)
Groundwater	VOC	75-01-4	Vinyl Chloride	3/14	2	--	--	--	3.40E+00	3.40E+00	Maximum	(1)

Notes: All concentrations in micrograms per liter.
The maximum detected value was selected as the EPC consistent with EPA guidance (EPA 2014).
-- Not applicable
CAS Chemical Abstract Service
EPA U.S. Environmental Protection Agency
RAGS Risk Assessment Guidance for Superfund

a Number of censored (nondetect) results that exceeded the maximum detected concentration. These results are excluded from statistical calculations.
b The arithmetic mean is based on the Kaplan-Meier (KM) mean for chemicals with non-detected values in the dataset.
c Distribution codes as follows: N=Normal, G=Gamma, LN=Lognormal, and NP=Non-parametric
d All methods follow EPA (2002, 2013).
Method (Statistic) Codes are defined as follows (some method codes may not be used in the table):
(1) Maximum detected concentration

References:
U.S. Environmental Protection Agency (EPA). 2014. "Determining Groundwater Exposure Point Concentrations." OSWER Directive 9283.1-42. February

TABLE 3.6: EPA RAGS PART D TABLE 3, EXPOSURE POINT CONCENTRATION SUMMARY - INDOOR AIR (VAPOR INTRUSION)
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Indoor Air

Exposure Point	Analyte Class	CAS Number	Chemical of Potential Concern	Exposure Point Concentration in Groundwater			Exposure Point Concentration in Indoor Air	
				Value	Units	Statistic	Value	Units
Indoor Air	VOC	107-06-2	1,2-Dichloroethane	6.00E-01	µg/L	Maximum	1.39E-02	µg/m3
Indoor Air	VOC	540-59-0	1,2-Dichloroethylene (total)	7.10E+01	µg/L	Maximum	6.15E+00	µg/m3
Indoor Air	VOC	79-01-6	Trichloroethene	4.80E+02	µg/L	Maximum	9.29E+01	µg/m3
Indoor Air	VOC	75-01-4	Vinyl Chloride	3.40E+00	µg/L	Maximum	2.52E+00	µg/m3

Notes:

The maximum detected value was selected as the groundwater EPC consistent with EPA guidance (EPA 2014).
The EPA's Vapor Intrusion Screening Level Calculator (EPA 2016) was used to calculate the indoor air concentrations based on the groundwater EPCs with an average groundwater temperature of 51 degees Fahrenheit (10.6 degrees Celsius) (USGS 1925).

--	Not applicable
µg/L	Micrograms per liter
µg/m3	Micrograms per cubic meter
CAS	Chemical Abstract Service
EPA	U.S. Environmental Protection Agency
RAGS	Risk Assessment Guidance for Superfund

References:

U.S. Environmental Protection Agency (EPA). 2014. "Determining Groundwater Exposure Point Concentrations." OSWER Directive 9283.1-42. February
EPA. 2016. Vapor Intrusion Screening Level (VISL) Calculator Version 3.5.1 (May 2016 RSLs). July 11.
Water
Supply Paper 520-F.

TABLE 3.7: EPA RAGS PART D TABLE 3, EXPOSURE POINT CONCENTRATION SUMMARY - TRENCH AIR
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Trench Air

Exposure Point	Analyte Class	CAS Number	Chemical of Potential Concern	Exposure Point Concentration in Groundwater			Exposure Point Concentration in Indoor Air	
				Value	Units	Statistic	Value	Units
Indoor Air	VOC	107-06-2	1,2-Dichloroethane	6.00E-01	µg/L	Maximum	4.58E+00	µg/m3
Indoor Air	VOC	540-59-0	1,2-Dichloroethylene (total	7.10E+01	µg/L	Maximum	5.66E+02	µg/m3
Indoor Air	VOC	79-01-6	Trichloroethene	4.80E+02	µg/L	Maximum	3.31E+03	µg/m3
Indoor Air	VOC	75-01-4	Vinyl Chloride	3.40E+00	µg/L	Maximum	3.42E+01	µg/m3

Notes:

The maximum detected value was selected as the groundwater EPC consistent with EPA guidance (EPA 2014).
The Virginia Department of Environmental Quality's Trench Model (VDEQ 2007) was used to calculate the air concentrations in a trench based on the groundwater EPCs with an average groundwater temperature of 51 degees Fahrenheit (10.6 degrees Celsius) (USGS 1925).

--	Not applicable
µg/L	Micrograms per liter
µg/m3	Micrograms per cubic meter
CAS	Chemical Abstract Service
EPA	U.S. Environmental Protection Agency
RAGS	Risk Assessment Guidance for Superfund

References:

U.S. Environmental Protection Agency (EPA). 2014. "Determining Groundwater Exposure Point Concentrations." OSWER Directive 9283.1-42. February

EPA. 2016. Vapor Intrusion Screening Level (VISL) Calculator Version 3.5.1 (May 2016 RSLs). July 11.

Water

Supply Paper 520-F.

Virginia Department of Environmental Quality. 2007. Exposure-point concentrations (inhalation) for construction/utility workers in a trench: Groundwater less than 15 feet deep. October 5.

TABLE 4.1.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
FUTURE CHILD RESIDENT - SOIL
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Future
Medium: Surface and Subsurface Soil (All Soil)
Exposure Medium: Soil, Particulates/Vapors

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/Chronic Daily Exposure (CDE)
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Incidental	Future	Child	All Soil	RBA	Relative Bioavailability Factor	chemical-specific	unitless	See Table 5.3	CDI_{NC} (mg/kg-day) =
Ingestion	Resident	Age 0-6		IRS	Soil Ingestion Rate	200	mg/day	EPA, 2016 (1)	EPCs x RBA x IRS x FI x EF x ED x CFs
				FI	Fractional Intake	1	unitless	BPJ (2)	BW x ATnc
				EF	Exposure Frequency	350	days/year	EPA, 2016 (3)	
				ED	Exposure Duration	6	years	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	15	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	2,190	days	EPA, 1989, 2016 (6)	
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Dermal	Future	Child	All Soil	DAF	Dermal Absorption Factor	chemical-specific	unitless	See Table 5.3	CDI_{NC} (mg/kg-day) =
	Resident	Age 0-6		SA	Skin Surface Area	2,373	cm^2	EPA, 2016 (7)	EPCs x DAF x SA x AF x EF x ED x CFs
				AF	Soil-to-Skin Adherence Factor	0.2	mg/cm^2	EPA, 2016 (8)	BW x ATnc
				EF	Exposure Frequency	350	days/year	EPA, 2016 (3)	
				ED	Exposure Duration	6	years	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	15	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	2,190	days	EPA, 1989, 2016 (6)	
				EPCs	Exposure Point Concentration - Soil	chemical-specific	mg/kg	See Table 3 Series	
Inhalation	Future	Child	Outdoor Air	VF	Volatilization Factor	chemical-specific	m^3/kg	See Table 5.3	CDE_{NC} (mg/m^3) =
	Resident	Age 0-6	Particulates	PEF	Particulate Emission Factor	3.11E+10	m^3/kg	EPA, 2016 (9)	EPCs x (1/PEF + 1/VF) x EF x ED x ET x CFt
			and Vapors	EF	Exposure Frequency	350	days/year	EPA, 2016 (3)	ATnc
			from Soil	ED	Exposure Duration	6	years	EPA, 2016 (4)	
				ET	Exposure Time	24	hours/day	EPA, 2016 (10)	
				CFt	Conversion Factor - Time (1/24)	0.042	day/hours	--	
				ATnc	Averaging Time - Noncarcinogens	2,190	days	EPA, 1989, 2016 (6)	

Notes: **Notes:**

(1) IRS: Default soil ingestion rate for children. (i) IRS: Default soil ingestion rate for children.

(2) FI: Assumes 100% of soil ingestion occurs at the Site. (ii) FI: Assumes 100% of soil ingestion occurs at the Site.

(3) EF: Default exposure frequency for residents. (iii) EF: Default exposure frequency for residents.

(4) ED: Default exposure duration for child residents. (iv) ED: Default exposure duration for child residents.

(5) BW: Default child body weight. (v) BW: Default child body weight.

(6) ATnc: 365 days/year x 30 years x 70 kg/ED in years. Assumes ED in years for residents is the average residency for a child receptor only. (vi) ATnc: 365 days/year x 30 years x 70 kg/ED in years. Assumes ED in years for residents is the average residency for a child receptor only.

(7) SA: Default skin surface area available for soil contact for a child receptor. Weighted average for head, hands, forearms, lower legs, and feet (males and females combined) (birth to < 6 years). (vii) SA: Default skin surface area available for soil contact for a child receptor. Weighted average for head, hands, forearms, lower legs, and feet (males and female combined) (birth to < 6 years).

(8) AF: Default soil to skin adherence factor for children. (viii) AF: Default soil to skin adherence factor for children.

(9) PEF: default PEF for Nebraska (Climatic Zone 5). (ix) PEF: default PEF, Nebraska (Climatic Zone 5).

(10) ET: Default exposure time for residents. (x) ET: Default exposure time for residents.

BPJ	BPJ	Best Professional Judgment
cm^2	cm^2	Square centimeter
kg	kg	Kilogram
kg/mg	kg/mg	Kilogram per milogram
m^3/kg	m^3/kg	Cubic meter per kilogram
mg/µg	mg/µg	Milligrams per microgram
mg/cm^2	mg/cm^2	Milligrams per square centimeter
mg/kg	mg/kg	Milligrams per kilogram
mg/kg-day	mg/kg-day	Milligrams per kilogram per day

Sources: **Sources:**

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A)." Office of Emergency and Remedial Response. EPA/540/1-89/002a. December.

EPA. 2016. "Regional Screening Levels Generic Tables." Available online at https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may2016. Accessed May 2016.

TABLE 4.1.2.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
FUTURE CHILD RESIDENT - GROUNDWATER
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater, Vapors

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/Chronic Daily Exposure (CDE)
Ingestion	Future Resident	Child Age 0-6	Groundwater	EPCgw	Exposure Point Concentration - Groundwater	medium-specific	ug/L	See Table 3 Series	
				IRgw	Tapwater Ingestion Rate	0.78	L/day	EPA, 2016 (1)	CDI_{NC} (mg/kg-day) =
				FI	Fractional Intake	1	unitless	BPJ (2)	EPCgw x IRgw x FI x EF x ED x CFw
				EF	Exposure Frequency	350	days/year	EPA, 2016 (3)	BW x ATnc
				ED	Exposure Duration	6	years	EPA, 2016 (4)	
				CFw	Conversion Factor - Water	1.0E-03	mg/ug	--	
				BW	Body Weight	15	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	2,190	days	EPA, 1989, 2016 (6)	
Dermal	Future Resident	Child Age 0-6	Groundwater	EPCgw	Exposure Point Concentration - Groundwater	medium-specific	ug/L	See Table 3 Series	
				Kp	Dermal Permeability Constant	chemical-specific	cm/hour	See Table 5.3	For Organics:
				EF	Exposure Frequency	350	days/year	EPA, 2016 (3)	CDI (mg/kg-day) =
				ED	Exposure Duration	6	years	EPA, 2016 (4)	EPCgw x FA x Kp x SAgw x EF x ED x DAevent x EV x CFw x CFv
				SAgw	Skin Surface Area	6,365	cm^2	EPA, 2016 (7)	BW x ATnc
				ETb	Exposure Time - Bathing	0.54	hour/event	EPA, 2016 (8)	
				CFw	Conversion Factor - Water	1.0E-03	mg/ug	--	If ETb < or = t*, then:
				CFv	Conversion Factor - Volume	1.0E-03	L/cm^3	--	$DAevent = 2 \times \sqrt{(6 \times \tau_{event} \times ETb)/\pi}$
				FA	Fraction Absorbed - Water	chemical-specific	unitless	See Table 5.3	
				τ_{event}	Lag Time per Event	chemical-specific	hour/event	See Table 5.3	If ETb > t*, then:
				B	Ratio of Permeability Coefficient of a Compound through t	chemical-specific	unitless	See Table 5.3	$DAevent = ETb/(1+B) + \{2 \times \tau_{event} \times ([1+3B+3B^2]/[1+B]^2)\}$
					Corneum Relative to its Permeability Coefficient Across th	--	--	--	
					Viable Epidermis	--	--	--	
				DAevent	Absorbed Dose per Event	site-specific	mg/cm^2-event	--	
				t*	Time to Reach Steady-State	chemical-specific	hour	See Table 5.3	
				EV	Event Frequency	1	event/day	EPA, 2016 (9)	
				BW	Body Weight	15	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	2,190	days	EPA, 1989, 2016 (6)	
Inhalation	Future Resident	Child Age 0-6	Indoor Air Vapors (Household Use)	EPCgw	Exposure Point Concentration - Groundwater	medium-specific	ug/L	See Table 3 Series	
				VF_W	Volatilization Factor, Domestic Use	0.5	L/m^3	EPA, 2016 (10)	CDE (mg/m^3) =
				EF	Exposure Frequency	350	days/year	EPA, 2016 (3)	EPCgw x VFw x EF x ED x ET x CFgw x CFt
				ED	Exposure Duration	6	years	EPA, 2016 (4)	ATnc
				ET	Exposure Time	24	hour/day	EPA, 2016 (11)	
				CFw	Conversion Factor - Water	1.0E-03	mg/ug	--	
				CFt	Conversion Factor - Time (1/24)	0.042	day/hour	--	
				ATnc	Averaging Time - Noncarcinogens	2,190	days	EPA, 1989, 2016 (6)	

Inhalation	Future Resident	Child Age 0-6	Indoor Air Vapors (Vapor Intrusion)	EPCia	Chemical Concentration in Indoor Air	medium-specific	ug/m^3	See Table 3 Series	CDE (mg/m^3) = EPCia x EF x ED x ET x CFt x CFa / ATnc
				EF	Exposure Frequency	350	days/year	EPA, 2016 (3)	
				ED	Exposure Duration	6	years	EPA, 2016 (4)	
				ET	Exposure Time	24	hour/day	EPA, 2016 (11)	
				CFa	Conversion Factor - Air	0.001	mg/ug	--	
				CFt	Conversion Factor - Time (1/24)	0.042	day/hour	--	
				ATnc	Averaging Time - Noncarcinogens	2,190	days	EPA, 1989, 2016 (6)	

Notes:

(1) IRgw: Default water ingestion rate for a child.

(2) FI: Assumes all water is consumed from the residence.

(3) EF: Default exposure frequency for residents.

(4) ED: Default exposure duration for child residents.

(5) BW: Default body weight for a child.

(6) ATnc: 365 days/year x 6 year ED; note, carcinogenic effects for residents were evaluated using the more-sensitive aggregate resident receptor only.

(7) SAgw: Default skin surface area for a child resident during bathing.

(8) ETb: Default exposure time for child resident during bathing.

(9) EV; Default event frequency for bathing.

(10) VFw: Default volatilization factor for domestic use of groundwater.

(11) ET: Default expsoure time for a resident.

--	Not applicable
cm/hour	Centimeter per hour
cm2	Square centimeter
kg	Kilogram
L/cm3	Liter per cubic centimeter
L/day	Liter per day
L/m3	Liter per cubic meter
mg/cm2-event	Milligrams per square centimeter per event
mg/ug	Milligrams per microgram
ug/L	Micorgrams per liter
ug/m3	Microgram per cubic meter

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 4.2.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
FUTURE AGGREGATE RESIDENT- SOIL
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Future
Medium: Surface and Subsurface Soil (All Soil)
Exposure Medium: Surface and Subsurface Soil, Particulates/Vapors

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/Chronic Daily Exposure (CDE)
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Incidental	Future	Resident	All Soil	RBA	Relative Bioavailability Factor	chemical-specific	unitless	See Table 5.3	CDI_C (mg/kg-day) =
Ingestion	Resident	Age 0 to 26		IRSadj	Age-Adjusted Soil Ingestion Rate	105	mg-year/kg-day	EPA, 2016 (1)	EPCs x RBA x IRS[M]adj x FI x EF x CFs
				IRSMadj	Mutagenic IRSadj	477	mg-year/kg-day	EPA, 2016 (2)	ATc
				FI	Fractional Intake	1	unitless	BPJ (3)	
				EF	Exposure Frequency	350	days/year	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (5)	
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Dermal	Future	Resident	All Soil	DAF	Dermal Absorption Factor	chemical-specific	unitless	See Table 5.3	CDI_C (mg/kg-day) =
	Resident	Age 0 to 26		DFSadj	Age-Adjusted Dermal Contact Factor - Soil	325	mg-year/kg-day	EPA, 2014 (6)	EPCs x DAF x DFS[M]adj x EF x CFs
				DFSMadj	Mutagenic DFSadj	1379	mg-year/kg-day	EPA, 2016 (7)	ATc
				EF	Exposure Frequency	350	days/year	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1E-06	kg/mg	--	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (5)	
				EPCs	Exposure Point Concentration - Soil	chemical-specific	mg/kg	See Table 3 Series	
Inhalation	Future	Resident	Outdoor Air	VF	Volatilization Factor	chemical-specific	m^3/kg	See Table 5.3	CDE_C (µg/m^3) =
	Resident	Age 0 to 26	Particulates	PEF	Particulate Emission Factor	3.11E+10	m^3/kg	EPA, 2016 (8)	EPCs x (1/PEF + 1/VF) x EF x ED[Madj] x ET x CFt
			and Vapors	EF	Exposure Frequency	350	days/year	EPA, 2016 (4)	CFa x ATc
			from Soil	ED	Exposure Duration	26	years	EPA, 2016 (9)	
				EDMadj	Mutagenic ED	72	years	EPA, 2016 (10)	
				ET	Exposure Time	24	hours/day	EPA, 2016 (11)	
				CFa	Conversion Factor - Air	1E-03	mg/µg	--	
				CFt	Conversion Factor - Time (1/24)	0.042	day/hour	--	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (5)	

Notes:

(1) IRSadj: Consistent with the EPA (2016) RSL User's Guide, age-adjusted soil ingestion rates for aggregate residents were calculated as:

IRSadj (mg-year/kg-day) = (ED_{0-2} (2 yr) x IRS_{child} (200 mg/day) / BW_{child} (15kg))+(ED_{2-6} (4 yr) x IRS_{child} (200 mg/day) / BW_{child} (15kg)) + (ED_{6-16} (10 yr) x IRS_{adult} (100 mg/day) / BW_{adult} (80kg)) + (ED_{16-26} (10 yr) x IRS_{adult} (100 mg/day) / BW_{adult} (80kg))

Where: ED = Exposure Duration (years); IRS = Ingestion Rate of Soil (mg/day); BW = Body Weight (kg)

(2) IRSMadj: Consistent with the EPA (2016) RSL User's Guide, age-adjusted soil ingestion rates for mutagens for aggregate residents were calculated as:

IRSMadj (mg-year/kg-day) = (ED0-2 (2 yr) x IRSchild (200 mg/day) x ADAF0-2 (10)/ BWchild (15kg))+(ED2-6 (4 yr) x IRSchild (200 mg/day) x ADAF2-6 (3) / BWchild (15kg)) + (ED6-16 (10 yr) x IRSadult (100 mg/day) x ADAF6-16 (3) / BWadult (80kg)) + (ED16-26 (10 yr) x IRSadult (100 mg/day) x ADAF16-26 (1) / BWadult (80kg))

Where: ED = Exposure Duration (years); IRS = Ingestion Rate of Soil (mg/day); ADAF = Age-Dependent Adjustment Factor (unitless); BW = Body Weight (kg)

(3) FI: Assumes 100% of soil ingestion occurs at the Site.

(4) EF: Default exposure frequency for residents.

(5) ATc: Assumes 365 days/year for a 70-year lifetime for a non-threshold toxicant for consistency with the chronic reference dose for residents using the chronic sensitive child receptor.

(6) DFS_{adj}: Consistent with EPA (2014) "Supplemental Guidance, Age-Adjusted Soil Ingestion Rates" for aggregate residents were calculated as:

$$(ED_{0\text{-}2}\ (2\ yr) \times SA_{child}\ (2{,}727\ cm^2) \times AF_{child}\ (0.032\ mg/cm^2) \times EF\ (1\ yr) \times ABS\ (1\ kg)) / BW_{child}\ (15\ kg)) + (ED_{2\text{-}6}\ (4\ yr) \times SA_{child}\ (2{,}727\ cm^2) \times AF_{child}\ (0.032\ mg/cm^2) \times EF\ (1\ yr) \times ABS\ (1\ kg)) / BW_{child}\ (15\ kg)) + (ED_{6\text{-}16}\ (10\ yr) \times SA_{adult}\ (6{,}032\ cm^2) \times AF_{adult}\ (0.007\ mg/cm^2) \times EF\ (1\ yr) \times ABS\ (1\ kg)) / BW_{adult}\ (80\ kg)) +$$

$$(ED_{16\text{-}26}\ (10\ yr) \times SA_{adult}\ (6{,}032\ cm^2) \times AF_{adult}\ (0.007\ mg/cm^2) \times EF\ (1\ yr) \times ABS\ (1\ kg)) / BW_{adult}\ (80\ kg))$$

Where: ED = Exposure Duration (years); SA = Skin Surface Area (cm²); AF = Soil-to-skin Adherence Factor (mg/cm²); ABS = Dermal Absorption Factor (unitless); BW = Body Weight (kg)

(7) DFSMadj: Consistent with EPA (2014) "Supplemental Guidance, Age-Adjusted Soil Ingestion Rates" for aggregate residents were calculated as:

$$(ED_{0\text{-}2}\ (2\ yr) \times SA_{child}\ (2{,}727\ cm^2) \times AF_{child}\ (0.032\ mg/cm^2) \times ADAF\ (10) \times EF\ (1\ yr) \times ABS\ (1\ kg)) / BW_{child}\ (15\ kg)) +$$

$$(ED_{6\text{-}16}\ (10\ yr) \times SA_{adult}\ (6{,}032\ cm^2) \times AF_{adult}\ (0.007\ mg/cm^2) \times ADAF\ (3) \times EF\ (1\ yr) \times ABS\ (1\ kg)) / BW_{adult}\ (80\ kg))$$

Where: ED = Exposure Duration (years); SA = Skin Surface Area (cm²); AF = Soil-to-skin Adherence Factor (mg/cm²); ADAF = Age-Dependent Adjustment Factor (unitless); ABS = Dermal Absorption Factor (unitless); BW = Body Weight (kg)

(8) PEF: default PEF, Nebraska (Climatic Zone 5).

(9) ED: Default exposure duration for residents.

(10) EDMadj: To account for potential increased risk from age-dependent toxicants, an age-dependent adjustment factor (ADAF) of 10 is applied to the ED for ages 0 to 2, an ADAF of 3 is applied to the ED for ages 2 to 6, an ADAF of 3 is applied to the ED for ages 6 to 16, and an ADAF of 1 is applied to the ED for ages 16 to 26 [(2 yrs)*(10*3)+(4 yrs)*(3*3)+(10*3)+(10*1)=72].

(11) Default exposure time for residents.

BPJ	BPJ	Best Professional Judgment
cm^2	cm^2	Square centimeter
kg	kg	Kilogram
kg/mg	kg/mg	Kilogram per milogram
mg/µg	mg/µg	Milligrams per microgram
m^3/kg	m^3/kg	Cubic meter per kilogram
mg/cm^2	mg/cm^2	Milligrams per square centimeter
mg/kg	mg/kg	Milligrams per kilogram
mg/kg-day	mg/kg-day	Milligrams per kilogram per day

Sources: **Sources:**

U.S. Environmental Protection Agency (EPA). 1989. Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A). Office of Solid Waste and Emergency Response. EPA/540/1-89/002a. December.

EPA. 2016. "Regional Screening Levels User Guide." Available online at https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 4.2.2.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
FUTURE AGGREGATE RESIDENT - GROUNDWATER
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater, Vapors

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/chronic Daily Exposure (CDE)
				EPCgw	Exposure Point Concentration - Groundwater	medium-specific	ug/L	See Table 3 Series	
Ingestion	Future	Aggregate Resident	Groundwater	IRGWadj	Age-Adjusted Tapwater Ingestion Rate	0.94	L-year/kg-day	EPA, 2016 (1)	CDI (mg/kg-day) =
	Resident	Age 0 to 26		IRGWMadj	Mutagenic IRGWadj	2.9	L-year/kg-day	EPA, 2016 (2)	EPCgw x IRGW[M]adj x FI x EF x CFw
				FI	Fractional Intake	1	unitless	BPJ (3)	ATc
				EF	Exposure Frequency	350	days/year	EPA, 2016 (4)	
				CFw	Conversion Factor - Water	1.0E-03	mg/ug	--	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (5)	
				EPCgw	Exposure Point Concentration - Groundwater	medium-specific	ug/L	See Table 3 Series	For Inorganics:
Dermal	Future	Aggregate Resident	Groundwater	Kp	Dermal Permeability Constant	chemical-specific	cm/hour	See Table 5.3	CDI (mg/kg-day) =
	Resident	Age 0 to 26		DFGWadj	Age-Adjusted Dermal Contact Factor - Groundwater	7,459	cm^2-year/kg	EPA, 2016 (6)	
				DFGWMadj	Mutagenic DFGWadj	23,405	cm^2-year/kg	EPA, 2016 (7)	
				EF	Exposure Frequency	350	days/year	EPA, 2016 (4)	EPCgw x Kp x DFGW[M]adj x EF x ET_b x CFgw x CFv
				ETbadj	Exposure Time-bath	0.67	hour/event	EPA, 2016 (8)	AT
				CFw	Conversion Factor - Water	1.0E-03	mg/ug	--	For Organics:
				CFv	Conversion Factor - Volume	1.0E-03	L/cm^3	--	
				FA	Fraction Absorbed - Water	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
				τ_{event}	Lag Time per Event	chemical-specific	hour/event	See Table 5.3	DAevent x EV x EF x DFGW[M]adj
				B	Ratio of Permeability Coefficient of a Compound through the	chemical-specific	unitless	See Table 5.3	AT
					Corneum Relative to its Permeability Coefficient Across the	--	--	--	If ET < or = t*, then:
					Viable Epidermis	--	--	--	DAevent = 2 x FA x Kp x EPCgw x CFv x CFgw x [sqrt (6 x τevent x ET_b/pi)]
				DAevent	Absorbed Dose per Event	site-specific	mg/cm^2-event	EPA, 2004	If ET > t*, then:
				t*	Time to Reach Steady-State	chemical-specific	hour	See Table 5.3	DAevent = FA x Kp x EPCgw x CFv x CFgw x [ET_b/(1+B) + 2 x τevent
				EV	Event Frequency	1	event/day	EPA, 2004	x ({1+3B+$3B^2$}/{1+B})^2)]
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (5)	
				EPCgw	Exposure Point Concentration - Groundwater	See Table 3s	ug/L	See Table 3 Series	
Inhalation	Future	Aggregate Resident	Indoor Air	EF	Exposure Frequency	350	days/year	EPA, 2016 (4)	CDE (μg/m^3) =
	Resident	Age 0 to 26	Vapors	ED	Exposure Duration	26	years	EPA, 2016 (9)	EPCgw x VFw x EF x ED[Madj] xETx CFt
			(Household Use)	EDMadj	Mutagenic ED	72	years	EPA, 2016 (10)	ATc
				ET	Exposure Time	24	hour/day	EPA, 2016 (11)	
				VF_W	Volatilization factor, Domestic Use	0.5	L/m^3	EPA, 2016 (12)	
				CFt	Conversion Factor - Time (1/24)	0.042	day/hour	--	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (5)	

Inhalation	Future Resident	Resident Age 0 to 26	Indoor Air Vapors (Vapor Intrusion)	EPCia	Chemical Concentration in Indoor Air	medium-specific	ug/m^3	See Table 3 Series	CDE (µg/m^3) =
				EF	Exposure Frequency	350	days/year	EPA, 2016 (4)	EPCia x EF x ED[Madj] x ET x CFt
				ED	Exposure Duration	26	years	EPA, 2016 (2)	ATc
				EDMadj	Mutagenic ED	72	years	EPA, 2016 (10)	
				ET	Exposure Time	24	hours/day	EPA, 2016 (11)	
				CFt	Conversion Factor - Time (1/24)	0.042	day/hour	--	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (5)	

Notes:

(1) IRGWadj: Consistent with the EPA (2016) RSL User's Guide, an age-adjusted tapwater ingestion rate for aggregate residents calculated as:

IRGWadj (L-year/kg-day) = (ED_{0-2} (2 yr) x IRS_{child} (0.78 L/day) / BW_{child} (15 kg))+(ED_{2-6} (4 yr) x IRS_{child} (0.78 L/day) / BW_{child} (15 kg)) + (ED_{6-16} (10 yr) x IRS_{adult} (2.5 L/day) / BW_{adult} (80 kg)) + (ED_{16-26} (10 yr) x IRS_{adult} (2.5 L/day) / BW_{adult} (80 kg))

Where: ED = Exposure Duration (years); IRS = Ingestion Rate of Tap water (L/day); BW = Body Weight (kg) EPA (2016) recommended value for calculating age-adjusted rates.

(2) IRGWMadj: Consistent with the EPA (2016) RSL User's Guide, an age-adjusted tapwater ingestion rate for mutagens for aggregate residents calculated as:

IRSMadj (mg-year/kg-day) = (ED_{0-2} (2 yr) x IRS_{child} (0.78 L/day) x $ADAF_{0-2}$ (10)/ BW_{child} (15 kg))+(ED_{2-6} (4 yr) x IRS_{child} (0.78 L/day) x $ADAF_{2-6}$ (3) / BW_{child} (15 kg)) + (ED_{6-16} (10 yr) x IRS_{adult} (2.5 L/day) x $ADAF_{6-16}$ (3) / BW_{adult} (80 kg)) + (ED_{16-26} (10 yr) x IRS_{adult} (2.5 L/day) x $ADAF_{16-26}$ (1) / BW_{adult} (80 kg))

Where: ED = Exposure Duration (years); IRS = Ingestion Rate of Tap water (L/day); BW = Body Weight (kg) EPA (2016) recommended value for calculating age-adjusted rates; ADAF = Age-Dependent Adjustment Factor (unitless)

(3) FI: Assumes 100% of groundwater ingestion occurs at the Site.

(4) EF: Default exposure frequency for residents.

(5) ATc: Assumes 365 days per year over a 70-year lifetime. Note that non-carcinogenic effects for residents were evaluated using the more-sensitive child receptor.

(6) DFGWadj: Consistent with the methodology presented in the EPA (2016) RSL User's Guide, the RME age-adjusted dermal contact rate for residents age 0 to 26 is calculated as:

DFGWadj (cm2-hr-yr/kg-day) = ((ED0-2 (2 yrs) x SAchild (6,365 cm2) / BWchild (15 kg)) + (ED2-6 (4 yrs) x SAchild (6,365 cm2) / BWchild (15 kg)) + (ED6-16 (10 yrs) x SAadult (19,652 cm2) / BWadult (80 kg)) + (ED16-26 (10 yrs) x SAadult (19,652 cm2) / BWadult (80 kg))

Where: ED = Exposure Duration (years); SA = Skin Surface Area (cm^2); BW = Body Weight (kg)

(7) DFGWMadj: Consistent with the methodology presented in the EPA (2016) RSL User's Guide, the RME age-adjusted dermal contact rate for mutagens for residents age 0 to 26 is calculated as:

DFGWMadj (cm^2-hr-yr/kg-day) = ((ED_{0-2} (2 yrs) x SAchild (6,365 cm^2) x $ADAF_{0-2}$ (10) / BWchild (15 kg)) + (ED_{2-6} (4 yrs) x SAchild (6,365 cm^2) x $ADAF_{2-6}$ (3) / BWchild (15 kg)) + (ED_{6-16} (10 yrs) x SAadult (19,652 cm^2) x ADAF6-16 (3) / BWadult (80 kg)) + (ED16-26 (10 yrs) x SAadult (19,652 cm^2) x ADAF16-26 (1) / BWadult (80 kg)

Where: ED = Exposure Duration (years); SA = Skin Surface Area (cm^2); BW = Body Weight (kg); ADAF = Age-Dependent Adjustment Factor (unitless)

(8) ETbadj: Consistent with the EPA (2016) RSL User's Guide, the RME age-adjusted exposure time for bathing for residents 0 to 26 years was calculated as:

ETbadj (yr-hr/day) = (ED_{0-6} (6 yrs) x ETb-child (0.54 hr/day)) + (ED6-26 (20 yrs) x ETb-adult (0.71 hr))/26

Where: ED = Exposure Duration (years); ETb = Exposure Time - Bathing (hr/day)

(9) ED: Default exposure duration for residents.

(10) EDMadj: To account for potential mutagenic effects via inhalation, age-dependent factors of 10, 3, 3, and 1 were applied to the EDs for ages 0-2, 2-6, 6-16, and 16-26 years, respectively.

(11) ET: Default resident time.

(12) VFw: Default volatilization value (Andelman constant [K]) for transfer of volatiles from groundwater to indoor air from domestic use.

--	Not applicable
cm/hour	Centimeter per hour
cm2	Square centimeter
kg	Kilogram
L/cm3	Liter per cubic centimeter
L/day	Liter per day
L/m3	Liter per cubic meter
mg/cm2-event	Milligrams per square centimeter per event
mg/ug	Milligrams per microgram
ug/L	Micrograms per liter
ug/m3	Microgram per cubic meter

Sources:

U.S. Environmental Protection Agency (EPA). 1989. “Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A).” Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2004. "Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment)." Final. Office of Superfund Remediation and Technology Innovation. EPA/540/R/99/005. July.

EPA. 2016. “Regional Screening Level User's Guide.” May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 4.3.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
FUTURE INDUSTRIAL/COMMERCIAL WORKER
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Future
Medium: Surface and Subsurface Soil (All Soil)
Exposure Medium: Surface and Subsurface Soil, Particulates/Vapors

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/Chronic Daily Exposure (CDE)
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Incidental	Future	Adult	All Soil	RBA	Relative Bioavailability Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
Ingestion	On-Site			IRS	Soil Ingestion Rate	50	mg/day	EPA, 2016 (1)	EPCs x RBA x IRS x FI x EF x ED x CFs
	Commercial/			FI	Fractional Intake	1	unitless	BPJ (2)	BW x AT
	Industrial			EF	Exposure Frequency	250	days/year	EPA, 2016 (3)	
	Worker			ED	Exposure Duration	25	years	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	80	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	9,125	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Dermal	Future	Adult	All Soil	DAF	Dermal Absorption Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
	On-Site			SA	Skin Surface Area	3,527	cm^2	EPA, 2016 (7)	EPCs x DAF x SA x AF x EF x ED x CFs
	Commercial/			AF	Soil-to-Skin Adherence Factor	0.12	mg/cm^2	EPA, 2016 (8)	BW x AT
	Industrial			EF	Exposure Frequency	250	days/year	EPA, 2016 (3)	
	Worker			ED	Exposure Duration	25	years	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	80	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	9,125	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCs	Exposure Point Concentration - Soil	chemical-specific	mg/kg	See Table 3 Series	
Inhalation	Future	Adult	Outdoor Air	VF	Volatilization Factor	chemical-specific	m^3/kg	See Table 5.3	CDE_C ($\mu g/m^3$) =
	On-Site		Particulates	PEF	Particulate Emission Factor	3.11E+10	m^3/kg	EPA, 2016 (9)	EPCs x (1/PEF + 1/VF) x EF x ED x ET x CFt
	Commercial/		and Vapors	EF	Exposure Frequency	250	days/year	EPA, 2016 (3)	CFa x ATc
	Industrial		from Soil	ED	Exposure Duration	25	years	EPA, 2016 (4)	
	Worker			ET	Exposure Time	8	hours/day	EPA, 2016 (10)	CDE_{NC} (mg/m^3) =
				CFa	Conversion Factor - Air	1.0E-03	mg/µg	--	EPCs x (1/PEF + 1/VF) x EF x ED x ET x CFt
				CFt	Conversion Factor - Time (1/24)	0.042	day/hours	--	ATnc
				ATnc	Averaging Time - Noncarcinogens	9,125	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	

Notes: **Notes:**

(1) IRS: Default soil ingestion rate for indoor workers. (1) IRS: Default soil ingestion rate for indoor workers.

(2) FI: Assumes 100% of soil ingestion occurs at the Site. (2) FI: Assumes 100% of soil ingestion occurs at the Site.

(3) EF: Default exposure frequency for indoor workers. (3) EF: Default exposure frequency for indoor workers.

(4) ED: Default exposure duration for workers. (4) ED: Default exposure duration for workers.

(5) BW: Default adult body weight. (5) BW: Default adult body weight.

(6) ATc: 365 days/year x 70 years/year x 365 days/year x 25 year ED. (6) ATc: 365 days/year x 70 years/year x 365 days/year x 25 year ED.

(7) SA: Default skin surface area for workers. (7) SA: Default skin surface area for workers.

(8) AF: Default soil to skin adherence factor for outdoor workers. (8) AF: Default soil to skin adherence factor for outdoor workers.

(9) PEF: Default PEF value for Nebraska (Climatic Zone 5). (9) PEF: Default PEF value for Nebraska (Climatic Zone 5).

(10) ET: Assumes 8 hour work day. (10) ET: Assumes 8 hour work day.

BPJ	BPJ	Best Professional Judgment
cm^2	cm^2	Square centimeter
kg	kg	Kilogram
kg/mg	kg/mg	Kilogram per milogram
m^3/kg	m^3/kg	Cubic meter per kilogram
mg/µg	mg/µg	Milligrams per microgram
mg/cm^2	mg/cm^2	Milligrams per square centimeter
mg/kg	mg/kg	Milligrams per kilogram
mg/kg-day	mg/kg-day	Milligrams per kilogram per day

Sources: **Sources:**

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA 540/1-89/002a. December.

EPA. 2016. "Regional Screening Level Users Guide." Map Available on line at https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 4.3.2.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
FUTURE INDUSTRIAL/COMMERCIAL WORKER - GROUNDWATER
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater, Vapors

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/Chronic Daily Exposure (CDE)
Ingestion	Future On-Site Commercial/ Industrial Worker	Adult	Groundwater	EPCgw	Exposure Point Concentration - Groundwater	medium-specific	ug/L	See Table 3 Series	
				IRgw	Groundwater Ingestion Rate	1.25	L/day	EPA, 2016 (1)	CDI (mg/kg-day) =
				FI	Fractional Intake	1	unitless	BPJ (2)	EPCgw x IRgw x FI x EF x ED x CFgw
				EF	Exposure Frequency	250	days/year	EPA 2016 (3)	BW x AT
				ED	Exposure Duration	25	years	EPA, 2016 (4)	
				CFgw	Conversion Factor - Groundwater	1.0E-03	mg/ug	--	
				BW	Body Weight	80	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	9,125	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
Inhalation	Future On-Site Commercial/ Industrial Worker	Adult	Indoor Air Vapors (Domestic Use)	EPCgw	Exposure Point Concentration - Groundwater	medium-specific	ug/L	See Table 3 Series	
				VF_W	Volatilization Factor, Domestic Use	0.5	L/m^3	EPA, 2016 (10)	CDE (mg/m^3) =
				EF	Exposure Frequency	250	days/year	EPA 2016 (3)	EPCgw x VFw x EF x ED x ET x CFw x CFt
				ED	Exposure Duration	25	years	EPA, 2016 (4)	ATnc
				ET	Exposure Time	8	hour/day	EPA, 2016 (11)	
				CFw	Conversion Factor - Water	1.0E-03	mg/ug	--	CDE ($\mu g/m^3$) =
				CFt	Conversion Factor - Time (1/24)	0.042	day/hour	--	EPCgw x VFw x EF x ED x ET x CFt
				ATnc	Averaging Time - Noncarcinogens	9,125	days	EPA, 1989 and 2016 (6)	ATc
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
Inhalation	Future On-Site Commercial/ Industrial Worker	Adult	Indoor Air Vapors (Vapor Intrusion)	EPCia	Chemical Concentration in Indoor Air	Calculated	ug/m^3	See Table 3 Series	CDE_C ($\mu g/m^3$) =
				EF	Exposure Frequency	250	days/year	EPA 2016 (3)	EPCia x EF x ED x ET x CFt
				ED	Exposure Duration	25	years	EPA, 2016 (4)	ATc
				ET	Exposure Time	8	hours/day	EPA, 2016 (7)	
				CFa	Conversion Factor - Air	1.0E-03	mg/µg	--	CDE_{NC} (mg/m^3) =
				CFt	Conversion Factor - Time (1/24)	0.042	day/hours	--	EPCia x EF x ED x ET x CFa x CFt
				ATnc	Averaging Time - Noncarcinogens	9,125	days	EPA, 1989 and 2016 (4)	ATnc
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (4)	

Notes:
(1) IRgw: Default water ingestion rate for worker.
(2) FI: Assumes all the water ingested by the worker is from the site.
(3) EF: Default exposure frequency for indoor workers.
(4) ED: Default exposure duration for workers.
(5) BW: Default adult body weight.
(6) ATc: 365 days/year x 70 year lifetime; ATnc: 365 days/year x 25 year ED.
(7) ET: Assumes 8-hour work day

kg	Kilograms	mg/ug	Milligrams per microgram
L/day	Liter per day	ug/L	Micrograms per liter
mg/m^3	Milligram per cubic meter	ug/m^3	Microgram per cubic meter
mg/ug	milligram per microgram		

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

ED_001521C_00000396-00124

TABLE 4.4.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
FUTURE OUTDOOR WORKER - SOIL
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Future
Medium: Surface and Subsurface Soil (All Soil)
Exposure Medium: Subsurface Soil, Particulates/Vapors

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/Chronic Daily Exposure (CDE)
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Incidental	Future	Adult	All Soil	RBA	Relative Bioavailability Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
Ingestion	On-Site Outdoor			IRS	Soil Ingestion Rate	100	mg/day	EPA, 2016 (1)	EPCs x RBA x IRS x FI x EF x ED x CFs
	Worker			FI	Fractional Intake	1	unitless	BPJ (2)	BW x AT
				EF	Exposure Frequency	225	days/year	EPA, 2016 (3)	
				ED	Exposure Duration	25	years	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	80	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	9,125	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Dermal	Future	Adult	All Soil	DAF	Dermal Absorption Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
	On-Site Outdoor			SA	Skin Surface Area	3,527	cm^2	EPA, 2014 (7)	EPCs x DAF x SA x AF x EF x ED x CFs
	Worker			AF	Soil-to-Skin Adherence Factor	0.12	mg/cm^2	EPA, 2014 (8)	BW x AT
				EF	Exposure Frequency	225	days/year	EPA, 2016 (3)	
				ED	Exposure Duration	25	years	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	80	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	9,125	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCs	Exposure Point Concentration - Soil	chemical-specific	mg/kg	See Table 3 Series	
Inhalation	Future	Adult	Outdoor Air	VF	Volatilization Factor	chemical-specific	m^3/kg	See Table 5.3	
	On-Site Outdoor		Particulates	PEF	Particulate Emission Factor	3.11E+10	m^3/kg	EPA, 2016 (9)	CDE_C ($\mu g/m^3$) =
	Worker		and Vapors	EF	Exposure Frequency	225	days/year	EPA, 2016 (3)	EPCs x (1/PEF + 1/VF) x EF x ED x ET x CFt
			from Soil	ED	Exposure Duration	25	years	EPA, 2016 (4)	CFa x ATc
				ET	Exposure Time	8	hours/day	EPA, 2016 (10)	
				CFa	Conversion Factor - Air	1.0E-03	mg/µg	--	CDE_{NC} (mg/m^3) =
				CFt	Conversion Factor - Time (1/24)	0.042	day/hours	--	EPCs x (1/PEF + 1/VF) x EF x ED x ET x CFt
				ATnc	Averaging Time - Noncarcinogens	9,125	days	EPA, 1989 and 2016 (6)	ATnc
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	

Notes:

(1) IRS: Recommended soil ingestion rate for outdoor workers.

(2) FI: Assumes 100% of soil ingestion occurs at the Site.

(3) EF: These workers are assumed to be present on the year round, which corresponds to an EF of 225 days per year.

(4) ED: Default exposure duration for workers.

(5) BW: Default adult body weight.

(6) ATc: 365 days/year x 70 years/year x 365 days/year x 25 year ED.

(7) SA: Default skin surface area for workers.

(8) AF: Default value for outdoor workers.

(9) PEF: Default PEF value for Nebraska (Climatic Zone 5).

(10) ET: Assumes 8 hour work day.

Notes:

(1) IRS: Recommended soil ingestion rate for outdoor workers.

(2) FI: Assumes 100% of soil ingestion occurs at the Site.

(3) EF: These workers are assumed to be present on the year round, which corresponds to an EF of 225 days per year.

(4) ED: Default exposure duration for workers.

(5) BW: Default adult body weight.

(6) ATc: 365 days/year x 70 years/year x 365 days/year x 25 year ED.

(7) SA: Default skin surface area for workers.

(8) AF: Default value for outdoor workers.

(9) PEF: Default PEF value for Nebraska (Climatic Zone 5).

(10) ET: Assumes 8 hour work day.

BPJ	BPJ	Best Professional Judgment
cm^2	cm^2	Square centimeter
kg	kg	Kilogram
kg/mg	kg/mg	Kilogram per milogram
m^3/kg	m^3/kg	Cubic meter per kilogram
mg/µg	mg/µg	Milligrams per microgram
mg/cm^2	mg/cm^2	Milligrams per square centimeter
mg/kg	mg/kg	Milligrams per kilogram
mg/kg-day	mg/kg-day	Milligrams per kilogram per day

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA 540/1-89/002a. December.

EPA. 2016. "Regional Screening Level Users Guide." Map Available online at https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA 540/1-89/002a. December.

EPA. 2016. "Regional Screening Level Users Guide." Map Available online at https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 4.5.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
FUTURE CONSTRUCTION/UTILITY WORKER - SOIL
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Future
Medium: Surface and Subsurface Soil (All Soil)
Exposure Medium: Subsurface Soil, Particulates

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/Chronic Daily Exposure (CDE)
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Incidental	Current/Future	Adult	All Soil	RBA	Relative Bioavailability Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
Ingestion	On-Site			IRS	Soil Ingestion Rate	330	mg/day	EPA, 2002 and 2016 (1)	EPCs x RBA x IRS x FI x EF x ED x CFs
	Construction			FI	Fractional Intake	1	unitless	BPJ (2)	BW x AT
	Worker			EF	Exposure Frequency	130	days/year	BPJ (3)	
				ED	Exposure Duration	1	year	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	80	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	365	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Dermal	Current/Future	Adult	All Soil	DAF	Dermal Absorption Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
	On-Site			SA	Skin Surface Area	3,527	cm^2	EPA, 2014 (7)	EPCs x DAF x SA x AF x EF x ED x CFs
	Construction			AF	Soil-to-Skin Adherence Factor	0.3	mg/cm^2	EPA, 2014 (8)	BW x AT
	Worker			EF	Exposure Frequency	130	days/year	BPJ (3)	
				ED	Exposure Duration	1	year	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	80	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	365	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCs	Exposure Point Concentration - Soil	chemical-specific	mg/kg	See Table 3 Series	
Inhalation	Current/Future	Adult	Outdoor Air	VF	Volatilization Factor	chemical-specific	m^3/kg	See Table 5.3	
	On-Site		Particulates	PEF	Particulate Emission Factor	3.11E+10	m^3/kg	EPA, 2016 (9)	CDE_C ($\mu g/m^3$) =
	Construction		and Vapors	EF	Exposure Frequency	130	days/year	BPJ (3)	EPCs x (1/PEF + 1/VF) x EF x ED x ET x CFt
	Worker		from Soil	ED	Exposure Duration	1	year	EPA, 2016 (4)	CFa x ATc
				ET	Exposure Time	8	hours/day	EPA, 2016 (10)	
				CFa	Conversion Factor - Air	1.0E-03	mg/µg	--	CDE_{NC} (mg/m^3) =
				CFt	Conversion Factor - Time (1/24)	0.042	day/hours	--	EPCs x (1/PEF + 1/VF) x EF x ED x ET x CFt
				ATnc	Averaging Time - Noncarcinogens	365	days	EPA, 1989 and 2016 (6)	ATnc
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	

Notes:

(1) IRS: Recommended soil ingestion rate for construction workers.
(2) FI: Assumes 100% of soil ingestion occurs at the Site.
(3) EF: Assumes 5 days per week for a 26-week construction project.
(4) ED: Recommended exposure duration for construction workers.
(5) BW: Default adult body weight.
(6) ATc: 365 days/year x 70 years lifetime, ATc: 365 days/year x 1 year ED.
(7) SA: Default skin surface area for workers.
(8) AF: Recommended soil adherence factor for construction workers.
(9) PEF: Default PEF value for Climatic Zone 5.
(10) ET: Assumes 8 hour work day.

BPJ	BPJ	Best Professional Judgment
cm^2	cm^2	Square centimeter
kg	kg	Kilogram
kg/mg	kg/mg	Kilogram per milogram
m^3/kg	m^3/kg	Cubic meter per kilogram
mg/µg	mg/µg	Milligrams per microgram
mg/cm^2	mg/cm^2	Milligrams per square centimeter
mg/kg	mg/kg	Milligrams per kilogram
mg/kg-day	mg/kg-day	Milligrams per kilogram per day

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA-540/1-89/002a. December.

EPA. 2016. "Regional Screening Level Users Guide." May. Available on-line at https://www.epa.gov/risk/regional-screening-tables-may-2016

TABLE 4.5.2.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
FUTURE CONSTRUCTION/UTILITY WORKER - GROUNDWATER
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/Chronic Daily Exposure (CDE)
				EPCgw	Exposure Point Concentration - Groundwater	medium-specific	ug/L	See Table 3 Series	For Inorganics:
Dermal	Future	Adult	Groundwater	Kp	Dermal Permeability Constant	chemical-specific	cm/hour	See Table 5.3	CDI (mg/kg-day) =
	On-Site			SA	Skin Surface Area	2,275	cm^2	EPA 2011 (1)	EPCsw x Kp x SA x EF x ED[Madj] x ET x EV x CFw x CFv
	Construction			EF	Exposure Frequency	130	days/year	BPJ (2)	BW x AT
	Worker			ED	Exposure Duration	1	years	EPA, 2016 (3)	For Organics:
				ET	Exposure Time	4	hours/event	VDEQ, 2014 (4)	CDI (mg/kg-day) =
				EV	Events per day	1	events/day	PBJ (5)	EPCsw x FA x Kp x SA x EF x ED[Madj] x DAevent x EV x CFw x CFv
				CFw	Conversion Factor - Water	1.0E-03	mg/ug	--	BW x AT
				CFv	Conversion Factor - Volume	1.0E-03	L/cm^3	--	
				FA	Fraction Absorbed - Water	chemical-specific	unitless	See Table 5.3	If ET < or = t*, then:
				t*	Time to Reach Steady-State	chemical-specific	hours/event	See Table 5.3	$DAevent = 2 \times \sqrt{(6 \times \tau_{event} \times ET)/\pi}$
				τ_{event}	Lag Time	chemical-specific	hours/event	See Table 5.3	
				B	Ratio of permeability coefficient of a compound	chemical-specific	unitless	See Table 5.3	If ET > t*, then:
					through the corneum relative to its permeability	--	--		$DAevent = ET/(1+B) + \{2 \times \tau_{event} \times ([1+3B+3B^2]/[1+B]^2)\}$
					coefficient across the viable epidermis	--	--		
				BW	Body Weight	80	kg	EPA, 2016 (6)	
				ATnc	Averaging Time - Noncarcinogens	365	days	EPA, 1989 and 2016 (7)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (7)	
				CAtrench	Chemical Concentration in Trench	Calculated	ug/m^3	See Table 3 Series	
Inhalation	Future	Adult	Outdoor Air	EF	Exposure Frequency	130	days/year	BPJ (2)	CDEc (µg/m3) =
	On-Site		Vapors	ED	Exposure Duration	1	years	EPA, 2016 (3)	CAtrench x EF x ET x ED x CFt
	Construction		(Trench)	ET	Exposure Time	4	hours/day	VDEQ, 2014 (4)	ATc
	Worker			CFa	Conversion Factor - Air	1.0E-03	mg/ug	--	CDEnc (mg/m3) =
				CFt	Conversion Factor - Time (1/24)	0.042	day/hours	--	CAtrench x EF x ET x ED x CFt x CFa
				ATnc	Averaging Time - Noncarcinogens	365	days	EPA, 1989 and 2016 (7)	ATnc
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (7)	

Notes:

(1) SA: Assumes construction workers are exposed to groudnwater to their hands and feet (EPA 2011).

(2) EF: Assumes 5 days per week for a 26-week construction project.

(3) ED: Recommended exposure duration for construction workers.

(4) ET: Based on the Virginia Department of Environmental Protection (2014) trench exposure model.

(5) EV: Assumes one occurrence per day.

(6) BW: Default body weight for adults.

(7) ATc: 365 days/year x 70 year lifetime; ATnc: 365 days/year x 1 year ED.

--	Not applicable
cm/hour	Centimeters per hour
cm2	Centimeters squared
kg	Kilograms
L/cm3	Liter per cubic meter
mg/ug	Milligrams per microgram
ug/L	Microgram per liter
ug/m3	Microgram per cubic meter

Sources:

U.S. Environmental Protection Agency (EPA). 1989. “Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A).” Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2004. “Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment).” Final. Office of Superfund Remediation and Technology Innovation. EPA/540/R/99/005. July.

EPA. 2011. "Exposure Factors Handbook: 2011 Edition." Office of Research and Developmental. EPA/600/R-090/052F. September. Available on-line at: http://www.epa.gov/ncea/efh/pdfs/efh_complete_pdf

EPA. 2014. “Regional Screening Level User's Guide.” November. Available on-line at: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/usersguide.htm

Virginia Department of Environmental Quality (VDEQ). 2014. "Voluntary Remediation Program Risk Assessment Guidance." On-line Address: http://www.deq.virginia.gov/Programs/LandProtectionRevitalization/RemediationProgram/VoluntaryRemediationProgram/VRPRiskAssessmentGuidance.aspx

TABLE 4.6.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
FUTURE CHILD RECREATIONAL USER - SOIL
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Future
Medium: Surface and Subsurface Soil (All Soil)
Exposure Medium: Soil, Particulates/Vapors

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/ Chronic Daily Exposure (CDE)
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Incidental	Future	Child	All Soil	RBA	Relative Bioavailability Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
Ingestion	Recreational	Age 0-6		IRS	Soil Ingestion Rate	200	mg/day	EPA, 2016 (1)	EPCs x RBA x IRS x ED[Madj] x EF x CFs
	User			EF	Exposure Frequency	134	days/year	BPJ (2)	BW x AT
				ED	Exposure Duration	6	years	EPA, 2016 (3)	
				EDMadj	Exposure Duration - Mutagenic age-adjusted	32	years	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	15	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	2,190	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Dermal	Future	Child	All Soil	DAF	Dermal Absorption Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
	Recreational	Age 0-6		SA	Skin Surface Area	2,373	cm^2	BPJ, EPA 2011 (7)	EPCs x DAF x SA x AF x EF x ED[Madj] x CFs
	User			AF	Soil-to-Skin Adherence Factor	0.2	mg/cm^2	EPA, 2016 (8)	BW x AT
				EF	Exposure Frequency	134	days/year	BPJ (2)	
				ED	Exposure Duration	6	years	EPA, 2016 (3)	
				EDMadj	Exposure Duration - Mutagenic age-adjusted	32	years	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	15	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	2,190	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCs	Exposure Point Concentration - Soil	chemical-specific	mg/kg	Table 3 Series	
Inhalation	Future	Child	Outdoor Air	VF	Volatilization Factor	chemical-specific	m^3/kg	See Table 5.3	CDE_{NC} (mg/m^3) =
	Recreational	Age 0-6	Particulates	PEF	Particulate Emission Factor	3.11E+10	m^3/kg	EPA, 2016 (9)	EPCs x (1/PEF + 1/VF) x EF x ED x ET x CFt
	User		and Vapors	EF	Exposure Frequency	134	days/year	BPJ (2)	ATnc
			from Soil	ED	Exposure Duration	6	years	EPA, 2016 (3)	
				EDMadj	Exposure Duration - Mutagenic age-adjusted	32	years	EPA, 2016 (4)	CDE_C ($\mu g/m^3$) =
				ET	Exposure Time	3	hours/day	BPJ (10)	EPCs x (1/PEF + 1/VF) x EF x ED[Madj] x ET x CFt
				CFt	Conversion Factor - Time (1/24)	0.042	day/hours	--	CFa x ATc
				CFa	Conversion Factor - Air	1.0E-03	mg/µg	--	
				ATnc	Averaging Time - Noncarcinogens	2,190	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Noncarcinogens	25,550	days	EPA, 1989 and 2016 (6)	

Notes:

(1) IRS: Default soil ingestion rate for children.
(2) EF: Assumed to be 134 days per year based on best professional judgment. Presumably, a child recreational user will visit the Site 1 day per week for 3 months (18 weeks) from mid-November to mid-March (18 total days), 2 days/week for 2 months (9 weeks) from mid-September to mid- November and mid-March to mid-May (36 total days), and 5 days/week for 4 months (16 weeks) from mid-May to mid-September (80 total days).

(3) ED: Default exposure duration for child 0 to 6 years old.

(4) EDMadj: To account for potential mutagenic effects an age-dependent adjustment factor (ADAF) of 10 is applied to the ED for ages 0 to 2, an ADAF of 3 is applied to the ED for ages 2 to 6 [(2x10)+(4x3)=32].

(5) BW: Default child body weight.

(6) ATnc: 365 days/year x 6 year ED; ATc: Assumes 365 days per year over a 70-year lifetime.

(7) SA: Default value for children 0 to 6 years (EPA 2016).

(8) AF: Default soil-to-skin adherence factor for children.

(9) PEF: default PEF value for Lincoln, Nebraska (Climatic Zone 5).

(10) ET: Assumed to be 3 hours per day based on professional judgment

BPJ	Best Professional Judgment
$\mu g/m^3$	Microgram per cubic meter
cm^2	Square centimeter
kg	Kilogram
kg/mg	Kilogram per milogram
m^3/kg	Cubic meter per kilogram
mg/cm^2	Milligrams per square centimeter
mg/kg	Milligrams per kilogram
mg/kg-day	Milligrams per kilogram per day

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 4.6.2.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
FUTURE CHILD RECREATIONAL USER - SURFACE WATER
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Future
Medium: Surface Water
Exposure Medium: Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/ Chronic Daily Exposure (CDE)
				EPCsw	Exposure Point Concentration - Surface Water	medium-specific	µg/L	See Table 3 Series	
Incidental	Future	Child	Surface Water	IRsw	Surface water incidental ingestion rate	0.0125	L/day	BPJ (1)	CDI (mg/kg-day) =
Ingestion	Recreational	Age 0-6		EF	Exposure Frequency	134	days/year	BPJ (2)	EPCsw x IRsw x ED[Madj] x EF x CFw
	User			ED	Exposure Duration	6	years	EPA, 2016 (3)	BW x AT
				EDMadj	Exposure Duration - Mutagenic age-adjusted	32	years	EPA, 2016 (4)	
				CFw	Conversion Factor - Water	1.0E-03	mg/ug	--	
				BW	Body Weight	15	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	2,190	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCsw	Exposure Point Concentration - Surface Water	medium-specific	µg/L	See Table 3 Series	For Inorganics:
Dermal	Future	Child	Surface Water	Kp	Dermal Permeability Constant	chemical-specific	cm/hour	See Table 5.3	CDI (mg/kg-day) =
	Recreational	Age 0-6		SA	Skin Surface Area	1,353	cm^2	BPJ, EPA 2011 (7)	EPCsw x Kp x SA x EF x ED[Madj] x ET x EV x CFw x CFv
	User			EF	Exposure Frequency	134	days/year	BPJ (2)	BW x AT
				ED	Exposure Duration	6	years	EPA, 2016 (3)	For Organics:
				EDMadj	Exposure Duration - Mutagenic age-adjusted	32	years	EPA, 2016 (4)	CDI (mg/kg-day) =
				ET	Exposure Time	3	hours/event	PBJ (8)	EPCsw x FA x Kp x SA x EF x ED[Madj] x DAevent x EV x CFw x CFv
				EV	Events per day	1	events/day	PBJ (9)	BW x AT
				CFw	Conversion Factor - Water	1.0E-03	mg/µg	--	
				CFv	Conversion Factor - Volume	1.0E-03	L/cm^3	--	If ET < or = t*, then:
				FA	Fraction Absorbed - Water	chemical-specific	unitless	See Table 5.3	$DAevent = 2 \times \sqrt{(6 \times \tau_{event} \times ET)/\pi}$
				t*	Time to Reach Steady-State	chemical-specific	hours/event	See Table 5.3	
				τ_{event}	Lag Time	chemical-specific	hours/event	See Table 5.3	If ET > t*, then:
				B	Ratio of permeability coefficient of a compound	chemical-specific	unitless	See Table 5.3	$DAevent = ET/(1+B) + \{2 \times \tau_{event} \times ([1+3B+3B^2]/[1+B]^2)\}$
					through the corneum relative to its permeability	--	--		
					coefficient across the viable epidermis	--	--		
				BW	Body Weight	15	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	2,190	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	

Notes:

(1) IRsw: Assumes an incidental ingestion rate of 0.05 L/day (about 1 ounce) (EPA 2016) on one-fourth of the total days (0.05 L/day × 0.25).
(2) EF: Assumed to be 134 days per year based on best professional judgment. Presumably, a child recreational user will visit the Site 1 day per week for 3 months (18 weeks) from mid-November to mid-March (18 total days), 2 days/week for 2 months (9 weeks) from mid-September to mid- November and mid-March to mid-May (36 total days), and 5 days/week for 4 months (16 weeks) from mid-May to mid-September (80 total days).

(3) ED: Default exposure duration for child 0 to 6 years old.

(4) EDMadj: To account for potential mutagenic effects an age-dependent adjustment factor (ADAF) of 10 is applied to the ED for ages 0 to 2, an ADAF of 3 is applied to the ED for ages 2 to 6 [(2x10)+(4x3)=32].

(5) BW: Default child body weight.

(6) ATnc: 365 days/year x 6 year ED; ATc: Assumes 365 days per year over a 70-year lifetime.

(7) SA: Skin surface area of 1,353 cm^2 represents the average surface area of hands, feet, and lower legs for children 0 to 6 years (EPA 2011).

(8) ET: Assumed to be 3 hours per day based on professional judgment.

(9) EV: Assumed 1 event occurs per day.

cm/hour	Centimeter per hour
cm^2	Square centimeter
kg	Kilogram
L/cm^3	Liter per cubic centimeter
L/day	Liter per day
mg/µg	Milligrams per microgram
µg/L	Micrograms per liter

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2011. Exposure Factors Handbook: 2011 edition. National Center for Environmental Assessment, Washington, DC. EPA/600/R-09/052F. Available from the National Technical Information Service, Springfield, VA, and at http://www.epa.gov/ncea/efh

EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 4.6.3.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
FUTURE CHILD RECREATIONAL USER - SEDIMENT
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/ Chronic Daily Exposure (CDE)
				EPCsed	Exposure Point Concentration - Sediment	medium-specific	mg/kg	See Table 3 Series	
Ingestion	Future	Child	Sediment	RBA	Relative Bioavailability Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
	Recreational	Age 0-6		IRsed	Sediment Ingestion Rate	200	mg/day	EPA, 2016 (1)	EPCsed x RBA x IRsed x ED[Madj] x EF x CFs
	User			EF	Exposure Frequency	134	days/year	BPJ (2)	BW x AT
				ED	Exposure Duration	6	years	EPA, 2016 (3)	
				EDMadj	Exposure Duration - Mutagenic age-adjusted	32	years	EPA, 2016 (4)	
				BW	Body Weight	15	kg	EPA, 2016 (5)	
				CFs	Conversion Factor - Sediment	1.0E-06	kg/mg	--	
				ATnc	Averaging Time - Noncarcinogens	2,190	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCs	Exposure Point Concentration - Sediment	medium-specific	mg/kg	See Table 3 Series	
Dermal	Future	Child	Sediment	DAF	Dermal Absorption Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
	Recreational	Age 0-6		SAsed	Skin Surface Area	723	cm^2	BPJ, EPA 2011 (7)	EPCs x DAF x SA x AF x EF x ED[Mad]j x CFs
	User			AF	Soil-to-Skin Adherence Factor	0.3	mg/cm^2	EPA, 2016 (8)	BW x AT
				EF	Exposure Frequency	134	days/year	BPJ (2)	
				ED	Exposure Duration	6	years	EPA, 2016 (3)	
				EDMadj	Exposure Duration - Mutagenic age-adjusted	32	years	EPA, 2016 (4)	
				CFs	Conversion Factor - Sediment	1.0E-06	kg/mg	--	
				BW	Body Weight	15	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	2,190	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Noncarcinogens	25,550	days	EPA, 1989 and 2016 (6)	

Notes:

(1) IRS: Default soil ingestion rate for children.
(2) EF: Assumed to be 134 days per year based on best professional judgment. Presumably, a child recreational user will visit the Site 1 day per week for 3 months (18 weeks) from mid-November to mid-March (18 total days), 2 days/week for 2 months (9 weeks) from mid-September to mid- November and mid-March to mid-May (36 total days), and 5 days/week for 4 months (16 weeks) from mid-May to mid-September (80 total days).

(3) ED: Default exposure duration for child 0 to 6 years old.

(4) EDMadj: To account for potential mutagenic effects an age-dependent adjustment factor (ADAF) of 10 is applied to the ED for ages 0 to 2, an ADAF of 3 is applied to the ED for ages 2 to 6 [(2x10)+(4x3)=32].

(5) BW: Default child body weight.

(6) ATnc: 365 days/year x 6 year ED; ATc: Assumes 365 days per year over a 70-year lifetime.

(7) SA: Skin surface area of 723 cm^2 represents the average surface area of hands and feet for children 0 to 6 years (EPA 2011).

(8) AF: Soil-to-skin adherence factor for reed gatherer (EPA 2004).

BPJ	Best Professional Judgment
cm^2	Square centimeter
kg	Kilogram
kg/mg	Kilogram per milogram
m^3/kg	Cubic meter per kilogram
mg/cm^2	Milligrams per square centimeter
mg/kg	Milligrams per kilogram
mg/kg-day	Milligrams per kilogram per day

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2004. RAGS, Volume I – Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). Final. Office of Superfund Remediation and Technology Innovation. Washington, DC. OSWER Directive 9285.7-02. EPA/540/R/99/005. July.

EPA. 2011. Exposure Factors Handbook: 2011 edition. National Center for Environmental Assessment, Washington, DC. EPA/600/R-09/052F. Available from the National Technical Information Service, Springfield, VA, and at http://www.epa.gov/ncea/efh

EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 4.7.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
FUTURE ADOLESCENT RECREATIONAL USER - SOIL
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Future
Medium: Surface and Subsurface Soil (All Soil)
Exposure Medium: Soil, Particulates/Vapors

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/ Chronic Daily Exposure (CDE)
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Incidental	Future	Adolescent	All Soil	RBA	Relative Bioavailability Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
Ingestion	Recreational	Age 6-16		IRS	Soil Ingestion Rate	100	mg/day	EPA, 2016 (1)	EPCs x RBA x IRS x ED[Madj] x EF x CFs
	User			EF	Exposure Frequency	134	days/year	BPJ (2)	BW x AT
				ED	Exposure Duration	10	years	EPA, 2016 (3)	
				EDMadj	Exposure Duration - Mutagenic age-adjusted	30	years	EPA, 2016 (4)	
				BW	Body Weight	45	kg	EPA, 2014 (5)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				ATnc	Averaging Time - Noncarcinogens	3,650	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Dermal	Future	Adolescent	All Soil	DAF	Dermal Absorption Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
	Recreational	Age 6-16		SA	Skin Surface Area	4,520	cm^2	EPA, 2004 and 2011 (7)	EPCs x DAF x SA x AF x EF x ED[Madj] x CFs
	User			AF	Soil-to-Skin Adherence Factor	0.07	mg/cm^2	EPA, 2016 (8)	BW x AT
				EF	Exposure Frequency	134	days/year	BPJ (2)	
				ED	Exposure Duration	10	years	EPA, 2016 (3)	
				EDMadj	Exposure Duration - Mutagenic age-adjusted	30	years	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	45	kg	EPA, 2014 (5)	
				ATnc	Averaging Time - Noncarcinogens	3,650	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCs	Exposure Point Concentration - Soil	chemical-specific	mg/kg	Table 3 Series	
Inhalation	Future	Adolescent	Outdoor Air	VF	Volatilization Factor	chemical-specific	m^3/kg	See Table 5.3	CDE_{NC} (mg/m^3) =
	Recreational	Age 6-16	Particulates	PEF	Particulate Emission Factor	3.11E+10	m^3/kg	EPA, 2016 (9)	EPCs x (1/PEF + 1/VF) x EF x ED x ET x CFt
	User		and Vapors	EF	Exposure Frequency	134	days/year	BPJ (2)	ATnc
			from Soil	ED	Exposure Duration	10	years	EPA, 2016 (3)	
				EDMadj	Exposure Duration - Mutagenic age-adjusted	30	years	EPA, 2016 (4)	CDE_C (µg/m3) =
				ET	Exposure Time	3	hours/day	BPJ (10)	EPCs x (1/PEF + 1/VF) x EF x ED[Madj] x ET x CFt
				CFt	Conversion Factor - Time (1/24)	0.042	day/hours	--	CFa x ATc
				CFa	Conversion Factor - Air	1.0E-03	mg/µg	--	
				ATnc	Averaging Time - Noncarcinogens	3,650	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Noncarcinogens	25,550	days	EPA, 1989 and 2016 (6)	

Notes:

(1) IRS: Default soil ingestion rate for adults.
(2) EF: Assumed to be 134 days per year based on best professional judgment. Presumably, a recreational user will visit the Site 1 day per week for 3 months (18 weeks) from mid-November to mid-March (18 total days), 2 days/week for 2 months (9 weeks) from mid-September to mid- November and mid-March to mid-May (36 total days), and 5 days/week for 4 months (16 weeks) from mid-May to mid-September (80 total days).

(3) ED: Exposure duration for child 7 to 16 years old.

(4) EDMadj: To account for potential mutagenic effects an age-dependent adjustment factor (ADAF) of 3 is applied to the ED for ages 7 to 16 [(3x10)=30].

(5) BW: Adolescent body weight.

(6) ATnc: 365 days/year x 10 year ED; ATc: Assumes 365 days per year over a 70-year lifetime.

(7) SA: Skin surface area of 4,520 cm^2 is the resident skin area for age segment 6-16 (EPA 2011).

(8) AF: Default soil-to-skin adherence factor for adults.

(9) PEF: default PEF value for Lincoln, Nebraska (Climatic Zone 5).

(10) ET: Assumed to be 3 hours per day based on professional judgment

BPJ	Best Professional Judgment
cm^2	Square centimeter
kg	Kilogram
kg/mg	Kilogram per milogram
m^3/kg	Cubic meter per kilogram
mg/cm^2	Milligrams per square centimeter
mg/kg	Milligrams per kilogram
mg/kg-day	Milligrams per kilogram per day

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2011. Exposure Factors Handbook: 2011 edition. National Center for Environmental Assessment, Washington, DC. EPA/600/R-09/052F. Available from the National Technical Information Service, Springfield, VA, and at http://www.epa.gov/ncea/efh

EPA. 2014. Region 4 Human Health Risk Assessment Supplemental Guidance. January. Available on-line at: http://www.epa.gov/region04/superfund/programs/riskassess/riskassess.html

EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 4.7.2.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
FUTURE ADOLESCENT RECREATIONAL USER - SURFACE WATER
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Future
Medium: Surface Water
Exposure Medium: Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/ Chronic Daily Exposure (CDE)
				EPCsw	Exposure Point Concentration - Surface Water	medium-specific	ug/L	See Table 3 Series	
Incidental	Future	Adolescent	Surface Water	IRsw	Surface water incidental ingestion rate	0.0125	L/day	BPJ (1)	CDI (mg/kg-day) =
Ingestion	Recreational	Age 6-16		EF	Exposure Frequency	134	days/year	BPJ (2)	EPCs x IRsw x ED[Madj] x EF x CFw
	User			ED	Exposure Duration	10	years	EPA, 2016 (3)	BW x AT
				EDMadj	Exposure Duration - Mutagenic age-adjusted	30	years	EPA, 2016 (4)	
				BW	Body Weight	45	kg	EPA, 2014 (5)	
				CFw	Conversion Factor - Water	1.0E-03	mg/ug	--	
				ATnc	Averaging Time - Noncarcinogens	3,650	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCsw	Exposure Point Concentration - Surface Water	medium-specific	ug/L	See Table 3 Series	For Inorganics:
Dermal	Future	Adolescent	Surface Water	Kp	Dermal Permeability Constant	chemical-specific	cm/hour	See Table 5.3	CDI (mg/kg-day) =
	Recreational	Age 6-16		SA	Skin Surface Area	3,093	cm^2	BPJ, EPA 2011 (7)	EPCsw x Kp x SA x EF x ED[Madj] x ET x EV x CFw x CFv
	User			EF	Exposure Frequency	134	days/year	BPJ (2)	BW x AT
				ED	Exposure Duration	10	years	EPA, 2016 (3)	For Organics:
				EDMadj	Exposure Duration - Mutagenic age-adjusted	30	years	EPA, 2016 (4)	CDI (mg/kg-day) =
				ET	Exposure Time	3	hours/event	PBJ (8)	EPCsw x FA x Kp x SA x EF x ED[Madj] x DAevent x EV x CFw x CFv
				EV	Events per day	1	events/day	PBJ (9)	BW x AT
				CFw	Conversion Factor - Water	1.0E-03	mg/ug	--	
				CFv	Conversion Factor - Volume	1.0E-03	L/cm^3	--	If ET < or = t*, then:
				FA	Fraction Absorbed - Water	chemical-specific	unitless	See Table 5.3	$DAevent = 2 \times \sqrt{(6 \times \tau_{event} \times ET)/\pi}$
				t*	Time to Reach Steady-State	chemical-specific	hours/event	See Table 5.3	
				τ_{event}	Lag Time	chemical-specific	hours/event	See Table 5.3	If ET > t*, then:
				B	Ratio of permeability coefficient of a compound	chemical-specific	unitless	See Table 5.3	$DAevent = ET/(1+B) + \{2 \times \tau_{event} \times ([1+3B+3B^2]/[1+B]^2)\}$
					through the corneum relative to its permeability	--	--		
					coefficient across the viable epidermis	--	--		
				BW	Body Weight	45	kg	EPA, 2014 (5)	
				ATnc	Averaging Time - Noncarcinogens	3,650	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	

Notes:

(1) IRsw: Assumes an incidental ingestion rate of 0.05 L/day (about 1 ounce) (EPA 2016) on one-fourth of the total days (0.05 L/day × 0.25)
(2) EF: Assumed to be 134 days per year based on best professional judgment. Presumably, a child recreational user will visit the Site 1 day per week for 3 months (18 weeks) from mid-November to mid-March (18 total days), 2 days/week for 2 months (9 weeks) from mid-September to mid- November and mid-March to mid-May (36 total days), and 5 days/week for 4 months (16 weeks) from mid-May to mid-September (80 total days).

(3) ED: Exposure duration for child 7 to 16 years old.

(4) EDMadj: To account for potential mutagenic effects an age-dependent adjustment factor (ADAF) of 3 is applied to the ED for ages 7 to 16 [(3x10)=30].

(5) BW: Default child body weight.

(6) ATnc: 365 days/year x 10 year ED; ATc: Assumes 365 days per year over a 70-year lifetime.

(7) SA: Skin surface area of 3,093 cm^2 represents the average surface area of hands, feet, and lower legs for children 7 to 16 years (EPA 2011).

(8) ET: Assumed to be 3 hours per day based on professional judgment

(9) EV: Assumed 1 event occurs per day.

cm/hour	Centimeter per hour
cm^2	Square centimeter
kg	Kilogram
L/cm^3	Liter per cubic centimeter
L/day	Liter per day
mg/µg	Milligrams per microgram
µg/L	Micrograms per liter

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2011. Exposure Factors Handbook: 2011 edition. National Center for Environmental Assessment, Washington, DC. EPA/600/R-09/052F. Available from the National Technical Information Service, Springfield, VA, and at http://www.epa.gov/ncea/efh

EPA. 2014. Region 4 Human Health Risk Assessment Supplemental Guidance. January. Available on-line at: http://www.epa.gov/region04/superfund/programs/riskassess/riskassess.html

EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 4.7.3.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
FUTURE ADOLESCENT RECREATIONAL USER - SEDIMENT
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Future
Medium: Sediment
Exposure Medium: Sediment, Particulates/Vapors

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/ Chronic Daily Exposure (CDE)
				EPCsed	Exposure Point Concentration - Sediment	medium-specific	mg/kg	See Table 3 Series	
Incidental	Future	Adolescent	Sediment	RBA	Relative Bioavailability Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
Ingestion	Recreational	Age 6-16		IRsed	Sediment Ingestion Rate	100	mg/day	EPA, 2016 (1)	EPCsed x RBA x IRsed x ED[Madj] x EF x CFs
	User			EF	Exposure Frequency	134	days/year	BPJ (2)	BW x AT
				ED	Exposure Duration	10	years	EPA, 2016 (3)	
				EDMadj	Exposure Duration - Mutagenic age-adjusted	30	years	EPA, 2016 (4)	
				BW	Body Weight	45	kg	EPA, 2014 (5)	
				CFs	Conversion Factor - Sediment	1.0E-06	kg/mg	--	
				ATnc	Averaging Time - Noncarcinogens	3,650	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Dermal	Future	Adolescent	Sediment	DAF	Dermal Absorption Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
	Recreational	Age 6-16		SA	Skin Surface Area	1,505	cm^2	EPA 2011 (7)	EPCs x DAF x SA x AF x EF x ED[Mad]j x CFs
	User			AF	Soil-to-Skin Adherence Factor	0.3	mg/cm^2	EPA, 2016 (8)	BW x AT
				EF	Exposure Frequency	134	days/year	BPJ (2)	
				ED	Exposure Duration	10	years	EPA, 2016 (3)	
				EDMadj	Exposure Duration - Mutagenic age-adjusted	30	years	EPA, 2016 (4)	
				CFs	Conversion Factor - Sediment	1.0E-06	kg/mg	--	
				BW	Body Weight	45	kg	EPA, 2014 (5)	
				ATnc	Averaging Time - Noncarcinogens	3,650	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Noncarcinogens	25,550	days	EPA, 1989 and 2016 (6)	

Notes:

(1) IRS: Default soil ingestion rate for adults.
(2) EF: Assumed to be 134 days per year based on best professional judgment. Presumably, a recreational user will visit the Site 1 day per week for 3 months (18 weeks) from mid-November to mid-March (18 total days), 2 days/week for 2 months (9 weeks) from mid-September to mid- November and mid-March to mid-May (36 total days), and 5 days/week for 4 months (16 weeks) from mid-May to mid-September (80 total days).

(3) ED: Exposure duration for child 7 to 16 years old.

(4) EDMadj: To account for potential mutagenic effects an age-dependent adjustment factor (ADAF) of 3 is applied to the ED for ages 7 to 16 [(3x10)=30].

(5) BW: Adolescent body weight.

(6) ATnc: 365 days/year x 10 year ED; ATc: Assumes 365 days per year over a 70-year lifetime.

(7) SA: Skin surface area of 1,505 cm^2 represents the average surface area of hands and feet for children 6 to 16 years (EPA 2011).

(8) AF: Soil-to-skin adherence factor for reed gatherer (EPA 2004).

BPJ	Best Professional Judgment
cm^2	Square centimeter
kg	Kilogram
kg/mg	Kilogram per milogram
m^3/kg	Cubic meter per kilogram
mg/cm^2	Milligrams per square centimeter
mg/kg	Milligrams per kilogram
mg/kg-day	Milligrams per kilogram per day

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2004. RAGS, Volume I – Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). Final. Office of Superfund Remediation and Technology Innovation. Washington, DC. OSWER Directive 9285.7-02. EPA/540/R/99/005. July.

EPA. 2011. Exposure Factors Handbook: 2011 edition. National Center for Environmental Assessment, Washington, DC. EPA/600/R-09/052F. Available from the National Technical Information Service, Springfield, VA, and at http://www.epa.gov/ncea/efh

EPA. 2014. Region 4 Human Health Risk Assessment Supplemental Guidance. January. Available on-line at: http://www.epa.gov/region04/superfund/programs/riskassess/riskassess.html

EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 4.8.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
FUTURE ADULT RECREATIONAL USER - SOIL
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Future
Medium: Surface and Subsurface Soil (All Soil)
Exposure Medium: Soil, Particulates/Vapors

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/ Chronic Daily Exposure (CDE)
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Incidental	Future	Adult	All Soil	RBA	Relative Bioavailability Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
Ingestion	Recreational	> 16 years		IRS	Soil Ingestion Rate	100	mg/day	EPA, 2016 (1)	EPCs x RBA x IRS x ED x EF x CFs
	User			EF	Exposure Frequency	74	days/year	BPJ (2)	BW x AT
				ED	Exposure Duration	20	years	EPA, 2016 (3)	
				BW	Body Weight	80	kg	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				ATnc	Averaging Time - Noncarcinogens	7,300	days	EPA, 1989 and 2016 (5)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (5)	
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Dermal	Future	Adult	All Soil	DAF	Dermal Absorption Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
	Recreational	> 16 years		SA	Skin Surface Area	6,032	cm^2	EPA, 2016 (6)	EPCs x DAF x SA x AF x EF x ED x CFs
	User			AF	Soil-to-Skin Adherence Factor	0.07	mg/cm^2	EPA, 2016 (7)	BW x AT
				EF	Exposure Frequency	74	days/year	BPJ (2)	
				ED	Exposure Duration	20	years	EPA, 2016 (3)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	80	kg	EPA, 2016 (4)	
				ATnc	Averaging Time - Noncarcinogens	7,300	days	EPA, 1989 and 2016 (5)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (5)	
				EPCs	Exposure Point Concentration - Soil	chemical-specific	mg/kg	Table 3 Series	
Inhalation	Future	Adult	Outdoor Air	VF	Volatilization Factor	chemical-specific	m^3/kg	See Table 5.3	CDE_{NC} (mg/m^3) =
	Recreational	> 16 years	Particulates	PEF	Particulate Emission Factor	3.11E+10	m^3/kg	EPA, 2016 (8)	EPCs x (1/PEF + 1/VF) x EF x ED x ET x CFt
	User		and Vapors	EF	Exposure Frequency	74	days/year	BPJ (2)	ATnc
			from Soil	ED	Exposure Duration	20	years	EPA, 2016 (3)	
				ET	Exposure Time	3	hours/day	BPJ (9)	CDE_C (µg/m3) =
				CFt	Conversion Factor - Time (1/24)	0.042	day/hours	--	EPCs x (1/PEF + 1/VF) x EF x ED x ET x CFt
				CFa	Conversion Factor - Air	1.0E-03	mg/µg	--	CFa x ATc
				ATnc	Averaging Time - Noncarcinogens	7,300	days	EPA, 1989 and 2016 (5)	
				ATc	Averaging Time - Noncarcinogens	25,550	days	EPA, 1989 and 2016 (5)	

Notes:

(1) IRS: Default soil ingestion rate for adults.

(2) EF: The adult recreational user is assumed to visit the Site 1 day/week for 7 months (30 weeks) from mid-October to mid-May (30 total days), and 2 days/week for 5 months (22 weeks) from mid-May through mid-October (44 total days).

(3) ED: Default exposure duration for adult residents.

(4) BW: Default adult body weight.

(5) ATnc: 365 days/year x 20 year ED; ATc: Assumes 365 days per year over a 70-year lifetime.

(6) SA: Skin surface area of 6,032 cm^2 is the default value for the adult resident/recreator surface area soil.

(7) AF: Default soil-to-skin adherence factor for adults.

(8) PEF: default PEF value for Lincoln, Nebraska (Climatic Zone 5).

(9) ET: Assumed to be 3 hours per day based on professional judgment

BPJ	Best Professional Judgment
cm^2	Square centimeter
kg	Kilogram
kg/mg	Kilogram per milogram
m^3/kg	Cubic meter per kilogram
mg/cm^2	Milligrams per square centimeter
mg/kg	Milligrams per kilogram
mg/kg-day	Milligrams per kilogram per day

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2011. Exposure Factors Handbook: 2011 edition. National Center for Environmental Assessment, Washington, DC. EPA/600/R-09/052F. Available from the National Technical Information Service, Springfield, VA, and at http://www.epa.gov/ncea/efh

EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 4.8.2.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
FUTURE ADULT RECREATIONAL USER - SURFACE WATER
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Future
Medium: Surface Water
Exposure Medium: Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/ Chronic Daily Exposure (CDE)
				EPCsw	Exposure Point Concentration - Surface Water	medium-specific	ug/L	See Table 3 Series	
Incidental	Future	Adult	Surface Water	IRsw	Surface water incidental ingestion rate	0.0125	L/day	BPJ (1)	CDI (mg/kg-day) =
Ingestion	Recreational	> 16 years		EF	Exposure Frequency	74	days/year	BPJ (2)	EPCs x IRsw[Madj] x ED x EF x CFw
	User			ED	Exposure Duration	20	years	EPA, 2016 (3)	BW x AT
				BW	Body Weight	80	kg	EPA, 2016 (5)	
				CFw	Conversion Factor - Water	1.0E-03	mg/ug	--	
				ATnc	Averaging Time - Noncarcinogens	7,300	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCsw	Exposure Point Concentration - Surface Water	medium-specific	ug/L	See Table 3 Series	For Inorganics:
Dermal	Future	Adult	Surface Water	Kp	Dermal Permeability Constant	chemical-specific	cm/hour	See Table 5.3	CDI (mg/kg-day) =
	Recreational	> 16 years		SA	Skin Surface Area	4,835	cm^2	EPA 2011 (7)	EPCsw x Kp x SA x EF x ED[Madj] x ET x EV x CFw x CFv
	User			EF	Exposure Frequency	74	days/year	BPJ (2)	BW x AT
				ED	Exposure Duration	20	years	EPA, 2016 (3)	For Organics:
				ET	Exposure Time	3	hours/event	PBJ (8)	CDI (mg/kg-day) =
				EV	Events per day	1	events/day	PBJ (9)	EPCsw x FA x Kp x SA x EF x ED[Madj] x DAevent x EV x CFw x CFv
				CFw	Conversion Factor - Water	1.0E-03	mg/ug	--	BW x AT
				CFv	Conversion Factor - Volume	1.0E-03	L/cm^3	--	
				FA	Fraction Absorbed - Water	chemical-specific	unitless	See Table 5.3	If ET < or = t*, then:
				t*	Time to Reach Steady-State	chemical-specific	hours/event	See Table 5.3	$DAevent = 2 \times \sqrt{(6 \times \tau_{event} \times ET)/\pi}$
				τ_{event}	Lag Time	chemical-specific	hours/event	See Table 5.3	
				B	Ratio of permeability coefficient of a compound	chemical-specific	unitless	See Table 5.3	If ET > t*, then:
					through the corneum relative to its permeability	--	--		$DAevent = ET/(1+B) + \{2 \times \tau_{event} \times ([1+3B+3B^2]/[1+B]^2)\}$
					coefficient across the viable epidermis	--	--		
				BW	Body Weight	80	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	7,300	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	

Notes:

(1) IRsw: Assumes an incidental ingestion rate of 0.05 L/day (about 1 ounce) (EPA 2016) on one-fourth of the total days (0.05 L/day × 0.25)

(2) EF: The adult recreational user is assumed to visit the Site 1 day/week for 7 months (30 weeks) from mid-October to mid-May (30 total days), and 2 days/week for 5 months (22 weeks) from mid-May through mid-October (44 total days).

(3) ED: Default exposure duration for child 0 to 6 years old.

(4) BW: Default adult body weight.

(5) ATnc: 365 days/year x 20 year ED; ATc: Assumes 365 days per year over a 70-year lifetime.

(7) SA: Skin surface area of 4,835 cm^2 represents the average surface area of hands, feet, and lower legs of adults (EPA 2011).

(8) ET: Assumed to be 3 hours per day based on professional judgment

(9) EV: Assumed 1 event occurs per day.

$\mu g/m^3$	Microgram per cubic meter
mg/µg	milligrams per microgram

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2011. Exposure Factors Handbook: 2011 edition. National Center for Environmental Assessment, Washington, DC. EPA/600/R-09/052F. Available from the National Technical Information Service, Springfield, VA, and at http://www.epa.gov/ncea/efh

EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 4.8.3.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
FUTURE ADULT RECREATIONAL USER - SEDIMENT
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Future
Medium: Sediment
Exposure Medium: Sediment, Particulates/Vapors

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/ Chronic Daily Exposure (CDE)
				EPCsed	Exposure Point Concentration - Sediment	medium-specific	mg/kg	See Table 3 Series	
Incidental	Future	Adult	Sediment	RBA	Relative Bioavailability Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
Ingestion	Recreational	> 16 years		Irsed	Sediment Ingestion Rate	100	mg/day	EPA, 2016 (1)	EPCsed x RBA x IRsed x ED x EF x CFs
	User			EF	Exposure Frequency	74	days/year	BPJ (2)	BW x AT
				ED	Exposure Duration	20	years	EPA, 2016 (3)	
				CFs	Conversion Factor - Sediment	1.0E-06	kg/mg	--	
				BW	Body Weight	80	kg	EPA, 2016 (4)	
				ATnc	Averaging Time - Noncarcinogens	7,300	days	EPA, 1989 and 2016 (5)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (5)	
				EPCsed	Exposure Point Concentration - Sediment	medium-specific	mg/kg	See Table 3 Series	
Dermal	Future	Adult	Sediment	DAF	Dermal Absorption Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
	Recreational	> 16 years		SA	Skin Surface Area	2,275	cm^2	EPA, 2011 (6)	EPCsed x DAF x SA x AF x EF x ED x CFs
	User			AF	Soil-to-Skin Adherence Factor	0.3	mg/cm^2	EPA, 2016 (7)	BW x AT
				EF	Exposure Frequency	74	days/year	BPJ (2)	
				ED	Exposure Duration	20	years	EPA, 2016 (3)	
				CFs	Conversion Factor - Sediment	1.0E-06	kg/mg	--	
				BW	Body Weight	80	kg	EPA, 2016 (4)	
				ATnc	Averaging Time - Noncarcinogens	7,300	days	EPA, 1989 and 2016 (5)	
				ATc	Averaging Time - Noncarcinogens	25,550	days	EPA, 1989 and 2016 (5)	

Notes:

(1) IRS: Default soil ingestion rate for adults.

(2) EF: The adult recreational user is assumed to visit the Site 1 day/week for 7 months (30 weeks) from mid-October to mid-May (30 total days), and 2 days/week for 5 months (22 weeks) from mid-May through mid-October (44 total days).

(3) ED: Default exposure duration for adults residents.

(4) BW: Default adult body weight.

(5) ATnc: 365 days/year x 26 year ED; ATc: Assumes 365 days per year over a 70-year lifetime.

(6) SA: Skin surface area of 2,275 cm^2 represents the average surface area of hands and feet for adults (EPA 2011).

(8) AF: Soil-to-skin adherence factor for reed gatherer (EPA 2004).

BPJ	Best Professional Judgment
cm^2	Square centimeter
kg	Kilogram
kg/mg	Kilogram per milogram
m^3/kg	Cubic meter per kilogram
mg/cm^2	Milligrams per square centimeter
mg/kg	Milligrams per kilogram
mg/kg-day	Milligrams per kilogram per day

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2004. RAGS, Volume I – Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). Final. Office of Superfund Remediation and Technology Innovation. Washington, DC. OSWER Directive 9285.7-02. EPA/540/R/99/005. July.

EPA. 2011. Exposure Factors Handbook: 2011 edition. National Center for Environmental Assessment, Washington, DC. EPA/600/R-09/052F. Available from the National Technical Information Service, Springfield, VA, and at http://www.epa.gov/ncea/efh

EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 4.9.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
CURRENT AND FUTURE ADOLESCENT TRESPASSER - SOIL
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Current and Future
Medium: Surface (Current), Surface and Subsurface Soil (All Soil)
Exposure Medium: Soil, Particulates/Vapors

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/ Chronic Daily Exposure (CDE)
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Incidental	Current/Future	Adolescent	Soil	RBA	Relative Bioavailability Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
Ingestion	On-Site	Age 6-16		IRS	Soil Ingestion Rate	100	mg/day	EPA, 2016 (1)	EPCs x RBA x IRS x ED[Madj] x EF x CFs
	Trespasser			EF	Exposure Frequency	65	days/year	BPJ (2)	BW x AT
				ED	Exposure Duration	10	years	EPA, 2016 (3)	
				EDMadj	Exposure Duration - Mutagenic age-adjusted	30	years	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	45	kg	EPA, 2014 (5)	
				ATnc	Averaging Time - Noncarcinogens	3,650	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Dermal	Current/Future	Adolescent	Soil	DAF	Dermal Absorption Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
	On-Site	Age 6-16		SA	Skin Surface Area	4,520	cm^2	EPA, 2011 (7)	EPCs x DAF x SA x AF x EF x ED[Madj] x CFs
	Trespasser			AF	Soil-to-Skin Adherence Factor	0.07	mg/cm^2	EPA, 2016 (8)	BW x AT
				EF	Exposure Frequency	65	days/year	BPJ (2)	
				ED	Exposure Duration	10	years	EPA, 2016 (3)	
				EDMadj	Exposure Duration - Mutagenic age-adjusted	30	years	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	45	kg	EPA, 2014 (5)	
				ATnc	Averaging Time - Noncarcinogens	3,650	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCs	Exposure Point Concentration - Soil	chemical-specific	mg/kg	Table 3 Series	
Inhalation	Current/Future	Adolescent	Outdoor Air	VF	Volatilization Factor	chemical-specific	m^3/kg	See Table 5.3	CDE_{NC} (mg/m^3) =
	On-Site	Age 6-16	Particulates	PEF	Particulate Emission Factor	3.11E+10	m^3/kg	EPA, 2016 (9)	EPCs x (1/PEF + 1/VF) x EF x ED x ET x CFt
	Trespasser		and Vapors	EF	Exposure Frequency	65	days/year	BPJ (2)	ATnc
			from Soil	ED	Exposure Duration	10	years	EPA, 2016 (3)	
				EDMadj	Exposure Duration - Mutagenic age-adjusted	30	years	EPA, 2016 (4)	CDE_C (µg/m3) =
				ET	Exposure Time	2	hours/day	BPJ (10)	EPCs x (1/PEF + 1/VF) x EF x ED[Madj] x ET x CFt
				CFt	Conversion Factor - Time (1/24)	0.042	day/hours	--	CFa x ATc
				ATnc	Averaging Time - Noncarcinogens	3,650	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Noncarcinogens	25,550	days	EPA, 1989 and 2016 (6)	

Notes:

(1) IRS: Default soil ingestion rate for adults.

(2) EF: assumes an adolescent trespasser will visit the Site 2 days per week during the summer (13 weeks) and 1 day per week during the remainder of the year (39 weeks).

(3) ED: Default exposure duration for child 6 to 16 years old.

(4) EDMadj: To account for potential mutagenic effects an age-dependent adjustment factor (ADAF) of 3 is applied to the ED for ages 6 to 16 [(3x10)=30].

(5) BW: Adolescent body weight.

(6) ATnc: 365 days/year x 10 year ED; ATc: Assumes 365 days per year over a 70-year lifetime.

(7) SA: Skin surface area of 4,520 cm^2 represents the average surface area of children 6 to 16 years (EPA 2011).

(8) AF: Default soil-to-skin adherence factor for adults.

(9) PEF: default PEF value for Lincoln, Nebraska (Climatic Zone 5).

(10) ET: Assumed to be 2 hours per day based on professional judgment

BPJ	Best Professional Judgment
cm^2	Square centimeter
kg	Kilogram
kg/mg	Kilogram per milogram
m^3/kg	Cubic meter per kilogram
mg/cm^2	Milligrams per square centimeter
mg/kg	Milligrams per kilogram
mg/kg-day	Milligrams per kilogram per day

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2011. Exposure Factors Handbook: 2011 edition. National Center for Environmental Assessment, Washington, DC. EPA/600/R-09/052F. Available from the National Technical Information Service, Springfield, VA, and at http://www.epa.gov/ncea/efh

EPA. 2014. Region 4 Human Health Risk Assessment Supplemental Guidance. January. Available on-line at: http://www.epa.gov/region04/superfund/programs/riskassess/riskassess.html

EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 4.9.2.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
CURRENT AND FUTURE ADOLESCENT TRESPASSER - SURFACE WATER
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Current and Future
Medium: Surface Water
Exposure Medium: Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/ Chronic Daily Exposure (CDE)
				EPCsw	Exposure Point Concentration - Surface Water	medium-specific	ug/L	See Table 3 Series	
Incidental	Current/Future	Adult	Surface Water	IRsw	Surface water incidental ingestion rate	0.0125	L/day	BPJ (1)	CDI (mg/kg-day) =
Ingestion	On-Site			EF	Exposure Frequency	65	days/year	BPJ (2)	EPCs x IRsw x ED[Madj] x EF x CFw
	Trespasser			ED	Exposure Duration	10	years	EPA, 2016 (3)	BW x AT
				EDMadj	Exposure Duration - Mutagenic age-adjusted	30	years	EPA, 2016 (4)	
				CFw	Conversion Factor - Water	1.0E-03	mg/ug	--	
				BW	Body Weight	45	kg	EPA, 2014 (5)	
				ATnc	Averaging Time - Noncarcinogens	3,650	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCsw	Exposure Point Concentration - Surface Water	medium-specific	ug/L	See Table 3 Series	For Inorganics:
Dermal	Current/Future	Adult	Surface Water	Kp	Dermal Permeability Constant	chemical-specific	cm/hour	See Table 5.3	CDI (mg/kg-day) =
	On-Site			SA	Skin Surface Area	3,093	cm^2	EPA 2011 (7)	EPCsw x Kp x SA x EF x ED[Madj] x ET x EV x CFw x CFv
	Trespasser			EF	Exposure Frequency	65	days/year	BPJ (2)	BW x AT
				ED	Exposure Duration	10	years	EPA, 2016 (3)	For Organics:
				EDMadj	Exposure Duration - Mutagenic age-adjusted	30	years	EPA, 2016 (4)	CDI (mg/kg-day) =
				ET	Exposure Time	2	hours/event	PBJ (8)	EPCsw x FA x Kp x SA x EF x ED[Madj] x DAevent x EV x CFw x CFv
				EV	Events per day	1	events/day	PBJ (9)	BW x AT
				CFw	Conversion Factor - Water	1.0E-03	mg/ug	--	
				CFv	Conversion Factor - Volume	1.0E-03	L/cm^3	--	If ET < or = t*, then:
				FA	Fraction Absorbed - Water	chemical-specific	unitless	See Table 5.3	$DAevent = 2 \times \sqrt{(6 \times \tau_{event} \times ET)/\pi}$
				t*	Time to Reach Steady-State	chemical-specific	hours/event	See Table 5.3	
				τ_{event}	Lag Time	chemical-specific	hours/event	See Table 5.3	If ET > t*, then:
				B	Ratio of permeability coefficient of a compound	chemical-specific	unitless	See Table 5.3	$DAevent = ET/(1+B) + \{2 \times \tau_{event} \times ([1+3B+3B^2]/[1+B]^2)\}$
					through the corneum relative to its permeability	--	--		
					coefficient across the viable epidermis	--	--		
				BW	Body Weight	45	kg	EPA, 2014 (5)	
				ATnc	Averaging Time - Noncarcinogens	3,650	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	

Notes:

(1) IRsw: Assumes an incidental ingestion rate of 0.05 L/day (about 1 ounce) (EPA 2016) on one-fourth of the total days (0.05 L/day × 0.25)

(2) EF: assumes an adolescent trespasser will visit the Site 2 days per week during the summer (13 weeks) and 1 day per week during the remainder of the year (39 weeks).

(3) ED: Exposure duration for child 7 to 16 years old.

(4) EDMadj: To account for potential mutagenic effects an age-dependent adjustment factor (ADAF) of 3 is applied to the ED for ages 6 to 16 [(3x10)=30].

(5) BW: Adolescent body weight.

(6) ATnc: 365 days/year x 10 year ED; ATc: Assumes 365 days per year over a 70-year lifetime.

(7) SA: The SA of 3,093 cm^2 represents the average surface area of hands, feet, and lower legs for adolescents 6 to 16 years (EPA 2011)

(8) ET: Assumed to be 3 hours per day based on professional judgment

(9) EV: Assumed 1 event occurs per day.

--	Not applicabale or No value
BPJ	Best Professional Judgment
cm/hour	Centimeters per hour
cm2	Square centimeters
kg	Kilogram
L/cm3	Liter/cubic centimeter
L/day	Liter per day
mg/ug	Milligrams per microgram
ug/L	Micrograms per liter

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2011. Exposure Factors Handbook: 2011 edition. National Center for Environmental Assessment, Washington, DC. EPA/600/R-09/052F. Available from the National Technical Information Service, Springfield, VA, and at http://www.epa.gov/ncea/efh

EPA. 2014. Region 4 Human Health Risk Assessment Supplemental Guidance. January. Available on-line at: http://www.epa.gov/region04/superfund/programs/riskassess/riskassess.html

EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

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cm/hour

cm2

kg

L/cm3

L/day

mg/ug

ug/L

TABLE 4.9.3.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
CURRENT AND FUTURE ADOLESCENT TRESPASSER - SEDIMENT
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Current and Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/ Chronic Daily Exposure (CDE)
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Incidental	Current/Future	Adolescent	Sediment	RBA	Relative Bioavailability Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
Ingestion	On-Site	Age 6-16		IRS	Soil Ingestion Rate	100	mg/day	EPA, 2016 (1)	EPCs x RBA x IRS x ED[Madj] x EF x CFs
	Trespasser			EF	Exposure Frequency	65	days/year	BPJ (2)	BW x AT
				ED	Exposure Duration	10	years	EPA, 2016 (3)	
				EDMadj	Exposure Duration - Mutagenic age-adjusted	30	years	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	45	kg	EPA, 2014 (5)	
				ATnc	Averaging Time - Noncarcinogens	3,650	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (6)	
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Dermal	Future	Adolescent	Sediment	DAF	Dermal Absorption Factor	chemical-specific	unitless	See Table 5.3	CDI (mg/kg-day) =
	On-Site	Age 6-16		SA	Skin Surface Area	1,505	cm^2	EPA 2011 (7)	EPCs x DAF x SA x AF x EF x ED[Madj] x CFs
	Trespasser			AF	Soil-to-Skin Adherence Factor	0.3	mg/cm^2	EPA, 2016 (8)	BW x AT
				EF	Exposure Frequency	65	days/year	BPJ (2)	
				ED	Exposure Duration	10	years	EPA, 2016 (3)	
				EDMadj	Exposure Duration - Mutagenic age-adjusted	30	years	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	45	kg	EPA, 2014 (5)	
				ATnc	Averaging Time - Noncarcinogens	3,650	days	EPA, 1989 and 2016 (6)	
				ATc	Averaging Time - Noncarcinogens	25,550	days	EPA, 1989 and 2016 (6)	

Notes:

(1) IRS: Default soil ingestion rate for adults.

(2) EF: assumes an adolescent trespasser will visit the Site 2 days per week during the summer (13 weeks) and 1 day per week during the remainder of the year (39 weeks).

(3) ED: Exposure duration for child 7 to 16 years old.

(4) EDMadj: To account for potential mutagenic effects an age-dependent adjustment factor (ADAF) of 3 is applied to the ED for ages 7 to 16 [(3x10)=30].

(5) BW: Adolescent body weight.

(6) ATnc: 365 days/year x 10 year ED; ATc: Assumes 365 days per year over a 70-year lifetime.

(7) SA: Skin surface area of 1,505 cm^2 represents the average surface area of hands and feet for children 7 to 16 years (EPA 2011).

(8) AF: Soil-to-skin adherence factor for reed gatherer (EPA 2004).

BPJ	Best Professional Judgment
cm^2	Square centimeter
kg	Kilogram
kg/mg	Kilogram per milogram
m^3/kg	Cubic meter per kilogram
mg/cm^2	Milligrams per square centimeter
mg/kg	Milligrams per kilogram
mg/kg-day	Milligrams per kilogram per day

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2004. RAGS, Volume I – Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). Final. Office of Superfund Remediation and Technology Innovation. Washington, DC. OSWER Directive 9285.7-02. EPA/540/R/99/005. July.

EPA. 2011. Exposure Factors Handbook: 2011 edition. National Center for Environmental Assessment, Washington, DC. EPA/600/R-09/052F. Available from the National Technical Information Service, Springfield, VA, and at http://www.epa.gov/ncea/efh

EPA. 2014. Region 4 Human Health Risk Assessment Supplemental Guidance. January. Available on-line at: http://www.epa.gov/region04/superfund/programs/riskassess/riskassess.html

EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 4.10.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
CURRENT AND FUTURE ADULT TRESPASSER - SOIL
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Current/Future
Medium: Surface (Current), Surface and Subsurface Soil (All Soil)
Exposure Medium: Surface and Subsurface Soil , Particulates/Vapors

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/Chronic Daily Exposure (CDE)
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Incidental	Current/Future	Adult	Soil	RBA	Relative Bioavailability Factor	chemical-specific	unitless	See TABLE 5 & 6 Series	CDI (mg/kg-day) =
Ingestion	On-Site			IRS	Soil Ingestion Rate	100	mg/day	EPA, 2014 (1)	EPCs x RBA x IRS x FI x EF x ED x CFs
	Trespasser			FI	Fractional Intake	0.5	unitless	BPJ (2)	BW x AT
				EF	Exposure Frequency	144	days/year	BPJ (3)	
				ED	Exposure Duration	20	years	EPA, 2014 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	80	kg	EPA, 2014 (5)	
				ATnc	Averaging Time - Noncarcinogens	7,300	days	EPA, 1989 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 (6)	
				EPCs	Exposure Point Concentration - Soil	medium-specific	mg/kg	See Table 3 Series	
Dermal	Current/Future	Adult	Soil	DAF	Dermal Absorption Factor	chemical-specific	unitless	See TABLE 5 & 6 Series	CDI (mg/kg-day) =
	On-Site			SA	Skin Surface Area	6,032	cm^2	EPA, 2014 (7)	EPCs x DAF x SA x AF x EF x ED x CFs
	Trespasser			AF	Soil-to-Skin Adherence Factor	0.07	mg/cm^2	EPA, 2014 (8)	BW x AT
				EF	Exposure Frequency	144	days/year	BPJ (3)	
				ED	Exposure Duration	20	years	EPA, 2014 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	80	kg	EPA, 2014 (5)	
				ATnc	Averaging Time - Noncarcinogens	7,300	days	EPA, 1989 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 (6)	
				EPCs	Exposure Point Concentration - Soil	chemical-specific	mg/kg	See Table 3 Series	
Inhalation	Current/Future	Adult	Outdoor Air	VF	Volatilization Factor	chemical-specific	m^3/kg	See TABLE 5 & 6 Series	CDE_C ($\mu g/m^3$) =
	On-Site		Particulates	PEF	Particulate Emission Factor	3.11E+10	m^3/kg	EPA, 2016 (9)	EPCs x (1/PEF + 1/VF) x EF x ED x ET x CFt
	Trespasser		and Vapors	EF	Exposure Frequency	144	days/year	BPJ (3)	CFa x ATc
			from Soil	ED	Exposure Duration	20	years	EPA, 2014 (4)	
				ET	Exposure Time	6	hours/day	BPJ (10)	CDE_{NC} (mg/m^3) =
				CFa	Conversion Factor - Air	1.0E-03	mg/µg	--	EPCs x (1/PEF + 1/VF) x EF x ED x ET x CFt
				CFt	Conversion Factor - Time (1/24)	0.042	day/hours	--	ATnc
				ATnc	Averaging Time - Noncarcinogens	7,300	days	EPA, 1989 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 (6)	

Notes:

(1) IRS: Recommended soil ingestion rate for adult residents.

(2) FI: Assumes one-half of soil/sediment exposure occurs on Site.
(3) EF: 144 days per year is based on best professional judgment for the transient population and assumes an adult trespasser will visit the Site 4 days per week during May through September (20 weeks) and 2 days per week during October through April (32 weeks) [(4x20)+(2x32)=144].

(4) ED: Default exposure duration for residents; although the adult trespasser is transient, he/she is assumed present long-term in the area.

(5) BW: Default adult body weight.

(6) ATc: 365 days/year x 70 year lifetime; ATnc: 365 days/year x 20 year ED.

(7) SA: Default skin surface area for adult residents.

(8) AF: Default soil-to-skin adherence factor for adult residents.

(9) PEF: All exposure areas are assumed to be approximately 0.5 acre in size. MDEQ default PEF values were used.

(10) ET: Assumes a 6 hour Site visit.

BPJ	Best Professional Judgment
cm^2	Square centimeter
kg	Kilogram
kg/mg	Kilogram per milogram
m^3/kg	Cubic meter per kilogram
mg/cm^2	Milligrams per square centimeter
mg/kg	Milligrams per kilogram
mg/kg-day	Milligrams per kilogram per day

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 4.10.2.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
CURRENT AND FUTURE ADULT TRESPASSER - SURFACE WATER
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Current and Future
Medium: Surface Water
Exposure Medium: Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/ Chronic Daily Exposure (CDE)
				EPCsw	Exposure Point Concentration - Surface Water	medium-specific	ug/L	See Table 3 Series	
Incidental	Current/Future	Adult	Surface Water	IRsw	Surface water incidental ingestion rate	0.0125	L/day	BPJ (1)	CDI (mg/kg-day) =
Ingestion	On-Site			EF	Exposure Frequency	144	days/year	BPJ (2)	EPCs x IRsw x ED x EF x CFw
	Trespasser			ED	Exposure Duration	20	years	EPA, 2016 (3)	BW x AT
				BW	Body Weight	80	kg	EPA, 2014 (4)	
				CFw	Conversion Factor - Water	1.0E-03	mg/ug	--	
				ATnc	Averaging Time - Noncarcinogens	7,300	days	EPA, 1989 and 2016 (5)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (5)	
				EPCsw	Exposure Point Concentration - Surface Water	medium-specific	ug/L	See Table 3 Series	For Inorganics:
Dermal	Current/Future	Adult	Surface Water	Kp	Dermal Permeability Constant	chemical-specific	cm/hour	See Table 5.3	CDI (mg/kg-day) =
	On-Site			SA	Skin Surface Area	4,835	cm^2	EPA 2011 (6)	EPCsw x Kp x SA x EF x ED x ET x EV x CFw x CFv
	Trespasser			EF	Exposure Frequency	144	days/year	BPJ (2)	BW x AT
				ED	Exposure Duration	20	years	EPA, 2016 (3)	For Organics:
				ET	Exposure Time	3	hours/event	PBJ (7)	CDI (mg/kg-day) =
				EV	Events per day	1	events/day	PBJ (8)	EPCsw x FA x Kp x SA x EF x ED x DAevent x EV x CFw x CFv
				CFw	Conversion Factor - Water	1.0E-03	mg/ug	--	BW x AT
				CFv	Conversion Factor - Volume	1.0E-03	L/cm^3	--	If ET < or = t*, then:
				FA	Fraction Absorbed - Water	chemical-specific	unitless	See Table 5.3	$DAevent = 2 \times \sqrt{(6 \times \tau_{event} \times ET)/\pi}$
				t*	Time to Reach Steady-State	chemical-specific	hours/event	See Table 5.3	
				τ_{event}	Lag Time	chemical-specific	hours/event	See Table 5.3	If ET > t*, then:
				B	Ratio of permeability coefficient of a compound	chemical-specific	unitless	See Table 5.3	$DAevent = ET/(1+B) + \{2 \times \tau_{event} \times ([1+3B+3B^2]/[1+B]^2)\}$
					through the corneum relative to its permeability	--	--		
					coefficient across the viable epidermis	--	--		
				BW	Body Weight	80	kg	EPA, 2014 (4)	
				ATnc	Averaging Time - Noncarcinogens	7,300	days	EPA, 1989 and 2016 (5)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 and 2016 (5)	

Notes:

(1) IRsw: Assumes an incidental ingestion rate of 0.05 L/day (about 1 ounce) (EPA 2016) on one-fourth of the total days (0.05 L/day × 0.25)
(3) EF: 144 days per year is based on best professional judgment for the transient population and assumes an adult trespasser will visit the Site 4 days per week during May through September (20 weeks) and 2 days per week during October through April (32 weeks) [(4x20)+(2x32)=144].

(4) ED: Default exposure duration for residents; although the adult trespasser is transient, he/she is assumed present long-term in the area.

(5) BW: Default adult body weight.

(6) ATnc: 365 days/year x 20 year ED; ATc: Assumes 365 days per year over a 70-year lifetime.

(7) SA: Skin surface area of 4,835 cm^2 represents the average surface area of hands, feet, and lower legs of adults (EPA 2011).

(8) ET: Assumed to be 3 hours per day based on professional judgment

(9) EV: Assumed 1 event occurs per day.

$\mu g/m^3$	Microgram per cubic meter
mg/µg	milligrams per microgram

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2011. Exposure Factors Handbook: 2011 edition. National Center for Environmental Assessment, Washington, DC. EPA/600/R-09/052F. Available from the National Technical Information Service, Springfield, VA, and at http://www.epa.gov/ncea/efh

EPA. 2014. Region 4 Human Health Risk Assessment Supplemental Guidance. January. Available on-line at: http://www.epa.gov/region04/superfund/programs/riskassess/riskassess.html

EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

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TABLE 4.10.3.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
CURRENT AND FUTURE ADULT TRESPASSER - SEDIMENT
DES MOINES TCE SITE, DES MOINES, IOWA

Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Chronic Daily Intake (CDI)/Chronic Daily Exposure (CDE)
				EPCsed	Exposure Point Concentration - Sediment	medium-specific	mg/kg	See Table 3 Series	
Incidental	Current/Future	Adult	Sediment	RBA	Relative Bioavailability Factor	chemical-specific	unitless	See TABLE 5 & 6 Series	CDI (mg/kg-day) =
Ingestion	On-Site			IRsed	Sediment Ingestion Rate	100	mg/day	EPA, 2016 (1)	EPCsed x RBA x IRsed x EF x ED x CFs
	Trespasser			EF	Exposure Frequency	144	days/year	BPJ (3)	BW x AT
				ED	Exposure Duration	20	years	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	80	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	7,300	days	EPA, 1989 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 (6)	
				EPCsed	Exposure Point Concentration - Sediment	medium-specific	mg/kg	See Table 3 Series	
Dermal	Current/Future	Adult	Sediment	DAF	Dermal Absorption Factor	chemical-specific	unitless	See TABLE 5 & 6 Series	CDI (mg/kg-day) =
	On-Site			SA	Skin Surface Area	2,275	cm^2	EPA, 2011 (7)	EPCsed x DAF x SA x AF x EF x ED x CFs
	Trespasser			AF	Soil-to-Skin Adherence Factor	0.3	mg/cm^2	EPA, 2004 (8)	BW x AT
				EF	Exposure Frequency	144	days/year	BPJ (3)	
				ED	Exposure Duration	20	years	EPA, 2016 (4)	
				CFs	Conversion Factor - Soil	1.0E-06	kg/mg	--	
				BW	Body Weight	80	kg	EPA, 2016 (5)	
				ATnc	Averaging Time - Noncarcinogens	7,300	days	EPA, 1989 (6)	
				ATc	Averaging Time - Carcinogens	25,550	days	EPA, 1989 (6)	

Notes:

(1) IRS: Recommended soil ingestion rate for adult residents.

(2) FI: Assumes one-half of soil/sediment exposure occurs on Site.
(3) EF: 144 days per year is based on best professional judgment for the transient population and assumes an adult trespasser will visit the Site 4 days per week during May through September (20 weeks) and 2 days per week during October through April (32 weeks) [(4x20)+(2x32)=144].

(4) ED: Default exposure duration for residents; although the adult trespasser is transient, he/she is assumed present long-term in the area.

(5) BW: Default adult body weight.

(6) ATc: 365 days/year x 70 year lifetime; ATnc: 365 days/year x 20 year ED.

(7) SA: Represents the average surface area of hands and feet for adults (EPA 2011).

(8) AF: Soil-to-skin adherence factor for reed gatherer (EPA 2004).

BPJ	Best Professional Judgment
cm^2	Square centimeter
kg	Kilogram
kg/mg	Kilogram per milogram
m^3/kg	Cubic meter per kilogram
mg/cm^2	Milligrams per square centimeter
mg/kg	Milligrams per kilogram
mg/kg-day	Milligrams per kilogram per day

Sources:

U.S. Environmental Protection Agency (EPA). 1989. "Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A)." Office of Solid Waste and Emergency Response (OSWER). EPA/540/1-89/002a. December.

EPA. 2004. RAGS, Volume I – Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). Final. Office of Superfund Remediation and Technology Innovation. Washington, DC. OSWER Directive 9285.7-02. EPA/540/R/99/005. July.

EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 5.1: EPA RAGS PART D TABLE, NON-CANCER TOXICITY DATA - ORAL/DERMAL
DES MOINES TCE SITE, DES MOINES, IOWA

Chemical of Potential Concern	CAS Number	Oral RfD		Oral Absorption Efficiency for Dermal	Absorbed RfD for Dermal		Primary Target Organ(s)	Combined Uncertainty/ Modifying Factors	Oral Reference Dose	
		Value	Units		Value	Units			Source	Date
1,2-Dichloroethane	107-06-2	6.0E-03	mg/kg-day	1	6.0E-03	mg/kg-day	Urinary, Hepatic	10000	PPRTV-Appendix	5/2016
1,2-Dichloroethylene (total)	540-59-0	2.0E-03	mg/kg-day	1	2.0E-03	mg/kg-day	Urinary, Whole Body, Hematologic	3000	IRIS	5/2016
2,3,7,8-TCDD Equivalent	1746-01-6	7.0E-10	mg/kg-day	1	7.0E-10	mg/kg-day	Reproductive	30	IRIS	5/2016
Aldrin	309-00-2	3.0E-05	mg/kg-day	1	3.0E-05	mg/kg-day	Hepatic	1000	IRIS	5/2016
alpha-Chlordane	5103-71-9	5.0E-04	mg/kg-day	1	5.0E-04	mg/kg-day	Hepatic	300	IRIS	5/2016
Chloroform	67-66-3	1.0E-02	mg/kg-day	1	1.0E-02	mg/kg-day	Hepatic	100	IRIS	5/2016
cis-1,2-Dichloroethylene	156-59-2	2.0E-03	mg/kg-day	1	0.002	mg/kg-day	Urinary, Whole Body	3000	IRIS	5/2016
Dieldrin	60-57-1	5.0E-05	mg/kg-day	1	5.0E-05	mg/kg-day	Hepatic	100	IRIS	5/2016
gamma-Chlordane	12789-03-6	5.0E-04	mg/kg-day	1	5.0E-04	mg/kg-day	Hepatic	300	IRIS	5/2016
p,p'-DDT	50-29-3	5.0E-04	mg/kg-day	1	5.0E-04	mg/kg-day	Hepatic	100	IRIS	5/2016
Trichloroethene	79-01-6	5.0E-04	mg/kg-day	1	5.0E-04	mg/kg-day	Developmental, Cardiovascular, Immune	10	IRIS	5/2016
Vinyl Chloride	75-01-4	3.0E-03	mg/kg-day	1	3.0E-03	mg/kg-day	Hepatic	30	IRIS	5/2016

Notes: All toxicity values were obtained from EPA 2016.

Surrogates:
Chlordane was used as a surrogate for alpha-Chlordane and gamma-Chlordane
cis-1,2-dichloroethylene was used as a surrogate for 1,2-Dichloroethylene (total cis + trans)

Abbreviations:

mg/kg-day	Milligram per kilogram per day
CAS	Chemical Abstract Service
EPA	U.S. Environmental Protection Agency
IRIS	Integrated Risk Information System
PPRTV	Provisional Peer Reviewed Toxicity Value
RAGS	Risk Assessment Guidance for Superfund
RfD	Reference Dose

Reference:
EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 5.2: EPA RAGS PART D TABLE, NON-CANCER TOXICITY DATA - INHALATION
DES MOINES TCE SITE, DES MOINES, IOWA

Chemical of Potential Concern	CAS Number	Inhalation RfC		Primary Target Organ(s)	Combined Uncertainty/ Modifying Factors	Inhalation Reference Concentration	
		Value	Units			Source	Date
1,2-Dichloroethane	107-06-2	7.0E-03	mg/m3	Nervous	3000	PPRTV	05/2016
1,2-Dichloroethylene (total)	540-59-0	--	--	--	--	--	05/2016
2,3,7,8-TCDD Equivalent	1746-01-6	4.0E-08	mg/m3	Hepatic, Reproductive, Endocrine, Respiratory, Hematologic, Developmental	100	Cal/EPA	05/2016
Aldrin	309-00-2	--	--	--	--	--	05/2016
alpha-Chlordane	5103-71-9	7.0E-04	mg/m3	Hepatic	1000	IRIS	05/2016
Chloroform	67-66-3	9.8E-02	mg/m3	Hepatic	100	ATSDR	05/2016
cis-1,2-Dichloroethylene	156-59-2	--	--	--	--	--	05/2016
Dieldrin	60-57-1	--	--	--	--	--	05/2016
gamma-Chlordane	12789-03-6	7.0E-04	mg/m3	Hepatic	1000	IRIS	05/2016
p,p'-DDT	50-29-3	--	--	--	--	--	05/2016
Trichloroethene	79-01-6	2.0E-03	mg/m3	Developmental, Cardiovascular, Immune	100	IRIS	05/2016
Vinyl Chloride	75-01-4	1.0E-01	mg/m3	Hepatic	30	IRIS	05/2016

Notes: All toxicity values were obtained from EPA 2016.

Surrogates:

Chlordane was used as a surrogate for alpha-Chlordane and gamma-Chlordane

Abbreviations:

mg/m3	Milligram per cubic meter
ATSDR	Agency for Toxic Substances and Disease Registry
Cal/EPA	California Environmental Protection Agency
CAS	Chemical Abstract Service
EPA	U.S. Environmental Protection Agency
IRIS	Integrated Risk Information System
PPRTV	Provisional Peer Reviewed Toxicity Value
RAGS	Risk Assessment Guidance for Superfund
RfC	Reference Concentration

Reference:

EPA. 2016. “Regional Screening Level User's Guide.” May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 5.3: EPA RAGS PART D, CHEMICAL-SPECIFIC FACTORS AND MUTAGENIC IDENTIFICATION
DES MOINES TCE SITE, DES MOINES, IOWA

Chemical of Potential Concern	CAS Number	Bioavailability Factor	Organic/ Inorganic	Mutagen	VF (m^3/kg)	ABS (unitless)	t* (hours/event)	FA (unitless)	Kp (cm/hour)	t_{event} (hours/event)	B (unitless)
1,2-Dichloroethane	107-06-2	1	O		4.6E+03	--	9.0E-01	1	4.20E-03	3.8E-01	1.6E-02
1,2-Dichloroethylene (total)	540-59-0	1	O		2.5E+03	--	8.8E-01	1	1.10E-02	3.7E-01	4.2E-02
2,3,7,8-TCDD Equivalent	1746-01-6	1	O		2.0E+06	0.03	2.9E+01	0.5	8.08E-01	6.7E+00	5.6E+00
Aldrin	309-00-2	1	O		1.7E+06	--	4.8E+01	1	2.93E-01	1.2E+01	2.2E+00
alpha-Chlordane	5103-71-9	1	O		1.5E+06	0.040	8.0E+01	0.7	1.07E-01	2.1E+01	8.3E-01
Chloroform	67-66-3	1	O		2.6E+03	--	1.2E+00	1	6.83E-03	4.9E-01	2.9E-02
cis-1,2-Dichloroethylene	156-59-2	1	O		2.5E+03	--	8.8E-01	1	1.1E-02	3.7E-01	4.2E-02
Dieldrin	60-57-1	1	O		--	0.1	3.4E+01	0.8	3.3E-02	1.4E+01	2.4E-01
gamma-Chlordane	12789-03-6	1	O		1.5E+06	0.04	8.0E+01	0.7	1.1E-01	2.1E+01	8.3E-01
p,p'-DDT	50-29-3	1	O		--	0.03	4.4E+01	0.7	6.3E-01	1.0E+01	4.5E+00
Trichloroethene	79-01-6	1	O	TCE	2.2E+03	--	1.4E+00	1	1.2E-02	5.7E-01	5.1E-02
Vinyl Chloride	75-01-4	1	O	VC	9.6E+02	--	5.7E-01	1	8.4E-03	2.4E-01	2.5E-02

Notes: All chemical specific factors from EPA 2016.

Surrogates:
Chlordane was used as a surrogate for alpha-Chlordane and gamma-Chlordane

Abbreviations:

--	Not available; not applicable
ABS	Dermal Absorption Factor from soil
B	Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis
cm/hour	centimeters per hour
DW	Dry weight
FA	Fraction absorbed from water
I	Inorganic
Kp	Dermal Permeability Coefficient
m^3/kg	cubic meters per kilogram
mg/kg	milligrams per kilogram
O	Organic
t*	Time to reach steady state
VF	Volatility factor

Reference:
EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 6.1: EPA RAGS PART D TABLE, CANCER TOXICITY DATA - ORAL/DERMAL
DES MOINES TCE SITE, DES MOINES, IOWA

Chemical of Potential Concern	CAS Number	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal	Absorbed Cancer Slope Factor for Dermal		EPA Weight of Evidence/ Cancer Guideline Description	Oral Cancer Slope Factor	
		Value	Units		Value	Units		Source	Date
1,2-Dichloroethane	107-06-2	9.1E-02	(mg/kg-day)-1	1	9.1E-02	(mg/kg-day)-1	Probable Carcinogen	IRIS	5/2016
1,2-Dichloroethylene (total)	540-59-0	--	--	1	--	--	--	--	5/2016
2,3,7,8-TCDD Equivalent	1746-01-6	1.3E+05	(mg/kg-day)-1	1	1.3E+05	(mg/kg-day)-1	Probable Carcinogen	Cal/EPA	5/2016
Aldrin	309-00-2	1.7E+01	(mg/kg-day)-1	1	1.7E+01	(mg/kg-day)-1	Probable Carcinogen	IRIS	5/2016
alpha-Chlordane	5103-71-9	3.5E-01	(mg/kg-day)-1	1	3.5E-01	(mg/kg-day)-1	Probable Carcinogen	IRIS	5/2016
Chloroform	67-66-3	3.1E-02	(mg/kg-day)-1	1	3.1E-02	(mg/kg-day)-1	Probable Carcinogen	Cal/EPA	5/2016
cis-1,2-Dichloroethylene	156-59-2	--	--	1	--	--	--	--	5/2016
Dieldrin	60-57-1	1.6E+01	(mg/kg-day)-1	1	1.6E+01	(mg/kg-day)-1	Probable Carcinogen	IRIS	5/2016
gamma-Chlordane	12789-03-6	3.5E-01	(mg/kg-day)-1	1	3.5E-01	(mg/kg-day)-1	Probable Carcinogen	IRIS	5/2016
p,p'-DDT	50-29-3	3.4E-01	(mg/kg-day)-1	1	3.4E-01	(mg/kg-day)-1	Probable Carcinogen	IRIS	5/2016
Trichloroethene	79-01-6	4.6E-02	(mg/kg-day)-1	1	4.6E-02	(mg/kg-day)-1	Carcinogen	IRIS	5/2016
Vinyl Chloride	75-01-4	7.2E-01	(mg/kg-day)-1	1	7.2E-01	(mg/kg-day)-1	Carcinogen	IRIS	5/2016

Notes: All toxicity values were obtained from EPA 2016.

Surrogates:
Chlordane was used as a surrogate for alpha-Chlordane and gamma-Chlordane

Abbreviations:

(mg/kg-day)-1	1/milligrams per kilogram per day
Cal/EPA	California Environmental Protection Agency
CAS	Chemical Abstract Service
EPA	U.S. Environmental Protection Agency
IRIS	Integrated Risk Information System
RAGS	Risk Assessment Guidance for Superfund

Reference:
EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

TABLE 6.2: EPA RAGS PART D TABLE, CANCER TOXICITY DATA - INHALATION
DES MOINES TCE SITE, DES MOINES, IOWA

Chemical of Potential Concern	CAS Number	Inhalation Unit Risk		EPA Weight of Evidence/ Cancer Guideline Description	Unit Risk	
		Value	Units		Source	Date
1,2-Dichloroethane	107-06-2	2.6E-05	(ug/m3)-1	Probable Carcinogen	IRIS	5/2016
1,2-Dichloroethylene (total)	540-59-0	--	--	--	--	5/2016
2,3,7,8-TCDD Equivalent	1746-01-6	3.8E+01	(ug/m3)-1	Probable Carcinogen	Cal/EPA	5/2016
Aldrin	309-00-2	4.9E-03	(ug/m3)-1	Probable Carcinogen	IRIS	5/2016
alpha-Chlordane	5103-71-9	1.0E-04	(ug/m3)-1	Likely Carcinogen	IRIS	5/2016
Chloroform	67-66-3	2.3E-05	--	Probable Carcinogen	IRIS	5/2016
cis-1,2-Dichloroethylene	156-59-2	--	--	--	--	5/2016
Dieldrin	60-57-1	4.6E-03	(ug/m3)-1	Probable Carcinogen	IRIS	5/2016
gamma-Chlordane	12789-03-6	1.0E-04	(ug/m3)-1	Likely Carcinogen	IRIS	5/2016
p,p'-DDT	50-29-3	9.7E-05	(ug/m3)-1	Probable Carcinogen	IRIS	5/2016
Trichloroethene	79-01-6	4.1E-06	(ug/m3)-1	Carcinogen	IRIS	5/2016
Vinyl Chloride	75-01-4	4.4E-06	(ug/m3)-1	Carcinogen	IRIS	5/2016

Notes: All toxicity values were obtained from EPA 2015.

Surrogates:
Chlordane was used as a surrogate for alpha-Chlordane and gamma-Chlordane

Abbreviations:

(ug/m3)-1	1/micrograms per cubic meter
Cal/EPA	California Environmental Protection Agency
CAS	Chemical Abstract Service
EPA	U.S. Environmental Protection Agency
IRIS	Integrated Risk Information System
RAGS	Risk Assessment Guidance for Superfund

Reference:
EPA. 2016. "Regional Screening Level User's Guide." May. Available on-line at:
https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

			Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide)				
		1	2	3	4	5	6
	Contaminant		Information				
COPC	Analyte	CAS No.	SFO $(mg/kg\text{-}day)^{-1}$	e y	IUR $(ug/m^3)^{-1}$	e y	RfD_o (mg/kg-day)
X	Aldrin	309-00-2	1.7E+01	I	4.9E-03	I	3.0E-05
X	alpha-Chlordane	5103-71-9	3.5E-01	I	1.0E-04	I	5.0E-04
X	gamma-Chlordane	12789-03-6	3.5E-01	I	1.0E-04	I	5.0E-04
X	Chloroform	67-66-3	3.1E-02	C	2.3E-05	I	1.0E-02
X	DDT	50-29-3	3.4E-01	I	9.7E-05	I	5.0E-04
X	Dichloroethane, 1,2-	107-06-2	9.1E-02	I	2.6E-05	I	6.0E-03
X	Dichloroethylene, 1,2-	540-59-0					2.0E-03
X	Dichloroethylene, 1,2-cis-	156-59-2					2.0E-03
X	Dieldrin	60-57-1	1.6E+01	I	4.6E-03	I	5.0E-05
X	~TCDD, 2,3,7,8-	1746-01-6	1.3E+05	C	3.8E+01	C	7.0E-10
X	Trichloroethene	79-01-6	4.6E-02	I	4.1E-06	I	5.0E-04
X	Vinyl Chloride	75-01-4	7.2E-01	I	4.4E-06	I	3.0E-03
	Zirconium	74[illegible]	[illegible]		[illegible]		8.0[illegible]

< 100X c SL; ** = where n SL < 10X c SL; SSL values are
entration may exceed ceiling limit (See User Guide); s =
on may exceed Csat (See User Guide)

7	8	9	10	11	12	13	14	15	16
and Chemical-specific Information									
e y	RfC$_i$ (mg/m^3)	k e y	v o l	muta-gen	GIABS	ABS	C$_{sat}$ (mg/kg)	VF (m^3/kg)	FA
I			V		1			1.7E+06	1
I	7.0E-04	I	V		1	0.04		1.5E+06	0.7
I	7.0E-04	I	V		1	0.04		1.5E+06	0.7
I	9.8E-02	A	V		1		2.5E+03	2.6E+03	1
I					1	0.03			0.7
X	7.0E-03	P	V		1		3.0E+03	4.6E+03	1
I			V		1			2.5E+03	1
I			V		1		2.4E+03	2.5E+03	1
I					1	0.1			0.8
I	4.0E-08	C	V		1	0.03		2.0E+06	0.5
I	2.0E-03	I	V	TCE	1		6.9E+02	2.2E+03	1
I	1.0E-01	I	V	VC	1		3.9E+03	9.6E+02	1
X					1				

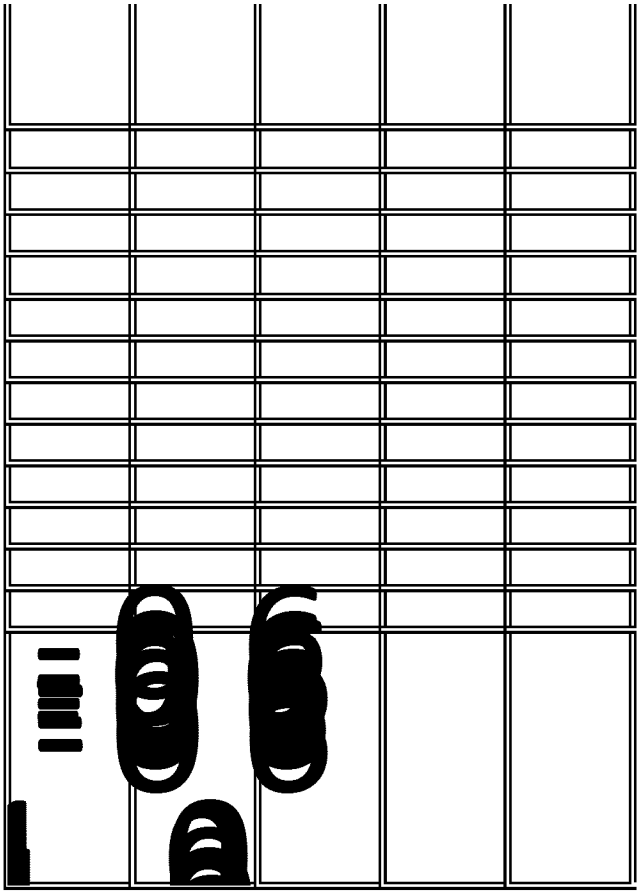

TABLE 7.1.RME: EPA RAGS TABLE 7 - FUTURE RESIDENT CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe:	Future
Receptor Population:	Aggregate and Child Resident
Receptor Age:	0-26

								Cancer Risk Calculations					Noncancer Hazard Quotient				
						EPC		Intake/Exposure Concentration		CSF / Unit Risk			Intake/Exposure Concentration		RfD / RfC		
Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	CAS No.	Value	Units	Value	Units	Value	Units	Cancer Risk	Value	Units	Value	Units	Hazard Quotient
Surface Soil	Surface Soil, Particulates/Vapors	Surface Soil	Ingestion	2,3,7,8-TCDD Equivalent	1746-01-6	1.9E-05	mg/kg	2.8E-11	mg/kg-day	1.3E+05	(mg/kg-day)-1	3.6E-06	2.5E-10	mg/kg-day	7.0E-10	mg/kg-day	3.5E-01
				p,p'-DDT	50-29-3	2.3E+00	mg/kg	3.3E-06	mg/kg-day	3.4E-01	(mg/kg-day)-1	1.1E-06	2.9E-05	mg/kg-day	5.0E-04	mg/kg-day	5.8E-02
				Chloroform	67-66-3	7.4E-01	mg/kg	1.1E-06	mg/kg-day	3.1E-02	(mg/kg-day)-1	3.3E-08	9.5E-06	mg/kg-day	1.0E-02	mg/kg-day	9.5E-04
				cis-1,2-Dichloroethylene	156-59-2	1.2E+01	mg/kg	7.9E-05	mg/kg-day	--	--	--	1.5E-04	mg/kg-day	2.0E-03	mg/kg-day	7.7E-02
				Trichloroethene	79-01-6	4.4E+00	mg/kg	1.1E-05	mg/kg-day	4.6E-02	(mg/kg-day)-1	5.0E-07	5.6E-05	mg/kg-day	5.0E-04	mg/kg-day	1.1E-01
			Exposure Route Total									5.2E-06					6.0E-01
			Dermal	2,3,7,8-TCDD Equivalent	1746-01-6	1.9E-05	mg/kg	2.6E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	3.3E-07	1.7E-11	mg/kg-day	7.0E-10	mg/kg-day	2.5E-02
				p,p'-DDT	50-29-3	2.3E+00	mg/kg	3.0E-07	mg/kg-day	3.4E-01	(mg/kg-day)-1	1.0E-07	2.1E-06	mg/kg-day	5.0E-04	mg/kg-day	4.1E-03
				Chloroform	67-66-3	7.4E-01	mg/kg	--	--	3.1E-02	(mg/kg-day)-1	--	--	--	1.0E-02	mg/kg-day	--
				cis-1,2-Dichloroethylene	156-59-2	1.2E+01	mg/kg	--	--	--	--	--	--	--	2.0E-03	mg/kg-day	--
				Trichloroethene	79-01-6	4.4E+00	mg/kg	--	--	4.6E-02	(mg/kg-day)-1	--	--	--	5.0E-04	mg/kg-day	--
			Exposure Route Total									4.4E-07					2.9E-02
			Inhalation	2,3,7,8-TCDD Equivalent	1746-01-6	1.9E-05	mg/kg	3.5E-09	ug/m3	3.8E+01	(ug/m3)-1	1.3E-07	9.5E-12	mg/m3	4.0E-08	mg/m3	2.4E-04
				p,p'-DDT	50-29-3	2.3E+00	mg/kg	2.6E-08	ug/m3	9.7E-05	(ug/m3)-1	2.5E-12	7.0E-11	mg/m3	--	--	--

				Chloroform	67-66-3	7.4E-01	mg/kg	1.0E-01	ug/m3	2.3E-05	--	2.3E-06	2.7E-04	mg/m3	9.8E-02	mg/m3	2.8E-03
				cis-1,2-Dichloroethylene	156-59-2	1.2E+01	mg/kg	4.8E+00	ug/m3	--	--	--	4.7E-03	mg/m3	--	--	--
				Trichloroethene	79-01-6	4.4E+00	mg/kg	1.0E+00	ug/m3	4.1E-06	(ug/m3)-1	4.2E-06	1.9E-03	mg/m3	2.0E-03	mg/m3	9.6E-01
			Exposure Route Total									6.7E-06					9.7E-01
		Exposure Point Total										1.2E-05					1.6E+00
	Exposure Medium Total											1.2E-05					1.6E+00
Medium Total												1.2E-05					1.6E+00
All Soil	All Soil, Particulates/Vapors	Soil	Ingestion	2,3,7,8-TCDD Equivalent	1746-01-6	1.9E-05	mg/kg	2.8E-11	mg/kg-day	1.3E+05	(mg/kg-day)-1	3.6E-06	2.5E-10	mg/kg-day	7.0E-10	mg/kg-day	3.5E-01
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	8.3E-07	mg/kg-day	3.4E-01	(mg/kg-day)-1	2.8E-07	7.4E-06	mg/kg-day	5.0E-04	mg/kg-day	1.5E-02
				Chloroform	67-66-3	7.4E-01	mg/kg	1.1E-06	mg/kg-day	3.1E-02	(mg/kg-day)-1	3.3E-08	9.5E-06	mg/kg-day	1.0E-02	mg/kg-day	9.5E-04
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	3.4E-05	mg/kg-day	--	--	--	6.6E-05	mg/kg-day	2.0E-03	mg/kg-day	3.3E-02
				Trichloroethene	79-01-6	2.2E+00	mg/kg	5.4E-06	mg/kg-day	4.6E-02	(mg/kg-day)-1	2.5E-07	2.8E-05	mg/kg-day	5.0E-04	mg/kg-day	5.6E-02
			Exposure Route Total									4.1E-06					4.5E-01
			Dermal	2,3,7,8-TCDD Equivalent	1746-01-6	1.9E-05	mg/kg	2.6E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	3.3E-07	1.7E-11	mg/kg-day	7.0E-10	mg/kg-day	2.5E-02
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	7.7E-08	mg/kg-day	3.4E-01	(mg/kg-day)-1	2.6E-08	5.2E-07	mg/kg-day	5.0E-04	mg/kg-day	1.0E-03
				Chloroform	67-66-3	7.4E-01	mg/kg	--	--	3.1E-02	(mg/kg-day)-1	--	--	--	1.0E-02	mg/kg-day	--
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	--	--	--	--	--	--	--	2.0E-03	mg/kg-day	--
				Trichloroethene	79-01-6	2.2E+00	mg/kg	--	--	4.6E-02	(mg/kg-day)-1	--	--	--	5.0E-04	mg/kg-day	--
			Exposure Route Total									3.6E-07					2.6E-02
			Inhalation	2,3,7,8-TCDD Equivalent	1746-01-6	1.9E-05	mg/kg	3.5E-09	ug/m3	3.8E+01	(ug/m3)-1	1.3E-07	9.5E-12	mg/m3	4.0E-08	mg/m3	2.4E-04
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	6.6E-09	ug/m3	9.7E-05	(ug/m3)-1	6.4E-13	1.8E-11	mg/m3	--	--	--
				Chloroform	67-66-3	7.4E-01	mg/kg	1.0E-01	ug/m3	2.3E-05	--	2.3E-06	2.7E-04	mg/m3	9.8E-02	mg/m3	2.8E-03
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	2.0E+00	ug/m3	--	--	--	2.0E-03	mg/m3	--	--	--
				Trichloroethene	79-01-6	2.2E+00	mg/kg	5.1E-01	ug/m3	4.1E-06	(ug/m3)-1	2.1E-06	9.5E-04	mg/m3	2.0E-03	mg/m3	4.8E-01

			Exposure Route Total									4.5E-06					4.8E-01
		Exposure Point Total										9.0E-06					9.6E-01
	Exposure Medium Total											9.0E-06					9.6E-01
Medium Total												9.0E-06					9.6E-01
Groundwater	Groundwater	Groundwater	Ingestion	1,2-Dichloroethane	107-06-2	6.0E-01	ug/L	7.7E-06	mg/kg-day	9.1E-02	(mg/kg-day)-1	7.0E-07	3.0E-05	mg/kg-day	6.0E-03	mg/kg-day	5.0E-03
				1,2-Dichloroethylene (tot	540-59-0	7.1E+01	ug/L	2.8E-03	mg/kg-day	--	--	--	3.5E-03	mg/kg-day	2.0E-03	mg/kg-day	1.8E+00
				Trichloroethene	79-01-6	4.8E+02	ug/L	8.8E-03	mg/kg-day	4.6E-02	(mg/kg-day)-1	4.1E-04	2.4E-02	mg/kg-day	5.0E-04	mg/kg-day	4.8E+01
				Vinyl Chloride	75-01-4	3.4E+00	ug/L	2.20E-04	mg/kg-day	7.2E-01	(mg/kg-day)-1	1.6E-04	1.7E-04	mg/kg-day	3.0E-03	mg/kg-day	5.7E-02
			Exposure Route Total									5.7E-04					5.0E+01
			Dermal	1,2-Dichloroethane	107-06-2	6.0E-01	ug/L	3.6E-07	mg/kg-day	9.1E-02	(mg/kg-day)-1	3.3E-08	1.3E-06	mg/kg-day	6.0E-03	mg/kg-day	2.1E-04
				1,2-Dichloroethylene (tot	540-59-0	7.1E+01	ug/L	3.4E-04	mg/kg-day	--	--	--	3.9E-04	mg/kg-day	2.0E-03	mg/kg-day	2.0E-01
				Trichloroethene	79-01-6	4.8E+02	ug/L	1.4E-03	mg/kg-day	4.6E-02	(mg/kg-day)-1	6.4E-05	3.5E-03	mg/kg-day	5.0E-04	mg/kg-day	7.0E+00
				Vinyl Chloride	75-01-4	3.4E+00	ug/L	1.7E-05	mg/kg-day	7.2E-01	(mg/kg-day)-1	1.2E-05	1.1E-05	mg/kg-day	3.0E-03	mg/kg-day	3.8E-03
			Exposure Route Total									7.7E-05					7.2E+00
	Exposure Medium Total											6.4E-04					5.7E+01
	Vapors	Indoor Air (Domestic Use)	Inhalation	1,2-Dichloroethane	107-06-2	6.0E-01	ug/L	1.1E-01	ug/m3	2.6E-05	(ug/m3)-1	2.8E-06	2.9E-04	mg/m3	7.0E-03	mg/m3	4.1E-02
				1,2-Dichloroethylene (tot	540-59-0	7.1E+01	ug/L	1.3E+01	ug/m3	--	--	--	3.4E-02	mg/m3	--	--	--
				Trichloroethene	79-01-6	4.8E+02	ug/L	1.2E+02	ug/m3	4.1E-06	(ug/m3)-1	5.1E-04	2.3E-01	mg/m3	2.0E-03	mg/m3	1.2E+02
				Vinyl Chloride	75-01-4	3.4E+00	ug/L	2.3E+00	ug/m3	4.4E-06	(ug/m3)-1	1.0E-05	1.6E-03	mg/m3	1.0E-01	mg/m3	1.6E-02
			Exposure Route Total									5.2E-04					1.2E+02
		Indoor Air (Vapor Intrusion)	Inhalation	1,2-Dichloroethane	107-06-2	1.4E-02	ug/m3	5.0E-03	ug/m3	2.6E-05	(ug/m3)-1	1.3E-07	1.3E-05	mg/m3	7.0E-03	mg/m3	1.9E-03
				1,2-Dichloroethylene (tot	540-59-0	6.1E+00	ug/m3	2.2E+00	ug/m3	--	--	--	5.9E-03	mg/m3	--	--	--
				Trichloroethene	79-01-6	9.3E+01	ug/m3	4.8E+01	ug/m3	4.1E-06	(ug/m3)-1	2.0E-04	9.0E-02	mg/m3	2.0E-03	mg/m3	4.5E+01
				Vinyl Chloride	75-01-4	2.5E+00	ug/m3	3.4E+00	ug/m3	4.4E-06	(ug/m3)-1	1.5E-05	2.4E-03	mg/m3	1.0E-01	mg/m3	2.4E-02
			Exposure Route Total									2.1E-04					4.5E+01
		Exposure Point Total										7.3E-04					1.6E+02
	Exposure Medium Total											7.3E-04					1.6E+02
Medium Total												1.4E-03					2.2E+02
Receptor Total: Groundwater + Surface Soil												1E-03					2E+02
Receptor Total: Groundwater + All Soil												1E-03					2E+02

Notes:

Risk and noncancer hazard derivation for indoor air is in Attachment D-4.

--	Not available or not applicable
bgs	Below ground surface
CSF	Cancer slope factor
EPA	U.S. Environmental Protection Agency
EPC	Exposure point concentration
mg/kg	Milligram per kilogram
mg/kg-day	Milligram per kilogram per day
(mg/kg-day)-1	1/(Milligram per kilogram per day)
mg/L	Milligram per liter

mg/m3	Milligram per cubic meter
RAGS	Risk Assessment Guidance for Superfund
RfC	Reference concentration
RfD	Reference dose
(ug/m3)-1	1/Microgram per cubic meter

TABLE 9.1.RME: EPA RAGS TABLE 9 - FUTURE RESIDENT SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs- RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Future
Receptor Population: Aggregate and Child Resident
Receptor Age: 0-26

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	CAS No.	Carcinogenic Risk				Primary Target Organ(s)	Non-Carcinogenic Hazard Quotient			
					Ingestion	Dermal	Inhalation	Exposure Routes Total		Ingestion	Dermal	Inhalation	Exposure Routes Total
SurfaceSoil	SurfaceSoil,	Surface Soil	2,3,7,8-TCDD Equivalent	1746-01-6	3.6E-06	3.3E-07	1.3E-07	4.1E-06	Reproductive, Hepatic, Endocrine, Respiratory, Hematologic, Developmental	3.5E-01	2.5E-02	2.4E-04	3.8E-01
	Particulates / Vapors		p,p'-DDT	50-29-3	1.1E-06	1.0E-07	2.5E-12	1.2E-06	Hepatic	5.8E-02	4.1E-03	--	6.2E-02
			Chloroform	67-66-3	3.3E-08	--	2.3E-06	2.4E-06	Hepatic	9.5E-04	--	2.8E-03	3.7E-03
			cis-1,2-Dichloroethylene	156-59-2	--	--	--	--	Urinary, Whole Body	7.7E-02	--	--	7.7E-02
			Trichloroethene	79-01-6	5.0E-07	--	4.2E-06	4.7E-06	Developmental, Cardiovascular, Immune	1.1E-01	--	9.6E-01	1.1E+00
			Chemical Total		5.2E-06	4.4E-07	6.7E-06	1.2E-05		6.0E-01	2.9E-02	9.7E-01	1.6E+00
		Exposure Point Total						1.2E-05					1.6E+00
	Exposure Medium Total							1.2E-05					1.6E+00

Surface Soil Total								1.2E-05					1.6E+00
All Soil	All Soil,	All Soil	2,3,7,8-TCDD Equivalent	1746-01-6	3.6E-06	3.3E-07	1.3E-07	4.1E-06	Reproductive, Hepatic, Endocrine, Respiratory, Hematologic, Developmental	3.5E-01	2.5E-02	2.4E-04	3.8E-01
	Particulates / Vapors		p,p'-DDT	50-29-3	2.8E-07	2.6E-08	6.4E-13	3.1E-07	Hepatic	1.5E-02	1.0E-03	--	1.6E-02
			Chloroform	67-66-3	3.3E-08	--	2.3E-06	2.4E-06	Hepatic	9.5E-04	--	2.8E-03	3.7E-03
			cis-1,2-Dichloroethylene	156-59-2	--	--	--	--	Urinary, Whole Body	3.3E-02	--	--	3.3E-02
			Trichloroethene	79-01-6	2.5E-07	--	2.1E-06	2.3E-06	Developmental, Cardiovascular, Immune	5.6E-02	--	4.8E-01	5.3E-01
			Chemical Total		4.1E-06	3.6E-07	4.5E-06	9.0E-06		4.5E-01	2.6E-02	4.8E-01	9.6E-01
		Exposure Point Total						9.0E-06					9.6E-01
	All Soil Total							9.0E-06					9.6E-01
All Soil Total								9.0E-06					9.6E-01
Groundwater	Groundwater	Groundwater	1,2-Dichloroethane	107-06-2	7.0E-07	3.3E-08	2.8E-06	3.5E-06	Urinary, Hepatic, Nervous	5.0E-03	2.1E-04	4.1E-02	4.7E-02
		Vapors	1,2-Dichloroethylene (total)	540-59-0	--	--	--	--	Hematologic	1.8E+00	2.0E-01	--	2.0E+00
		(Domestic Use)	Trichloroethene	79-01-6	4.1E-04	6.4E-05	5.1E-04	9.8E-04	Developmental, Cardiovascular, Immune	4.8E+01	7.0E+00	1.2E+02	1.7E+02
			Vinyl Chloride	75-01-4	1.6E-04	1.2E-05	1.0E-05	1.8E-04	Hepatic	5.7E-02	3.8E-03	1.6E-02	7.7E-02

			Chemical Total		5.7E-04	7.7E-05	5.2E-04	1.2E-03		5.0E+01	7.2E+00	1.2E+02	1.7E+02
		Exposure Point Total						1.2E-03					1.7E+02
	Domestic Use of Groundwater Total							1.2E-03					1.7E+02
	Vapors	Indoor Air	1,2-Dichloroethane	107-06-2	--	--	1.3E-07	1.3E-07	Nervous	--	--	1.9E-03	1.9E-03
		(Vapor Intrusion)	1,2-Dichloroethylene (total)	540-59-0	--	--	--	--	--	--	--	--	--
			Trichloroethene	79-01-6	--	--	2.0E-04	2.0E-04	Developmental, Cardiovascular, Immune	--	--	4.5E+01	4.5E+01
			Vinyl Chloride	75-01-4	--	--	1.5E-05	1.5E-05	Hepatic	--	--	2.4E-02	2.4E-02
			Chemical Total		--	--	2.1E-04	2.1E-04		--	--	4.5E+01	4.5E+01
		Exposure Point Total						2.1E-04					4.5E+01
	Vapor Intrusion from Groundwater Total							2.1E-04					4.5E+01
Groundwater Total								1.4E-03					2.2E+02
Receptor Total: Surface Soil + Groundwater								1E-03					2E+02
Receptor Total: All Soil + Groundwater								1E-03					2E+02

TABLE 10.1.RME: EPA RAGS TABLE 10 - FUTURE RESIDENT RISK AND HAZARD SUMMARY - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Future
Receptor Population: Aggregate and Child Resident
Receptor Age: 0-26

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	CAS No.	Carcinogenic Risk				Primary Target Organ(s)	Non-Carcinogenic Hazard Quotient			
					Ingestion	Dermal	Inhalation	Exposure Routes Total		Ingestion	Dermal	Inhalation	Exposure Routes Total
SurfaceSoil	SurfaceSoil, Particulates / Vapors	Surface Soil	2,3,7,8-TCDD Equivalent	1746-01-6	3.6E-06	3.3E-07	1.3E-07	4.1E-06	Reproductive, Hepatic, Endocrine, Respiratory, Hematologic, Developmental	3.5E-01	2.5E-02	2.4E-04	3.8E-01
			p,p'-DDT	50-29-3	1.1E-06	1.0E-07	2.5E-12	1.2E-06	Hepatic	5.8E-02	4.1E-03	--	6.2E-02
			Chloroform	67-66-3	3.3E-08	--	2.3E-06	2.4E-06	Hepatic	9.5E-04	--	2.8E-03	3.7E-03
			Trichloroethene	79-01-6	5.0E-07	--	4.2E-06	4.7E-06	Developmental, Cardiovascular, Immune	1.1E-01	--	9.6E-01	1.1E+00
			Chemical Total		5.2E-06	4.4E-07	6.7E-06	1.2E-05		5.2E-01	2.9E-02	9.7E-01	1.5E+00
		Exposure Point Total						1.2E-05					1.5E+00
	Exposure Medium Total							1.2E-05					1.5E+00
Surface Soil Total								1.2E-05					1.5E+00
All Soil	All Soil, Particulates / Vapors	All Soil	2,3,7,8-TCDD Equivalent	1746-01-6	3.6E-06	3.3E-07	1.3E-07	4.1E-06	Reproductive, Hepatic, Endocrine, Respiratory, Hematologic, Developmental	3.5E-01	2.5E-02	2.4E-04	3.8E-01
			Chloroform	67-66-3	3.3E-08	--	2.3E-06	2.4E-06	Hepatic	9.5E-04	--	2.8E-03	3.7E-03
			Trichloroethene	79-01-6	2.5E-07	--	2.1E-06	2.3E-06	Developmental, Cardiovascular, Immune	5.6E-02	--	4.8E-01	5.3E-01
			Chemical Total		3.9E-06	3.3E-07	4.5E-06	8.7E-06		4.1E-01	2.5E-02	4.8E-01	9.1E-01
		Exposure Point Total						8.7E-06					9.1E-01
	All Soil Total							8.7E-06					9.1E-01
All Soil Total								8.7E-06					9.1E-01
Groundwater	Groundwater	Groundwater Vapors (Domestic Use)	1,2-Dichloroethane	107-06-2	7.0E-07	3.3E-08	2.8E-06	3.5E-06	Urinary, Hepatic, Nervous	5.0E-03	2.1E-04	4.1E-02	4.7E-02
			Trichloroethene	79-01-6	4.1E-04	6.4E-05	5.1E-04	9.8E-04	Developmental, Cardiovascular, Immune	4.8E+01	7.0E+00	1.2E+02	1.7E+02
			Vinyl Chloride	75-01-4	1.6E-04	1.2E-05	1.0E-05	1.8E-04	Hepatic	5.7E-02	3.8E-03	1.6E-02	7.7E-02
			Chemical Total		5.7E-04	7.7E-05	5.2E-04	1.2E-03		4.8E+01	7.0E+00	1.2E+02	1.7E+02
		Exposure Point Total						1.2E-03					1.7E+02
	Domestic Use of Groundwater Total							1.2E-03					1.7E+02
	Vapors	Indoor Air (Vapor Intrusion)	Trichloroethene	79-01-6	--	--	2.0E-04	2.0E-04	Developmental, Cardiovascular, Immune	--	--	4.5E+01	4.5E+01
			Vinyl Chloride	75-01-4	--	--	1.5E-05	1.5E-05	Hepatic	--	--	2.4E-02	2.4E-02
			Chemical Total		--	--	2.1E-04	2.1E-04		--	--	4.5E+01	4.5E+01
		Exposure Point Total						2.1E-04					4.5E+01

Vapor Intrusion from Groundwater Total	2.1E-04		4.5E+01
Groundwater Total	1.4E-03		2.2E+02
Receptor Total: Surface Soil + Groundwater	1E-03		2E+02
Receptor Total: All Soil + Groundwater	1E-03		2E+02

TABLE 7.2.RME: EPA RAGS TABLE 7 - FUTURE COMMERCIAL/INDUSTRIAL WORKER CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Future
Receptor Population: Commercial/Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	CAS No.	EPC		Cancer Risk Calculations					Noncancer Hazard Quotient				
								Intake/Exposure Concentration		CSF / Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD / RfC		Hazard Quotient
						Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil, Particulates/Vapors	Surface Soil	Ingestion	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	2.9E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	3.8E-07	8.2E-12	mg/kg-day	7.0E-10	mg/kg-day	1.2E-02
				p,p'-DDT	50-29-3	2.3E+00	mg/kg	3.5E-07	mg/kg-day	3.4E-01	(mg/kg-day)-1	1.2E-07	9.7E-07	mg/kg-day	5.0E-04	mg/kg-day	1.9E-03
				Chloroform	67-66-3	7.4E-01	mg/kg	1.1E-07	mg/kg-day	3.1E-02	(mg/kg-day)-1	3.5E-09	3.2E-07	mg/kg-day	1.0E-02	mg/kg-day	3.2E-05
				cis-1,2-Dichloroethylene	156-59-2	1.2E+01	mg/kg	1.8E-06	mg/kg-day	--	--	--	5.2E-06	mg/kg-day	2.0E-03	mg/kg-day	2.6E-03
				Trichloroethene	79-01-6	4.4E+00	mg/kg	6.7E-07	mg/kg-day	4.6E-02	(mg/kg-day)-1	3.1E-08	1.9E-06	mg/kg-day	5.0E-04	mg/kg-day	3.8E-03
			Exposure Route Total									5.3E-07					2.0E-02
			Dermal	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	7.4E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	9.7E-08	2.1E-12	mg/kg-day	7.0E-10	mg/kg-day	3.0E-03
				p,p'-DDT	50-29-3	2.3E+00	mg/kg	8.8E-08	mg/kg-day	3.4E-01	(mg/kg-day)-1	3.0E-08	2.5E-07	mg/kg-day	5.0E-04	mg/kg-day	4.9E-04
				Chloroform	67-66-3	7.4E-01	mg/kg	--	--	3.1E-02	(mg/kg-day)-1	--	--	--	1.0E-02	mg/kg-day	--
				cis-1,2-Dichloroethylene	156-59-2	1.2E+01	mg/kg	--	--	--	--	--	--	--	2.0E-03	mg/kg-day	--
				Trichloroethene	79-01-6	4.4E+00	mg/kg	--	--	4.6E-02	(mg/kg-day)-1	--	--	--	5.0E-04	mg/kg-day	--
			Exposure Route Total									1.3E-07					3.5E-03
			Inhalation	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	8.0E-10	ug/m3	3.8E+01	(ug/m3)-1	3.1E-08	2.3E-15	mg/m3	4.0E-08	mg/m3	5.6E-08
				p,p'-DDT	50-29-3	2.3E+00	mg/kg	6.0E-09	ug/m3	9.7E-05	(ug/m3)-1	5.8E-13	1.7E-14	mg/m3	--	--	--
				Chloroform	67-66-3	7.4E-01	mg/kg	2.3E-02	ug/m3	2.3E-05	--	5.3E-07	6.5E-08	mg/m3	9.8E-02	mg/m3	6.6E-07
				cis-1,2-Dichloroethylene	156-59-2	1.2E+01	mg/kg	4.0E-01	ug/m3	--	--	--	1.1E-06	mg/m3	--	--	--

				Trichloroethene	79-01-6	4.4E+00	mg/kg	1.6E-01	ug/m3	4.1E-06	(ug/m3)-1	6.7E-07	4.6E-07	mg/m3	2.0E-03	mg/m3	2.3E-04
			Exposure Route Total									1.2E-06					2.3E-04
		Exposure Point Total										1.9E-06					2.4E-02
	Exposure Medium Total											1.9E-06					2.4E-02
Medium Total												1.9E-06					2.4E-02
All Soil	All Soil, Particulates/Vapors	Soil	Ingestion	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	2.9E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	3.8E-07	8.2E-12	mg/kg-day	7.0E-10	mg/kg-day	1.2E-02
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	8.8E-08	mg/kg-day	3.4E-01	(mg/kg-day)-1	3.0E-08	2.5E-07	mg/kg-day	5.0E-04	mg/kg-day	4.9E-04
				Chloroform	67-66-3	7.4E-01	mg/kg	1.1E-07	mg/kg-day	3.1E-02	(mg/kg-day)-1	3.5E-09	3.2E-07	mg/kg-day	1.0E-02	mg/kg-day	3.2E-05
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	7.9E-07	mg/kg-day	--	--	--	2.2E-06	mg/kg-day	2.0E-03	mg/kg-day	1.1E-03
				Trichloroethene	79-01-6	2.2E+00	mg/kg	3.3E-07	mg/kg-day	4.6E-02	(mg/kg-day)-1	1.5E-08	9.3E-07	mg/kg-day	5.0E-04	mg/kg-day	1.9E-03
			Exposure Route Total									4.3E-07					1.5E-02
			Dermal	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	7.4E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	9.7E-08	2.1E-12	mg/kg-day	7.0E-10	mg/kg-day	3.0E-03
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	2.2E-08	mg/kg-day	3.4E-01	(mg/kg-day)-1	7.6E-09	6.3E-08	mg/kg-day	5.0E-04	mg/kg-day	1.3E-04

				Chloroform	67-66-3	7.4E-01	mg/kg	--	--	3.1E-02	(mg/kg-day)-1	--	--	--	1.0E-02	mg/kg-day	--
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	--	--	--	--	--	--	--	2.0E-03	mg/kg-day	--
				Trichloroethene	79-01-6	2.2E+00	mg/kg	--	--	4.6E-02	(mg/kg-day)-1	--	--	--	5.0E-04	mg/kg-day	--
			Exposure Route Total									1.0E-07					3.1E-03
			Inhalation	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	8.0E-10	ug/m3	3.8E+01	(ug/m3)-1	3.1E-08	2.3E-12	mg/m3	4.0E-08	mg/m3	5.6E-05
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	1.5E-09	ug/m3	9.7E-05	(ug/m3)-1	1.5E-13	4.3E-12	mg/m3	--	--	--
				Chloroform	67-66-3	7.4E-01	mg/kg	2.3E-02	ug/m3	2.3E-05	--	5.3E-07	6.5E-05	mg/m3	9.8E-02	mg/m3	6.6E-04
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	1.7E-01	ug/m3	--	--	--	4.7E-04	mg/m3	--	--	--
				Trichloroethene	79-01-6	2.2E+00	mg/kg	8.1E-02	ug/m3	4.1E-06	(ug/m3)-1	3.3E-07	2.3E-04	mg/m3	2.0E-03	mg/m3	1.1E-01
			Exposure Route Total									8.9E-07					1.1E-01
		Exposure Point Total										1.4E-06					1.3E-01
	Exposure Medium Total											1.4E-06					1.3E-01
Medium Total												1.4E-06					1.3E-01
Groundwater	Groundwater	Groundwater	Ingestion	1,2-Dichloroethane	107-06-2	6.0E-01	ug/L	2.3E-06	mg/kg-day	9.1E-02	(mg/kg-day)-1	2.1E-07	6.4E-06	mg/kg-day	6.0E-03	mg/kg-day	1.1E-03
				1,2-Dichloroethylene (tot	540-59-0	7.1E+01	ug/L	2.7E-04	mg/kg-day	--	--	--	7.6E-04	mg/kg-day	2.0E-03	mg/kg-day	3.8E-01
				Trichloroethene	79-01-6	4.8E+02	ug/L	1.8E-03	mg/kg-day	4.6E-02	(mg/kg-day)-1	8.4E-05	5.1E-03	mg/kg-day	5.0E-04	mg/kg-day	1.0E+01
				Vinyl Chloride	75-01-4	3.4E+00	ug/L	1.30E-05	mg/kg-day	7.2E-01	(mg/kg-day)-1	9.4E-06	3.6E-05	mg/kg-day	3.0E-03	mg/kg-day	1.2E-02
			Exposure Route Total									9.4E-05					1.1E+01
	Exposure Medium Total											9.4E-05					1.1E+01
	Vapors	Indoor Air (Domestic Use)	Inhalation	1,2-Dichloroethane	107-06-2	6.0E-01	ug/L	2.5E-02	ug/m3	2.6E-05	(ug/m3)-1	6.4E-07	6.9E-05	mg/m3	7.0E-03	mg/m3	9.9E-03
				1,2-Dichloroethylene (tot	540-59-0	7.1E+01	ug/L	2.9E+00	ug/m3	--	--	--	8.2E-03	mg/m3	--	--	--
				Trichloroethene	79-01-6	4.8E+02	ug/L	2.0E+01	ug/m3	4.1E-06	(ug/m3)-1	8.1E-05	5.5E-02	mg/m3	2.0E-03	mg/m3	2.8E+01
				Vinyl Chloride	75-01-4	3.4E+00	ug/L	1.4E-01	ug/m3	4.4E-06	(ug/m3)-1	6.1E-07	3.9E-04	mg/m3	1.0E-01	mg/m3	3.9E-03
			Exposure Route Total									8.2E-05					2.8E+01
		Indoor Air (Vapor Intrusion)	Inhalation	1,2-Dichloroethane	107-06-2	1.4E-02	ug/m3	1.1E-03	ug/m3	2.6E-05	(ug/m3)-1	3.0E-08	3.2E-06	mg/m3	7.0E-03	mg/m3	4.6E-04
				1,2-Dichloroethylene (tot	540-59-0	6.1E+00	ug/m3	5.1E-01	ug/m3	--	--	--	1.4E-03	mg/m3	--	--	--
				Trichloroethene	79-01-6	9.3E+01	ug/m3	7.6E+00	ug/m3	4.1E-06	(ug/m3)-1	3.1E-05	2.1E-02	mg/m3	2.0E-03	mg/m3	1.1E+01
				Vinyl Chloride	75-01-4	2.5E+00	ug/m3	2.1E-01	ug/m3	4.4E-06	(ug/m3)-1	9.1E-07	5.8E-04	mg/m3	1.0E-01	mg/m3	5.8E-03
			Exposure Route Total									3.2E-05					1.1E+01
		Exposure Point Total										1.1E-04					3.8E+01
	Exposure Medium Total											1.1E-04					3.8E+01
Medium Total												2.1E-04					4.9E+01

Receptor Total: Groundwater + Surface Soil	2E-04		5E+01
Receptor Total: Groundwater + All Soil	2E-04		5E+01

Notes:

--	Not available or not applicable	(mg/kg-day)-1	1/(Milligram per kilogram per day)
bgs	Below ground surface	mg/L	Milligram per liter
CSF	Cancer slope factor	mg/m3	Milligram per cubic meter
EPA	U.S. Environmental Protection Agency	RAGS	Risk Assessment Guidance for Superfund
EPC	Exposure point concentration	RfC	Reference concentration
mg/kg	Milligram per kilogram	RfD	Reference dose
mg/kg-day	Milligram per kilogram per day	(ug/m3)-1	1/Microgram per cubic meter

TABLE 9.2.RME: EPA RAGS TABLE 9 - FUTURE COMMERCIAL/INDUSTRIAL WORKER SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs- RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe:	Current/Future
Receptor Population:	Commercial/Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	CAS No.	Carcinogenic Risk				Primary Target Organ(s)	Non-Carcinogenic Hazard Quotient			
					Ingestion	Dermal	Inhalation	Exposure Routes Total		Ingestion	Dermal	Inhalation	Exposure Routes Total
SurfaceSoil	SurfaceSoil,	Surface Soil	2,3,7,8-TCDD Equivalent	1746-01-6	3.8E-07	9.7E-08	3.1E-08	5.1E-07	Reproductive, Hepatic, Endocrine, Respiratory, Hematologic, Developmental	1.2E-02	3.0E-03	5.6E-08	1.5E-02
	Particulates / Vapors		p,p'-DDT	50-29-3	1.2E-07	3.0E-08	5.8E-13	1.5E-07	Hepatic	1.9E-03	4.9E-04	--	2.4E-03
			Chloroform	67-66-3	3.5E-09	--	5.3E-07	5.4E-07	Hepatic	3.2E-05	--	6.6E-07	3.2E-05
			cis-1,2-Dichloroethylene	156-59-2	--	--	--	--	Urinary, Whole Body	2.6E-03	--	--	2.6E-03
			Trichloroethene	79-01-6	3.1E-08	--	6.7E-07	7.0E-07	Developmental, Cardiovascular, Immune	3.8E-03	--	2.3E-04	4.0E-03
			Chemical Total		5.3E-07	1.3E-07	1.2E-06	1.9E-06		2.0E-02	3.5E-03	2.3E-04	2.4E-02
		Exposure Point Total						1.9E-06					2.4E-02
	Exposure Medium Total							1.9E-06					2.4E-02
Surface Soil Total								1.9E-06					2.4E-02
All Soil	All Soil,	All Soil	2,3,7,8-TCDD Equivalent	1746-01-6	3.8E-07	9.7E-08	3.1E-08	5.1E-07	Reproductive, Hepatic, Endocrine, Respiratory, Hematologic, Developmental	1.2E-02	3.0E-03	5.6E-05	1.5E-02
	Particulates / Vapors		p,p'-DDT	50-29-3	3.0E-08	7.6E-09	1.5E-13	3.7E-08	Hepatic	4.9E-04	1.3E-04	--	6.2E-04
			Chloroform	67-66-3	3.5E-09	--	5.3E-07	5.4E-07	Hepatic	3.2E-05	--	6.6E-04	6.9E-04
			cis-1,2-Dichloroethylene	156-59-2	--	--	--	--	Urinary, Whole Body	1.1E-03	--	--	1.1E-03
			Trichloroethene	79-01-6	1.5E-08	--	3.3E-07	3.5E-07	Developmental, Cardiovascular, Immune	1.9E-03	--	1.1E-01	1.2E-01
			Chemical Total		4.3E-07	1.0E-07	8.9E-07	1.4E-06		1.5E-02	3.1E-03	1.1E-01	1.3E-01
		Exposure Point Total						1.4E-06					1.3E-01
	All Soil Total							1.4E-06					1.3E-01
All Soil Total								1.4E-06					1.3E-01
Groundwater	Groundwater	Groundwater	1,2-Dichloroethane	107-06-2	2.1E-07	--	6.4E-07	8.5E-07	Urinary, Hepatic, Nervous	1.1E-03	--	9.9E-03	1.1E-02
		Vapors	1,2-Dichloroethylene (total)	540-59-0	--	--	--	--	Hematologic	3.8E-01	--	--	3.8E-01
		(Domestic Use)	Trichloroethene	79-01-6	8.4E-05	--	8.1E-05	1.7E-04	Developmental, Cardiovascular, Immune	1.0E+01	--	2.8E+01	3.8E+01
			Vinyl Chloride	75-01-4	9.4E-06	--	6.1E-07	1.0E-07	Hepatic	1.2E-02	--	3.9E-03	1.6E-02
			Chemical Total		9.4E-05	--	8.2E-05	1.8E-04		1.1E+01	--	2.8E+01	3.8E+01
		Exposure Point Total						1.8E-04					3.8E+01
	Domestic Use of Groundwater Total							1.8E-04					3.8E+01
	Vapors	Indoor Air	1,2-Dichloroethane	107-06-2	--	--	3.0E-08	3.0E-08	Nervous	--	--	4.6E-04	4.6E-04
		(Vapor Intrusion)	1,2-Dichloroethylene (total)	540-59-0	--	--	--	--	--	--	--	--	--
			Trichloroethene	79-01-6	--	--	3.1E-05	3.1E-05	Developmental, Cardiovascular, Immune	--	--	1.1E+01	1.1E+01
			Vinyl Chloride	75-01-4	--	--	9.1E-07	9.1E-07	Hepatic	--	--	5.8E-03	5.8E-03
			Chemical Total		--	--	3.2E-05	3.2E-05		--	--	1.1E+01	1.1E+01
		Exposure Point Total						3.2E-05					1.1E+01
	Vapor Intrusion from Groundwater Total							3.2E-05					1.1E+01
Groundwater Total								2.1E-04					4.9E+01
Receptor Total: Surface Soil + Groundwater								2E-04					5E+01
Receptor Total: All Soil + Groundwater								2E-04					5E+01

TABLE 10.2.RME: EPA RAGS TABLE 10 - FUTURE COMMERICAL/INDUSTRIAL WORKER RISK AND HAZARD SUMMARY - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe:	Current/Future
Receptor Population:	Commercial/Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	CAS No.	Carcinogenic Risk				Primary Target Organ(s)	Non-Carcinogenic Hazard Quotient			
					Ingestion	Dermal	Inhalation	Exposure Routes Total		Ingestion	Dermal	Inhalation	Exposure Routes Total
SurfaceSoil	SurfaceSoil, Particulates / Vapors	Surface Soil	Trichloroethene	79-01-6	3.1E-08	--	6.7E-07	7.0E-07	Developmental, Cardiovascular, Immune	3.8E-03	--	2.3E-04	4.0E-03
			Chemical Total		3.1E-08	--	6.7E-07	7.0E-07		3.8E-03	--	2.3E-04	4.0E-03
		Exposure Point Total						7.0E-07					4.0E-03
	Exposure Medium Total							7.0E-07					4.0E-03
Surface Soil Total								7.0E-07					4.0E-03
All Soil	All Soil, Particulates / Vapors	All Soil	Trichloroethene	79-01-6	1.5E-08	--	3.3E-07	3.5E-07	Developmental, Cardiovascular, Immune	1.9E-03	--	1.1E-01	1.2E-01
			Chemical Total		1.5E-08	--	3.3E-07	3.5E-07		1.9E-03	--	1.1E-01	1.2E-01
		Exposure Point Total						3.5E-07					1.2E-01
	All Soil Total							3.5E-07					1.2E-01
All Soil Total								3.5E-07					1.2E-01
Groundwater	Groundwater	Groundwater Vapors (Domestic Use)	Trichloroethene	79-01-6	8.4E-05	--	8.1E-05	1.7E-04	Developmental, Cardiovascular, Immune	1.0E+01	--	2.8E+01	3.8E+01
			Vinyl Chloride	75-01-4	9.4E-06	--	6.1E-07	1.0E-07	Hepatic	1.2E-02	--	3.9E-03	1.6E-02
			Chemical Total		9.4E-05	--	8.1E-05	1.8E-04		1.0E+01	--	2.8E+01	3.8E+01
		Exposure Point Total						1.8E-04					3.8E+01
	Domestic Use of Groundwater Total							1.8E-04					3.8E+01
	Vapors	Indoor Air (Vapor Intrusion)	Trichloroethene	79-01-6	--	--	3.1E-05	3.1E-05	Developmental, Cardiovascular, Immune	--	--	1.1E+01	1.1E+01
			Chemical Total		--	--	3.1E-05	3.1E-05		--	--	1.1E+01	1.1E+01
		Exposure Point Total						3.1E-05					1.1E+01
	Vapor Intrusion from Groundwater Total							3.1E-05					1.1E+01
Groundwater Total								2.1E-04					4.9E+01
Receptor Total: Surface Soil + Groundwater								2E-04					5E+01
Receptor Total: All Soil + Groundwater								2E-04					5E+01

TABLE 7.3.RME: EPA RAGS TABLE 7 - FUTURE OUTDOOR WORKER CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Future
Receptor Population: Outdoor Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	CAS No.	EPC		Cancer Risk Calculations				Cancer Risk	Noncancer Hazard Quotient				Hazard Quotient
								Intake/Exposure Concentration		CSF / Unit Risk			Intake/Exposure Concentration		RfD / RfC		
						Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil Particulates and Vapors	Surface Soil	Ingestion	2,3,7,8-TCDD Equivalent	1746-01-6	1.9E-05	mg/kg	5.3E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	6.9E-07	1.5E-11	mg/kg-day	7.0E-10	mg/kg-day	2.1E-02
				p,p'-DDT	50-29-3	2.3E+00	mg/kg	6.2E-07	mg/kg-day	3.4E-01	(mg/kg-day)-1	2.1E-07	1.7E-06	mg/kg-day	5.0E-04	mg/kg-day	3.5E-03
				Chloroform	67-66-3	7.4E-01	mg/kg	2.0E-07	mg/kg-day	3.1E-02	(mg/kg-day)-1	6.3E-09	5.7E-07	mg/kg-day	1.0E-02	mg/kg-day	5.7E-05
				cis-1,2-Dichloroethylene	156-59-2	1.2E+01	mg/kg	3.3E-06	mg/kg-day	--	--	--	9.3E-06	mg/kg-day	2.0E-03	mg/kg-day	4.6E-03
				Trichloroethene	79-01-6	4.4E+00	mg/kg	1.2E-06	mg/kg-day	4.6E-02	(mg/kg-day)-1	5.6E-08	3.4E-06	mg/kg-day	5.0E-04	mg/kg-day	6.8E-03
			Exposure Route Total									9.6E-07					3.6E-02
			Dermal	2,3,7,8-TCDD Equivalent	1746-01-6	1.9E-05	mg/kg	6.7E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	8.7E-08	1.9E-12	mg/kg-day	7.0E-10	mg/kg-day	2.7E-03
				p,p'-DDT	50-29-3	2.3E+00	mg/kg	7.9E-08	mg/kg-day	3.4E-01	(mg/kg-day)-1	2.7E-08	2.2E-07	mg/kg-day	5.0E-04	mg/kg-day	4.4E-04
				Chloroform	67-66-3	7.4E-01	mg/kg	--	--	3.1E-02	(mg/kg-day)-1	--	--	--	1.0E-02	mg/kg-day	--
				cis-1,2-Dichloroethylene	156-59-2	1.2E+01	mg/kg	--	--	--	--	--	--	--	2.0E-03	mg/kg-day	--
				Trichloroethene	79-01-6	4.4E+00	mg/kg	--	--	4.6E-02	(mg/kg-day)-1	--	--	--	5.0E-04	mg/kg-day	--
			Exposure Route Total									1.1E-07					3.1E-03
			Inhalation	2,3,7,8-TCDD Equivalent	1746-01-6	1.9E-05	mg/kg	7.2E-10	ug/m3	3.8E+01	(ug/m3)-1	2.8E-08	2.0E-12	mg/m3	4.0E-08	mg/m3	5.1E-05
				p,p'-DDT	50-29-3	2.3E+00	mg/kg	5.4E-09	ug/m3	9.7E-05	(ug/m3)-1	5.2E-13	1.5E-11	mg/m3	--	--	--
				Chloroform	67-66-3	7.4E-01	mg/kg	2.1E-02	ug/m3	2.3E-05	--	4.8E-07	5.8E-05	mg/m3	9.8E-02	mg/m3	5.9E-04
				cis-1,2-Dichloroethylene	156-59-2	1.2E+01	mg/kg	3.6E-01	ug/m3	--	--	--	1.0E-05	mg/m3	--	--	--
				Trichloroethene	79-01-6	4.4E+00	mg/kg	1.5E-01	ug/m3	4.1E-06	(ug/m3)-1	6.1E-07	4.1E-04	mg/m3	2.0E-03	mg/m3	2.1E-01
			Exposure Route Total									1.1E-06					2.1E-01

		Exposure Point Total	2.2E-06		2.5E-01
	Exposure Medium Total		2.2E-06		2.5E-01
Medium Total	Medium Total		2.2E-06		2.5E-01

All Soil	All Soil	All Soil	All Soil	Ingestion	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	5.3E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	6.9E-07	1.5E-11	mg/kg-day	7.0E-10	mg/kg-day	2.1E-02
		Particulates			p,p'-DDT	50-29-3	5.8E-01	mg/kg	1.6E-07	mg/kg-day	3.4E-01	(mg/kg-day)-1	5.4E-08	4.4E-07	mg/kg-day	5.0E-04	mg/kg-day	8.9E-04
		and Vapors			Chloroform	67-66-3	7.4E-01	mg/kg	2.0E-07	mg/kg-day	3.1E-02	(mg/kg-day)-1	6.3E-09	5.7E-07	mg/kg-day	1.0E-02	mg/kg-day	5.7E-05
					cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	1.4E-06	mg/kg-day	--	--	--	4.0E-06	mg/kg-day	2.0E-03	mg/kg-day	2.0E-03
					Trichloroethene	79-01-6	2.2E+00	mg/kg	6.0E-07	mg/kg-day	4.6E-02	(mg/kg-day)-1	2.8E-08	1.7E-06	mg/kg-day	5.0E-04	mg/kg-day	3.4E-03
				Exposure Route Total									7.7E-07					2.7E-02
				Dermal	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	6.7E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	8.7E-08	1.9E-12	mg/kg-day	7.0E-10	mg/kg-day	2.7E-03
					p,p'-DDT	50-29-3	5.8E-01	mg/kg	2.0E-08	mg/kg-day	3.4E-01	(mg/kg-day)-1	6.8E-09	5.6E-08	mg/kg-day	5.0E-04	mg/kg-day	1.1E-04
					Chloroform	67-66-3	7.4E-01	mg/kg	--	--	3.1E-02	(mg/kg-day)-1	--	--	--	1.0E-02	mg/kg-day	--
					cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	--	--	--	--	--	--	--	2.0E-03	mg/kg-day	--
					Trichloroethene	79-01-6	2.2E+00	mg/kg	--	--	4.6E-02	(mg/kg-day)-1	--	--	--	5.0E-04	mg/kg-day	--
				Exposure Route Total									9.4E-08					2.8E-03
				Inhalation	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	7.2E-10	ug/m3	3.8E+01	(ug/m3)-1	2.8E-08	2.0E-12	mg/m3	4.0E-08	mg/m3	5.1E-05
					p,p'-DDT	50-29-3	5.8E-01	mg/kg	1.4E-09	ug/m3	9.7E-05	(ug/m3)-1	1.3E-13	3.8E-12	mg/m3	--	--	--
					Chloroform	67-66-3	7.4E-01	mg/kg	2.1E-02	ug/m3	2.3E-05	--	4.8E-07	5.8E-05	mg/m3	9.8E-02	mg/m3	5.9E-04
					cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	1.5E-01	ug/m3	--	--	--	4.3E-04	mg/m3	--	--	--
					Trichloroethene	79-01-6	2.2E+00	mg/kg	7.3E-02	ug/m3	4.1E-06	(ug/m3)-1	3.0E-07	2.0E-04	mg/m3	2.0E-03	mg/m3	1.0E-01
				Exposure Route Total									8.1E-07					1.0E-01
			Exposure Point Total										1.7E-06					1.3E-01
		Exposure Medium Total											1.7E-06					1.3E-01
Medium Total	Medium Total												1.7E-06					1.3E-01
Receptor Total: Surface Soil	Receptor Total: Surface Soil											Total of Receptor Risks Across All Media	2E-06	Total of Receptor Hazards Across All Media				2E-01
Receptor Total: All Soil	Receptor Total: All Soil											Total of Receptor Risks Across All Media	2E-06	Total of Receptor Hazards Across All Media				1E-01

Notes:	Notes:			
--	--	Not available or not applicable	RAGS	Risk Assessment Guidance for Superfund
bgs	bgs	Below ground surface	RfC	Reference concentration
CAS	CAS	Chemical Abstract Service	RfD	Reference dose
CSF	CSF	Cancer slope factor	(ug/m3)-1	1/Microgram per cubic meter
EPA	EPA	U.S. Environmental Protection Agency	(mg/kg-day)-1	1/(Milligram per kilogram per day)
EPC	EPC	Exposure point concentration	mg/m3	Milligram per cubic meter
mg/kg	mg/kg	Milligram per kilogram	RAGS	Risk Assessment Guidance for Superfund
mg/kg-day	mg/kg-day	Milligram per kilogram per day	RfC	Reference concentration
(mg/kg-day)-1	(mg/kg-day)-1	1/(Milligram per kilogram per day)	RfD	Reference dose
mg/m3	mg/m3	Milligram per cubic meter	(ug/m3)-1	1/Microgram per cubic meter

TABLE 7.3.RME: EPA RAGS TABLE 7 - FUTURE OUTDOOR WORKER CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe:
Receptor Population:
Receptor Age:

Medium
Surface Soil

Medium Total

All Soil
Medium Total
Receptor Total: Surface Soil
Receptor Total: All Soil

Notes:

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bgs

CAS

CSF

EPA

EPC

mg/kg

mg/kg-day

(mg/kg-day)-1

mg/m3

TABLE 9.3.RME: EPA RAGS TABLE 9 - FUTURE OUTDOOR WORKER SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Future
Receptor Population: Outdoor Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	CAS No.	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient			
					Ingestion	Dermal	Inhalation	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Exposure Routes Total
Surface Soil	Surface Soil,	Surface Soil	2,3,7,8-TCDD Equivalen	1746-01-6	6.9E-07	8.7E-08	2.8E-08	8.0E-07	Reproductive, Hepatic, Endocrine, Respiratory, Hematologic, Developmental	2.1E-02	2.7E-03	5.1E-05	2.4E-02
	Particulates/Vapors	Particulates/Vapors	p,p'-DDT	50-29-3	2.1E-07	2.7E-08	5.2E-13	2.4E-07	Hepatic	3.5E-03	4.4E-04	--	3.9E-03
			Chloroform	67-66-3	6.3E-09	--	4.8E-07	4.9E-07	Hepatic	5.7E-05	--	5.9E-04	6.5E-04
			cis-1,2-Dichloroethylene	156-59-2	--	--	--	--	Urinary, Whole Body	4.6E-03	--	--	4.6E-03
			Trichloroethene	79-01-6	5.6E-08	--	6.1E-07	6.6E-07	Developmental, Cardiovascular, Immune	6.8E-03	--	2.1E-01	2.1E-01
			Chemical Total		9.6E-07	1.1E-07	1.1E-06	2.2E-06		3.6E-02	3.1E-03	2.1E-01	2.5E-01
		Exposure Point Total						2.2E-06					2.5E-01
	Surface Soil							2.2E-06					2.5E-01
All Soil	All Soil	All Soil	2,3,7,8-TCDD Equivalen	1746-01-6	6.9E-07	8.7E-08	2.8E-08	8.0E-07	Reproductive, Hepatic, Endocrine, Respiratory, Hematologic, Developmental	2.1E-02	2.7E-03	5.1E-05	2.4E-02
	Particulates/Vapors	Particulates/Vapors	p,p'-DDT	50-29-3	5.4E-08	6.8E-09	1.3E-13	6.1E-08	Hepatic	8.9E-04	1.1E-04	--	1.0E-05
			Chloroform	67-66-3	6.3E-09	--	4.8E-07	4.9E-07	Hepatic	5.7E-05	--	5.9E-04	6.5E-04
			cis-1,2-Dichloroethylene	156-59-2	--	--	--	--	Urinary, Whole Body	2.0E-03	--	--	2.0E-03
			Trichloroethene	79-01-6	2.8E-08	--	3.0E-07	3.3E-07	Developmental, Cardiovascular, Immune	3.4E-03	--	1.0E-01	1.1E-01
		Exposure Point Total			7.7E-07	9.4E-08	8.1E-07	1.7E-06		2.7E-02	2.8E-03	1.0E-01	1.3E-01
	All Soil							1.7E-06					1.3E-01
Receptor Total: Surface Soil								2E-06					2E-01
Receptor Total: All Soil								2E-06					1E-01

TABLE 10.3.RME: EPA RAGS TABLE 10 - FUTURE OUTDOOR WORKER RISK AND HAZARD SUMMARY - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe:	Future
Receptor Population:	Outdoor Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	CAS No.	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient			
					Ingestion	Dermal	Inhalation	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Exposure Routes Total
Surface Soil	Surface Soil, Particulates/Vapors	Surface Soil Particulates/Vapors	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total		--	--	--	--		--	--	--	--
		Exposure Point Total						--					--
	Surface Soil							--					--
All Soil	All Soil Particulates/Vapors	All Soil Particulates/Vapors	--	--	--	--	--	--	--	--	--	--	--
		Exposure Point Total			--	--	--	--		--	--	--	--
	All Soil							--					--
Receptor Total: Surface Soil								--					--
Receptor Total: All Soil								--					--

TABLE 7.4.RME: EPA RAGS TABLE 7 - CURRENT/FUTURE CONSTRUCTION/UTILITY WORKER CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

								Cancer Risk Calculations					Noncancer Hazard Quotient				
						EPC		Intake/Exposure Concentration		CSF / Unit Risk			Intake/Exposure Concentration		RfD / RfC		
Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	CAS No.	Value	Units	Value	Units	Value	Units	Cancer Risk	Value	Units	Value	Units	Hazard Quotient
All Soil	All Soil	All Soil	Ingestion	2,3,7,8-TCDD Equivalent	1746-01-6	1.9E-05	mg/kg	4.0E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	5.2E-08	2.8E-11	mg/kg-day	7.0E-10	mg/kg-day	4.0E-02
	Particulates			p,p'-DDT	50-29-3	5.8E-01	mg/kg	1.2E-08	mg/kg-day	3.4E-01	(mg/kg-day)-1	4.1E-09	8.4E-07	mg/kg-day	5.0E-04	mg/kg-day	1.7E-03
	and Vapors			Chloroform	67-66-3	7.4E-01	mg/kg	1.6E-08	mg/kg-day	3.1E-02	(mg/kg-day)-1	4.8E-10	1.1E-06	mg/kg-day	1.0E-02	mg/kg-day	1.1E-04
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	1.1E-07	mg/kg-day	--	--	--	7.5E-06	mg/kg-day	2.0E-03	mg/kg-day	3.8E-03
				Trichloroethene	79-01-6	2.2E+00	mg/kg	4.6E-08	mg/kg-day	4.6E-02	(mg/kg-day)-1	2.1E-09	3.2E-06	mg/kg-day	5.0E-04	mg/kg-day	6.4E-03
			Exposure Route Total									5.9E-08					5.2E-02
			Dermal	2,3,7,8-TCDD Equivalent	1746-01-6	1.9E-05	mg/kg	3.9E-14	mg/kg-day	1.3E+05	(mg/kg-day)-1	5.0E-09	2.7E-12	mg/kg-day	7.0E-10	mg/kg-day	3.9E-03
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	1.2E-09	mg/kg-day	3.4E-01	(mg/kg-day)-1	3.9E-10	8.1E-08	mg/kg-day	5.0E-04	mg/kg-day	1.6E-04
				Chloroform	67-66-3	7.4E-01	mg/kg	--	--	3.1E-02	(mg/kg-day)-1	--	--	--	1.0E-02	mg/kg-day	--
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	--	--	--	--	--	--	--	2.0E-03	mg/kg-day	--
				Trichloroethene	79-01-6	2.2E+00	mg/kg	--	--	4.6E-02	(mg/kg-day)-1	--	--	--	5.0E-04	mg/kg-day	--

Exposure Route Total											5.4E-09					4.0E-03
	Inhalation	2,3,7,8-TCDD Equivalent	1746-01-6	1.9E-05	mg/kg	1.7E-11	ug/m3	3.8E+01	(ug/m3)-1	6.4E-10	1.2E-12	mg/m3	4.0E-08	mg/m3	2.9E-05
		p,p'-DDT	50-29-3	5.8E-01	mg/kg	3.2E-11	ug/m3	9.7E-05	(ug/m3)-1	3.1E-15	2.2E-12	mg/m3	--	--	--
		Chloroform	67-66-3	7.4E-01	mg/kg	4.8E-04	ug/m3	2.3E-05	--	1.1E-08	3.4E-05	mg/m3	9.8E-02	mg/m3	3.4E-04
		cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	3.5E-03	ug/m3	--	--	--	2.5E-04	mg/m3	--	--	--
		Trichloroethene	79-01-6	2.2E+00	mg/kg	1.7E-03	ug/m3	4.1E-06	(ug/m3)-1	6.9E-09	1.2E-04	mg/m3	2.0E-03	mg/m3	5.9E-02
Exposure Route Total										1.9E-08					5.9E-02
Exposure Point Total										8.3E-08					1.2E-01
Exposure Medium Total										8.3E-08					1.2E-01
Medium Total										8.3E-08					1.2E-01

Groundwater	Groundwater	Groundwater	Dermal	1,2-Dichloroethane	107-06-2	6.0E-01	ug/L	1.7E-09	mg/kg-day	9.1E-02	(mg/kg-day)-1	1.6E-10	1.2E-07	mg/kg-day	6.0E-03	mg/kg-day	2.0E-05
				1,2-Dichloroethylene (total)	540-59-0	7.1E+01	ug/L	5.2E-07	mg/kg-day	--	--	--	3.6E-05	mg/kg-day	2.0E-03	mg/kg-day	1.8E-02
				Trichloroethene	79-01-6	4.8E+02	ug/L	4.0E-06	mg/kg-day	4.6E-02	(mg/kg-day)-1	1.9E-07	2.8E-04	mg/kg-day	5.0E-04	mg/kg-day	5.6E-01
				Vinyl Chloride	75-01-4	3.4E+00	ug/L	1.8E-08	mg/kg-day	7.2E-01	(mg/kg-day)-1	1.3E-08	1.3E-06	mg/kg-day	3.0E-03	mg/kg-day	4.2E-04
			Exposure Route Total									2.0E-07					5.8E-01
		Exposure Point Total										2.0E-07					5.8E-01
	Exposure Medium Total											2.0E-07					5.8E-01
Groundwater	Vapors (in trenches)	Trench Air	Inhalation	1,2-Dichloroethane	107-06-2	4.6E+00	ug/m^3	3.9E-03	ug/m3	2.6E-05	(ug/m3)-1	1.0E-07	2.7E-04	mg/m3	7.0E-03	mg/m3	3.9E-02
				1,2-Dichloroethylene (total)	540-59-0	5.7E+02	ug/m^3	4.8E-01	ug/m3	--	--	--	3.4E-02	mg/m3	--	--	--
				Trichloroethene	79-01-6	3.3E+03	ug/m^3	2.8E+00	ug/m3	4.1E-06	(ug/m3)-1	1.2E-05	2.0E-01	mg/m3	2.0E-03	mg/m3	9.9E+01
				Vinyl Chloride	75-01-4	3.4E+01	ug/m^3	2.9E-02	ug/m3	4.4E-06	(ug/m3)-1	1.3E-07	2.0E-03	mg/m3	1.0E-01	mg/m3	2.0E-02
			Exposure Route Total									1.2E-05					9.9E+01
		Exposure Point Total										1.2E-05					9.9E+01
	Exposure Medium Total											1.2E-05					9.9E+01
Medium Total												1.2E-05					1.0E+02
Receptor Total: Soil + Groundwater											Total of Receptor Risks Across All Media	1E-05	Total of Receptor Hazards Across All Media				1E+02

Notes:

--	Not available or not applicable	(mg/kg-day)-1	1/(Milligram per kilogram per day)
bgs	Below ground surface	mg/L	Milligram per liter
CAS	Chemical Abstract Service	mg/m3	Milligram per cubic meter
CSF	Cancer slope factor	RAGS	Risk Assessment Guidance for Superfund
EPA	U.S. Environmental Protection Agency	RfC	Reference concentration
EPC	Exposure point concentration	RfD	Reference dose
mg/kg	Milligram per kilogram	ug/m3	Microgram per cubic meter
mg/kg-day	Milligram per kilogram per day	(ug/m3)-1	1/Microgram per cubic meter

TABLE 9.4.RME: EPA RAGS TABLE 9 - CURRENT/FUTURE CONSTRUCTION WORKER SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs- RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	CAS No.	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient			
					Ingestion	Dermal	Inhalation	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Exposure Routes Total
All Soil	All Soil, Particulates/Vapors	All Soil	2,3,7,8-TCDD Equivalent	1746-01-6	5.2E-08	5.0E-09	6.4E-10	5.8E-08	Reproductive, Hepatic, Endocrine, Respiratory, Hematologic, Developmental	4.0E-02	3.9E-03	2.9E-05	4.4E-02
			p,p'-DDT	50-29-3	4.1E-09	3.9E-10	3.1E-15	4.5E-09	Hepatic	1.7E-03	1.6E-04	--	1.9E-03
			Chloroform	67-66-3	4.8E-10	--	1.1E-08	1.2E-08	Hepatic	1.1E-04	--	3.4E-04	4.5E-04
			cis-1,2-Dichloroethylene	156-59-2	--	--	--	--	Urinary, Whole Body	3.8E-03	--	--	3.8E-03
			Trichloroethene	79-01-6	2.1E-09	--	6.9E-09	9.0E-09	Developmental, Cardiovascular, Immune	6.4E-03	--	5.9E-02	6.5E-02
			Chemical Total		5.9E-08	5.4E-09	1.9E-08	8.3E-08		5.2E-02	4.0E-03	5.9E-02	1.2E-01
		Exposure Point Total						8.3E-08					1.2E-01
	All Soil Total							8.3E-08					1.2E-01
Groundwater	Groundwater and Vapors	Groundwater and Trench Air	1,2-Dichloroethane	107-06-2	--	1.6E-10	1.0E-07	1.0E-07	Urinary, Hepatic, Nervous	--	2.0E-05	3.9E-02	3.9E-02
			1,2-Dichloroethylene (total)	540-59-0	--	--	--	--	Hematologic	--	1.8E-02	--	1.8E-02
			Trichloroethene	79-01-6	--	1.9E-07	1.2E-05	1.2E-05	Developmental, Cardiovascular, Immune	--	5.6E-01	9.9E+01	1.0E+02
			Vinyl Chloride	75-01-4	--	1.3E-08	1.3E-07	1.4E-07	Hepatic	--	4.2E-04	2.0E-02	2.1E-02
			Chemical Total		--	2.0E-07	1.2E-05	1.2E-05		--	5.8E-01	9.9E+01	1.0E+02
		Exposure Point Total						1.2E-05					1.0E+02
	Groundwater Total							1.2E-05					1.0E+02
Receptor Total: Soil + Groundwater								1E-05					1E+02

TABLE 10.4.RME: EPA RAGS TABLE 10 - CURRENT/FUTURE CONSTRUCTION WORKER RISK AND HAZARD SUMMARY - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe:	Current/Future
Receptor Population:	Construction/Utility Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	CAS No.	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient			
					Ingestion	Dermal	Inhalation	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Exposure Routes Total
All Soil	All Soil, Particulates/Vapors	All Soil	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total		--	--	--	--		--	--	--	--
		Exposure Point Total						--					--
	All Soil Total							--					--
Groundwater	Groundwater and Vapors	Groundwater and Trench Air	Trichloroethene	79-01-6	--	1.9E-07	1.2E-05	1.2E-05	Developmental, Cardiovascular, Immune	--	5.6E-01	9.9E+01	1.0E+02
			Vinyl Chloride	75-01-4	--	1.3E-08	1.3E-07	1.4E-07	Hepatic	--	4.2E-04	2.0E-02	2.1E-02
			Chemical Total		--	2.0E-07	1.2E-05	1.2E-05		--	5.7E-01	9.9E+01	1.0E+02
		Exposure Point Total						1.2E-05					1.0E+02
	Groundwater Total							1.2E-05					1.0E+02
Receptor Total: Soil + Groundwater								1E-05					1E+02

TABLE 7.5.RME: EPA RAGS TABLE 7-FUTURE CHILD RECREATIONALIST CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Future
Receptor Population: Child Recreationalist
Receptor Age: 0-6

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potentical Concern	CAS No.	EPC		Cancer Risk Calculations					Noncancer Hazard Quotient				
								Intake/Exposure Concentration		CSF / Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD / RfC		Hazard Quotient
						Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	

All Soil	All Soil, Particulates/Vapors	Soil	Ingestion	2,3,7,8-TCDD Equivalent	1746-01-6	1.9E-05	mg/kg	8.0E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.0E-06	9.4E-11	mg/kg-day	7.0E-10	mg/kg-day	1.3E-01
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	2.4E-07	mg/kg-day	3.4E-01	(mg/kg-day)-1	8.2E-08	2.8E-06	mg/kg-day	5.0E-04	mg/kg-day	5.6E-03
				Chloroform	67-66-3	7.4E-01	mg/kg	3.1E-07	mg/kg-day	3.1E-02	(mg/kg-day)-1	9.6E-09	3.6E-06	mg/kg-day	1.0E-02	mg/kg-day	3.6E-04
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	1.1E-05	mg/kg-day	--	--	--	2.5E-05	mg/kg-day	2.0E-03	mg/kg-day	1.3E-02
				Trichloroethene	79-01-6	2.2E+00	mg/kg	4.9E-06	mg/kg-day	4.6E-02	(mg/kg-day)-1	2.2E-07	1.1E-05	mg/kg-day	5.0E-04	mg/kg-day	2.1E-02
			Exposure Route Total									1.4E-06					1.7E-01
			Dermal	2,3,7,8-TCDD Equivalent	1746-01-6	1.9E-05	mg/kg	5.7E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	7.4E-08	6.7E-12	mg/kg-day	7.0E-10	mg/kg-day	9.5E-03
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	1.7E-08	mg/kg-day	3.4E-01	(mg/kg-day)-1	5.8E-09	2.0E-07	mg/kg-day	5.0E-04	mg/kg-day	4.0E-04
				Chloroform	67-66-3	7.4E-01	mg/kg	--	--	3.1E-02	(mg/kg-day)-1	--	--	--	1.0E-02	mg/kg-day	--
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	--	--	--	--	--	--	--	2.0E-03	mg/kg-day	--
				Trichloroethene	79-01-6	2.2E+00	mg/kg	--	--	4.6E-02	(mg/kg-day)-1	--	--	--	5.0E-04	mg/kg-day	--
			Exposure Route Total									8.0E-08					9.9E-03
			Inhalation	2,3,7,8-TCDD Equivalent	1746-01-6	1.9E-05	mg/kg	3.9E-11	ug/m3	3.8E+01	(ug/m3)-1	1.5E-09	4.5E-13	mg/m3	4.0E-08	mg/m3	1.1E-05
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	7.3E-11	ug/m3	9.7E-05	(ug/m3)-1	7.1E-15	8.5E-13	mg/m3	--	--	--
				Chloroform	67-66-3	7.4E-01	mg/kg	1.1E-03	ug/m3	2.3E-05	--	2.6E-08	1.3E-05	mg/m3	9.8E-02	mg/m3	1.3E-04
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	4.3E-02	ug/m3	--	--	--	9.5E-05	mg/m3	--	--	--
				Trichloroethene	79-01-6	2.2E+00	mg/kg	2.1E-02	ug/m3	4.1E-06	(ug/m3)-1	8.5E-08	4.6E-05	mg/m3	2.0E-03	mg/m3	2.3E-02
			Exposure Route Total									1.1E-07					2.3E-02
		Exposure Point Total										1.6E-06					2.1E-01
	Exposure Medium Total											1.6E-06					2.1E-01
Medium Total												1.6E-06					2.1E-01
Surface Water	Surface Water	Surface Water	Ingestion	alpha-Chlordane	5103-71-9	1.1E-01	ug/L	2.9E-09	mg/kg-day	3.5E-01	(mg/kg-day)-1	1.0E-09	3.4E-08	mg/kg-day	5.0E-04	mg/kg-day	6.7E-05
				Dieldrin	60-57-1	2.6E-01	ug/L	6.8E-09	mg/kg-day	1.6E+01	(mg/kg-day)-1	1.1E-07	8.0E-08	mg/kg-day	5.0E-05	mg/kg-day	1.6E-03
				gamma-Chlordane	12789-03-6	9.8E-02	ug/L	2.6E-09	mg/kg-day	3.5E-01	(mg/kg-day)-1	9.0E-10	3.0E-08	mg/kg-day	5.0E-04	mg/kg-day	6.0E-05
			Exposure Route Total									1.1E-07					1.7E-03
			Dermal	alpha-Chlordane	5103-71-9	1.1E-01	ug/L	5.1E-07	mg/kg-day	3.5E-01	(mg/kg-day)-1	1.8E-07	5.9E-06	mg/kg-day	5.0E-04	mg/kg-day	1.2E-02
				Dieldrin	60-57-1	2.6E-01	ug/L	3.5E-07	mg/kg-day	1.6E+01	(mg/kg-day)-1	5.6E-06	4.1E-06	mg/kg-day	5.0E-05	mg/kg-day	8.1E-02
				gamma-Chlordane	12789-03-6	9.8E-02	ug/L	4.5E-07	mg/kg-day	3.5E-01	(mg/kg-day)-1	1.6E-07	5.3E-06	mg/kg-day	5.0E-04	mg/kg-day	1.1E-02
			Exposure Route Total									5.9E-06					1.0E-01
	Exposure Medium Total											6.0E-06					1.1E-01
Medium Total												6.0E-06					1.1E-01

Sediment	Sediment	Sediment	Ingestion	Aldrin	309-00-2	9.0E+00	mg/kg	3.8E-06	mg/kg-day	1.7E+01	(mg/kg-day)-1	6.4E-05	4.4E-05	mg/kg-day	3.0E-05	mg/kg-day	1.5E+00
				alpha-Chlordane	5103-71-9	1.3E+00	mg/kg	5.6E-07	mg/kg-day	3.5E-01	(mg/kg-day)-1	2.0E-07	6.5E-06	mg/kg-day	5.0E-04	mg/kg-day	1.3E-02
				Dieldrin	60-57-1	6.1E+00	mg/kg	2.6E-06	mg/kg-day	1.6E+01	(mg/kg-day)-1	4.1E-05	3.0E-05	mg/kg-day	5.0E-05	mg/kg-day	6.0E-01
				gamma-Chlordane	12789-03-6	1.5E+00	mg/kg	6.3E-07	mg/kg-day	3.5E-01	(mg/kg-day)-1	2.2E-07	7.4E-06	mg/kg-day	5.0E-04	mg/kg-day	1.5E-02
			Exposure Route Total									1.1E-04					2.1E+00
			Dermal	Aldrin	309-00-2	9.0E+00	mg/kg	--	--	1.7E+01	(mg/kg-day)-1	--	--	--	3.0E-05	mg/kg-day	--
				alpha-Chlordane	5103-71-9	1.3E+00	mg/kg	2.4E-08	mg/kg-day	3.5E-01	(mg/kg-day)-1	8.5E-09	2.8E-07	mg/kg-day	5.0E-04	mg/kg-day	5.7E-04
				Dieldrin	60-57-1	6.1E+00	mg/kg	2.8E-07	mg/kg-day	1.6E+01	(mg/kg-day)-1	4.4E-06	3.2E-06	mg/kg-day	5.0E-05	mg/kg-day	6.5E-02
				gamma-Chlordane	12789-03-6	1.5E+00	mg/kg	2.7E-08	mg/kg-day	3.5E-01	(mg/kg-day)-1	9.6E-09	3.2E-07	mg/kg-day	5.0E-04	mg/kg-day	6.4E-04
			Exposure Route Total									4.4E-06					6.6E-02
	Exposure Medium Total											1.1E-04					2.2E+00
Medium Total												1.1E-04					2.2E+00
Receptor Total; All Soil + Surface Water + Sediment											Total of Receptor Risks Across All Media	1E-04	Total of Receptor Hazards Across All Media				2E+00

Notes:

--	Not available or not applicable
bgs	Below ground surface
CSF	Cancer slope factor
EPA	U.S. Environmental Protection Agency
EPC	Exposure point concentration
mg/kg	Milligram per kilogram
mg/kg-day	Milligram per kilogram per day
(mg/kg-day)-1	1/(Milligram per kilogram per day)
mg/L	Milligram per liter
mg/m3	Milligram per cubic meter
RAGS	Risk Assessment Guidance for Superfund
RfC	Reference concentration
RfD	Reference dose
(ug/m3)-1	1/Microgram per cubic meter

TABLE 9.5.RME: EPA RAGS TABLE 9 - FUTURE CHILD RECREATIONALIST SUMMARY OF RECEPTOR RISKS AND HAZARDS - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Future
Receptor Population: Child Recreationalist
Receptor Age: 0-6

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	CAS No.	Carcinogenic Risk				Primary Target Organ(s)	Non-Carcinogenic Hazard Quotient			
					Ingestion	Dermal	Inhalation	Exposure Routes Total		Ingestion	Dermal	Inhalation	Exposure Routes Total
All Soil	All Soil, Particulates / Vapors	All Soil	2,3,7,8-TCDD Equivalent	1746-01-6	1.0E-06	7.4E-08	1.5E-09	1.1E-06	Reproductive, Hepatic, Endocrine, Respiratory, Hematologic, Developmental	1.3E-01	9.5E-03	1.1E-05	1.4E-01
			p,p'-DDT	50-29-3	8.2E-08	5.8E-09	7.1E-15	8.8E-08	Hepatic	5.6E-03	4.0E-04	--	6.0E-03
			Chloroform	67-66-3	9.6E-09	--	2.6E-08	3.5E-08	Hepatic	3.6E-04	--	1.3E-04	5.0E-04
			cis-1,2-Dichloroethylene	156-59-2	--	--	--	--	Urinary, Whole Body	1.3E-02	--	--	
			Trichloroethene	79-01-6	2.2E-07	--	8.5E-08	3.1E-07	Developmental, Cardiovascular, Immune	2.1E-02	--	2.3E-02	4.4E-02
			Chemical Total		1.4E-06	8.0E-08	1.1E-07	1.6E-06		1.7E-01	9.9E-03	2.3E-02	1.9E-01
		Exposure Point Total						1.6E-06					1.9E-01
	All Soil Total							1.6E-06					1.9E-01
Surface Water	Surface Water	Surface Water	alpha-Chlordane	5103-71-9	1.0E-09	1.8E-07	--	1.8E-07	Hepatic	6.7E-05	1.2E-02	--	1.2E-02
			Dieldrin	60-57-1	1.1E-07	5.6E-06	--	5.7E-06	Hepatic	1.6E-03	8.1E-02	--	8.3E-02
			gamma-Chlordane	12789-03-6	9.0E-10	1.6E-07	--	1.6E-07	Hepatic	6.0E-05	1.1E-02	--	1.1E-02
			Chemical Total		1.1E-07	5.9E-06	--	6.0E-06		1.7E-03	1.0E-01	--	1.1E-01
		Exposure Point Total						6.0E-06					1.1E-01
	Surface Water Total							6.0E-06					1.1E-01
Sediment	Sediment	Sediment	Aldrin	309-00-2	6.4E-05	--	--	6.4E-05	Hepatic	1.5E+00	--	--	1.5E+00
			alpha-Chlordane	5103-71-9	2.0E-07	8.5E-09	--	2.0E-07	Hepatic	1.3E-02	5.7E-04	--	1.4E-02
			Dieldrin	60-57-1	4.1E-05	4.4E-06	--	4.5E-05	Hepatic	6.0E-01	6.5E-02	--	6.6E-01
			gamma-Chlordane	12789-03-6	2.2E-07	9.6E-09	--	2.3E-07	Hepatic	1.5E-02	6.4E-04	--	1.5E-02
			Chemical Total		1.1E-04	4.4E-06	--	1.1E-04		2.1E+00	6.6E-02	--	2.2E+00
		Exposure Point Total						1.1E-04					2.2E+00
	Sediment							1.1E-04					2.2E+00
Receptor Total: All Soil + Surface Water + Sediment								1E-04					2E+00

TABLE 10.5.RME: EPA RAGS TABLE 10 - FUTURE CHILD RECREATIONALIST RISKS AND HAZARDS SUMMARY - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Future
Receptor Population: Child Recreationalist
Receptor Age: 0-6

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	CAS No.	Carcinogenic Risk				Primary Target Organ(s)	Non-Carcinogenic Hazard Quotient			
					Ingestion	Dermal	Inhalation	Exposure Routes Total		Ingestion	Dermal	Inhalation	Exposure Routes Total
All Soil	All Soil, Particulates / Vapors	All Soil	2,3,7,8-TCDD Equivalent	1746-01-6	1.0E-06	7.4E-08	1.5E-09	1.1E-06	Reproductive, Hepatic, Endocrine, Respiratory, Hematologic, Developmental	1.3E-01	9.5E-03	1.1E-05	1.4E-01
			Chemical Total		1.0E-06	7.4E-08	1.5E-09	1.1E-06		1.3E-01	9.5E-03	1.1E-05	1.4E-01
		Exposure Point Total						1.1E-06					1.4E-01
	All Soil Total							1.1E-06					1.4E-01
Surface Water	Surface Water	Surface Water	Dieldrin	60-57-1	1.1E-07	5.6E-06	--	5.7E-06	Hepatic	1.6E-03	8.1E-02	--	8.3E-02
			Chemical Total		1.1E-07	5.6E-06	--	5.7E-06		1.6E-03	8.1E-02	--	8.3E-02
		Exposure Point Total						5.7E-06					8.3E-02
	Surface Water Total							5.7E-06					8.3E-02
Sediment	Sediment	Sediment	Aldrin	309-00-2	6.4E-05	--	--	6.4E-05	Hepatic	1.5E+00	--	--	1.5E+00
			Dieldrin	60-57-1	4.1E-05	4.4E-06	--	4.5E-05	Hepatic	6.0E-01	6.5E-02	--	6.6E-01
			Chemical Total		1.1E-04	4.4E-06	--	1.1E-04		2.1E+00	6.5E-02	--	2.1E+00
		Exposure Point Total						1.1E-04					2.1E+00
	Sediment							1.1E-04					2.1E+00
Receptor Total: All Soil + Surface Water + Sediment								1E-04					2E+00

TABLE 7.6.RME: EPA RAGS TABLE 7 - FUTURE ADOLESCENT RECREATIONALIST CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Future
Receptor Population: Adolescent Recreationalist
Receptor Age: 7-16

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	CAS No.	EPC		Cancer Risk Calculations					Noncancer Hazard Quotient				
								Intake/Exposure Concentration		CSF / Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD / RfC		Hazard Quotient
						Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
All Soil	All Soil, Particulates/Vapors	Soil	Ingestion	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	2.2E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	2.9E-07	1.6E-11	mg/kg-day	7.0E-10	mg/kg-day	2.2E-02
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	6.7E-08	mg/kg-day	3.4E-01	(mg/kg-day)-1	2.3E-08	4.7E-07	mg/kg-day	5.0E-04	mg/kg-day	9.4E-04
				Chloroform	67-66-3	7.4E-01	mg/kg	8.6E-08	mg/kg-day	3.1E-02	(mg/kg-day)-1	2.7E-09	6.0E-07	mg/kg-day	1.0E-02	mg/kg-day	6.0E-05
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	1.8E-06	mg/kg-day	--	--	--	4.2E-06	mg/kg-day	2.0E-03	mg/kg-day	2.1E-03
				Trichloroethene	79-01-6	2.2E+00	mg/kg	7.6E-07	mg/kg-day	4.6E-02	(mg/kg-day)-1	3.5E-08	1.8E-06	mg/kg-day	5.0E-04	mg/kg-day	3.6E-03
			Exposure Route Total									3.5E-07					2.9E-02
			Dermal	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	2.1E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	2.8E-08	1.5E-12	mg/kg-day	7.0E-10	mg/kg-day	2.1E-03
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	6.4E-09	mg/kg-day	3.4E-01	(mg/kg-day)-1	2.2E-09	4.5E-08	mg/kg-day	5.0E-04	mg/kg-day	8.9E-05
				Chloroform	67-66-3	7.4E-01	mg/kg	--	--	3.1E-02	(mg/kg-day)-1	--	--	--	1.0E-02	mg/kg-day	--
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	--	--	--	--	--	--	--	2.0E-03	mg/kg-day	--
				Trichloroethene	79-01-6	2.2E+00	mg/kg	--	--	4.6E-02	(mg/kg-day)-1	--	--	--	5.0E-04	mg/kg-day	--
			Exposure Route Total									3.0E-08					2.2E-03
			Inhalation	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	6.5E-11	ug/m3	3.8E+01	(ug/m3)-1	2.5E-09	4.5E-13	mg/m3	4.0E-08	mg/m3	1.1E-05
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	1.2E-10	ug/m3	9.7E-05	(ug/m3)-1	1.2E-14	8.5E-13	mg/m3	--	--	--
				Chloroform	67-66-3	7.4E-01	mg/kg	1.9E-03	ug/m3	2.3E-05	--	4.3E-08	1.3E-05	mg/m3	9.8E-02	mg/m3	1.3E-04
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	4.1E-02	ug/m3	--	--	--	9.5E-05	mg/m3	--	--	--
				Trichloroethene	79-01-6	2.2E+00	mg/kg	2.0E-02	ug/m3	4.1E-06	(ug/m3)-1	8.0E-08	4.6E-05	mg/m3	2.0E-03	mg/m3	2.3E-02
			Exposure Route Total									1.3E-07					2.3E-02
		Exposure Point Total										5.1E-07					5.4E-02
	Exposure Medium Total											5.1E-07					5.4E-02
Medium Total												5.1E-07					5.4E-02
Surface Water	Surface Water	Surface Water	Ingestion	alpha-Chlordane	5103-71-9	1.1E-01	ug/L	1.6E-09	mg/kg-day	3.5E-01	(mg/kg-day)-1	5.6E-10	1.1E-08	mg/kg-day	5.0E-04	mg/kg-day	2.2E-05
				Dieldrin	60-57-1	2.6E-01	ug/L	3.8E-09	mg/kg-day	1.6E+01	(mg/kg-day)-1	6.1E-08	2.7E-08	mg/kg-day	5.0E-05	mg/kg-day	5.3E-04
				gamma-Chlordane	12789-03-6	9.8E-02	ug/L	1.4E-09	mg/kg-day	3.5E-01	(mg/kg-day)-1	5.0E-10	1.0E-19	mg/kg-day	5.0E-04	mg/kg-day	2.0E-05
			Exposure Route Total									6.2E-08					5.7E-04
			Dermal	alpha-Chlordane	5103-71-9	1.1E-01	ug/L	6.5E-07	mg/kg-day	3.5E-01	(mg/kg-day)-1	2.3E-07	4.5E-06	mg/kg-day	5.0E-04	mg/kg-day	9.1E-03
				Dieldrin	60-57-1	2.6E-01	ug/L	4.4E-07	mg/kg-day	1.6E+01	(mg/kg-day)-1	7.1E-06	3.1E-06	mg/kg-day	5.0E-05	mg/kg-day	6.2E-02
				gamma-Chlordane	12789-03-6	9.8E-02	ug/L	5.8E-07	mg/kg-day	3.5E-01	(mg/kg-day)-1	2.0E-07	4.0E-06	mg/kg-day	5.0E-04	mg/kg-day	8.1E-03
			Exposure Route Total									7.5E-06					7.9E-02
	Exposure Medium Total											7.6E-06					8.0E-02
Medium Total												7.6E-06					8.0E-02

Sediment	Sediment	Sediment	Ingestion	Aldrin	309-00-2	9.0E+00	mg/kg	1.1E-06	mg/kg-day	1.7E+01	(mg/kg-day)-1	1.8E-05	7.4E-06	mg/kg-day	3.0E-05	mg/kg-day	2.5E-01
				alpha-Chlordane	5103-71-9	1.3E+00	mg/kg	1.6E-07	mg/kg-day	3.5E-01	(mg/kg-day)-1	5.4E-08	1.1E-06	mg/kg-day	5.0E-04	mg/kg-day	2.2E-03
				Dieldrin	60-57-1	6.1E+00	mg/kg	7.1E-07	mg/kg-day	1.6E+01	(mg/kg-day)-1	1.1E-05	5.0E-06	mg/kg-day	5.0E-05	mg/kg-day	9.9E-02
				gamma-Chlordane	12789-03-6	1.5E+00	mg/kg	1.8E-07	mg/kg-day	3.5E-01	(mg/kg-day)-1	6.1E-08	1.2E-06	mg/kg-day	5.0E-04	mg/kg-day	2.5E-03
			Exposure Route Total									2.9E-05					3.5E-01
			Dermal	Aldrin	309-00-2	9.0E+00	mg/kg	--	--	1.7E+01	(mg/kg-day)-1	--	--	--	3.0E-05	mg/kg-day	--
				alpha-Chlordane	5103-71-9	1.3E+00	mg/kg	2.8E-08	mg/kg-day	3.5E-01	(mg/kg-day)-1	9.8E-09	2.0E-07	mg/kg-day	5.0E-04	mg/kg-day	3.9E-04
				Dieldrin	60-57-1	6.1E+00	mg/kg	3.2E-07	mg/kg-day	1.6E+01	(mg/kg-day)-1	5.1E-06	2.2E-06	mg/kg-day	5.0E-05	mg/kg-day	4.5E-02
				gamma-Chlordane	12789-03-6	1.5E+00	mg/kg	3.2E-08	mg/kg-day	3.5E-01	(mg/kg-day)-1	1.1E-08	2.2E-07	mg/kg-day	5.0E-04	mg/kg-day	4.4E-04
			Exposure Route Total									5.1E-06					4.6E-02
	Exposure Medium Total											3.5E-05					4.0E-01
Medium Total												3.5E-05					4.0E-01
Receptor Total: All Soil + Surface Water + Sediment											Total of Receptor Risks Across All Media	4E-05	Total of Receptor Hazards Across All Media				5E-01

Notes:

--	Not available or not applicable
bgs	Below ground surface
CSF	Cancer slope factor
EPA	U.S. Environmental Protection Agency
EPC	Exposure point concentration
mg/kg	Milligram per kilogram
mg/kg-day	Milligram per kilogram per day
(mg/kg-day)-1	1/(Milligram per kilogram per day)
mg/L	Milligram per liter
mg/m3	Milligram per cubic meter
RAGS	Risk Assessment Guidance for Superfund
RfC	Reference concentration
RfD	Reference dose
(ug/m3)-1	1/Microgram per cubic meter

TABLE 9.6.RME: EPA RAGS TABLE 9 - FUTURE ADOLESCENT RECREATIONALIST SUMMARY OF RECEPTOR RISKS AND HAZARDS - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Future
Receptor Population: Adolescent Recreationalist
Receptor Age: 7-16

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	CAS No.	Carcinogenic Risk				Primary Target Organ(s)	Non-Carcinogenic Hazard Quotient			
					Ingestion	Dermal	Inhalation	Exposure Routes Total		Ingestion	Dermal	Inhalation	Exposure Routes Total
All Soil	All Soil, Particulates / Vapors	All Soil	2,3,7,8-TCDD Equivalent	1746-01-6	2.9E-07	2.8E-08	2.5E-09	3.2E-07	Reproductive, Hepatic, Endocrine, Respiratory, Hematologic, Developmental	2.2E-02	2.1E-03	1.1E-05	2.4E-02
			p,p'-DDT	50-29-3	2.3E-08	2.2E-09	1.2E-14	2.5E-08	Hepatic	9.4E-04	8.9E-05	--	1.0E-03
			Chloroform	67-66-3	2.7E-09	--	4.3E-08	4.5E-08	Hepatic	6.0E-05	--	1.3E-04	1.9E-04
			cis-1,2-Dichloroethylene	156-59-2	--	--	--	--	Urinary, Whole Body	2.1E-03	--	--	
			Trichloroethene	79-01-6	3.5E-08	--	8.0E-08	1.2E-07	Developmental, Cardiovascular, Immune	3.6E-03	--	2.3E-02	2.6E-02
			Chemical Total		3.5E-07	3.0E-08	1.3E-07	5.1E-07		2.9E-02	2.2E-03	2.3E-02	5.2E-02
		Exposure Point Total						5.1E-07					5.2E-02
	All Soil Total							5.1E-07					5.2E-02
Surface Water	Surface Water	Surface Water	alpha-Chlordane	5103-71-9	5.6E-10	2.3E-07	--	2.3E-07	Hepatic	2.2E-05	9.1E-03	--	9.1E-03
			Dieldrin	60-57-1	6.1E-08	7.1E-06	--	7.1E-06	Hepatic	5.3E-04	6.2E-02	--	6.2E-02
			gamma-Chlordane	12789-03-6	5.0E-10	2.0E-07	--	2.0E-07	Hepatic	2.0E-05	8.1E-03	--	8.1E-03
			Chemical Total		6.2E-08	7.5E-06	--	7.6E-06		5.7E-04	7.9E-02	--	8.0E-02
		Exposure Point Total						7.6E-06					8.0E-02
	Surface Water Total							7.6E-06					8.0E-02
Sediment	Sediment	Sediment	Aldrin	309-00-2	1.8E-05	--	--	1.8E-05	Hepatic	2.5E-01	--	--	2.5E-01
			alpha-Chlordane	5103-71-9	5.4E-08	9.8E-09	--	6.4E-08	Hepatic	2.2E-03	3.9E-04	--	2.6E-03
			Dieldrin	60-57-1	1.1E-05	5.1E-06	--	1.6E-05	Hepatic	9.9E-02	4.5E-02	--	1.4E-01
			gamma-Chlordane	12789-03-6	6.1E-08	1.1E-08	--	7.3E-08	Hepatic	2.5E-03	4.4E-04	--	2.9E-03
			Chemical Total		2.9E-05	5.1E-06	--	3.5E-05		3.5E-01	4.6E-02	--	4.0E-01
		Exposure Point Total						3.5E-05					4.0E-01
	Sediment							3.5E-05					4.0E-01
Receptor Total: All Soil + Surface Water + Sediment								4E-05					5E-01

TABLE 10.6.RME: EPA RAGS TABLE 10 - FUTURE ADOLESCENT RECREATIONALIST RISKS AND HAZARDS SUMMARY- RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Future
Receptor Population: Adolescent Recreationalist
Receptor Age: 7-16

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	CAS No.	Carcinogenic Risk				Primary Target Organ(s)	Non-Carcinogenic Hazard Quotient			
					Ingestion	Dermal	Inhalation	Exposure Routes Total		Ingestion	Dermal	Inhalation	Exposure Routes Total
All Soil	All Soil, Particulates / Vapors	All Soil	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total		--	--	--	--		--	--	--	--
		Exposure Point Total						--					--
	All Soil Total							0.0E+00					0.0E+00
Surface Water	Surface Water	Surface Water	Dieldrin	60-57-1	6.1E-08	7.1E-06	--	7.1E-06	Hepatic	5.3E-04	6.2E-02	--	6.2E-02
			Chemical Total		6.1E-08	7.1E-06	--	7.1E-06		5.3E-04	6.2E-02	--	6.2E-02
		Exposure Point Total						7.1E-06					6.2E-02
	Surface Water Total							7.1E-06					6.2E-02
Sediment	Sediment	Sediment	Aldrin	309-00-2	1.8E-05	--	--	1.8E-05	Hepatic	2.5E-01	--	--	2.5E-01
			Dieldrin	60-57-1	1.1E-05	5.1E-06	--	1.6E-05	Hepatic	9.9E-02	4.5E-02	--	1.4E-01
			Chemical Total		2.9E-05	5.1E-06	--	3.4E-05		3.5E-01	4.5E-02	--	3.9E-01
		Exposure Point Total						3.4E-05					3.9E-01
	Sediment							3.4E-05					3.9E-01
Receptor Total: All Soil + Surface Water + Sediment								4E-05					5E-01

TABLE 7.7.RME: EPA RAGS TABLE 7- FUTURE ADULT RECREATIONALIST CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Future
Receptor Population: Adult Recreationalist
Receptor Age: >16

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	CAS No.	EPC		Cancer Risk Calculations					Noncancer Hazard Quotient				
								Intake/Exposure Concentration		CSF / Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD / RfC		Hazard Quotient
						Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
All Soil	All Soil, Particulates/Vapors	Soil	Ingestion	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	1.4E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.8E-07	4.9E-12	mg/kg-day	7.0E-10	mg/kg-day	6.9E-03
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	4.2E-08	mg/kg-day	3.4E-01	(mg/kg-day)-1	1.4E-08	1.5E-07	mg/kg-day	5.0E-04	mg/kg-day	2.9E-04
				Chloroform	67-66-3	7.4E-01	mg/kg	5.4E-08	mg/kg-day	3.1E-02	(mg/kg-day)-1	1.7E-09	1.9E-07	mg/kg-day	1.0E-02	mg/kg-day	1.9E-05
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	3.7E-07	mg/kg-day	--	--	--	1.3E-06	mg/kg-day	2.0E-03	mg/kg-day	6.5E-04
				Trichloroethene	79-01-6	2.2E+00	mg/kg	1.6E-07	mg/kg-day	4.6E-02	(mg/kg-day)-1	7.3E-09	5.5E-07	mg/kg-day	5.0E-04	mg/kg-day	1.1E-03
			Exposure Route Total									2.0E-07					9.0E-03
			Dermal	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	1.8E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	2.3E-08	6.2E-13	mg/kg-day	7.0E-10	mg/kg-day	8.8E-04
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	5.3E-09	mg/kg-day	3.4E-01	(mg/kg-day)-1	1.8E-09	1.8E-08	mg/kg-day	5.0E-04	mg/kg-day	3.7E-05
				Chloroform	67-66-3	7.4E-01	mg/kg	--	--	3.1E-02	(mg/kg-day)-1	--	--	--	1.0E-02	mg/kg-day	--
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	--	--	--	--	--	--	--	2.0E-03	mg/kg-day	--
				Trichloroethene	79-01-6	2.2E+00	mg/kg	--	--	4.6E-02	(mg/kg-day)-1	--	--	--	5.0E-04	mg/kg-day	--
			Exposure Route Total									2.5E-08					9.2E-04
			Inhalation	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	2.4E-11	ug/m3	3.8E+01	(ug/m3)-1	9.0E-10	8.3E-14	mg/m3	4.0E-08	mg/m3	2.1E-06
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	4.5E-11	ug/m3	9.7E-05	(ug/m3)-1	4.4E-15	1.6E-13	mg/m3	--	--	--
				Chloroform	67-66-3	7.4E-01	mg/kg	6.8E-04	ug/m3	2.3E-05	--	1.6E-08	2.4E-06	mg/m3	9.8E-02	mg/m3	2.4E-05
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	5.0E-03	ug/m3	--	--	--	1.7E-05	mg/m3	--	--	--
				Trichloroethene	79-01-6	2.2E+00	mg/kg	2.4E-03	ug/m3	4.1E-06	(ug/m3)-1	9.8E-09	8.4E-06	mg/m3	2.0E-03	mg/m3	4.2E-03
			Exposure Route Total									2.6E-08					4.2E-03
		Exposure Point Total										2.5E-07					1.4E-02
	Exposure Medium Total											2.5E-07					1.4E-02
Medium Total												2.5E-07					1.4E-02
Surface Water	Surface Water	Surface Water	Ingestion	alpha-Chlordane	5103-71-9	1.1E-01	ug/L	1.0E-11	mg/kg-day	3.5E-01	(mg/kg-day)-1	3.5E-10	3.5E-09	mg/kg-day	5.0E-04	mg/kg-day	7.0E-06
				Dieldrin	60-57-1	2.6E-01	ug/L	2.4E-09	mg/kg-day	1.6E+01	(mg/kg-day)-1	3.8E-08	8.2E-09	mg/kg-day	5.0E-05	mg/kg-day	1.6E-04
				gamma-Chlordane	12789-03-6	9.8E-02	ug/L	8.9E-10	mg/kg-day	3.5E-01	(mg/kg-day)-1	3.1E-10	3.1E-09	mg/kg-day	5.0E-04	mg/kg-day	6.2E-06
			Exposure Route Total									3.8E-08					1.8E-04
			Dermal	alpha-Chlordane	5103-71-9	1.1E-01	ug/L	6.3E-07	mg/kg-day	3.5E-01	(mg/kg-day)-1	2.2E-07	2.2E-06	mg/kg-day	5.0E-04	mg/kg-day	4.4E-03
				Dieldrin	60-57-1	2.6E-01	ug/L	4.3E-07	mg/kg-day	1.6E+01	(mg/kg-day)-1	6.9E-06	1.5E-06	mg/kg-day	5.0E-05	mg/kg-day	3.0E-02
				gamma-Chlordane	12789-03-6	9.8E-02	ug/L	5.6E-07	mg/kg-day	3.5E-01	(mg/kg-day)-1	2.0E-07	2.0E-06	mg/kg-day	5.0E-04	mg/kg-day	3.9E-03
			Exposure Route Total									7.3E-06					3.8E-02
	Exposure Medium Total											7.3E-06					3.9E-02
Medium Total												7.3E-06					3.9E-02

Sediment	Sediment	Sediment	Ingestion	Aldrin	309-00-2	9.0E+00	mg/kg	6.5E-07	mg/kg-day	1.7E+01	(mg/kg-day)-1	1.1E-05	2.3E-06	mg/kg-day	3.0E-05	mg/kg-day	7.6E-02
				alpha-Chlordane	5103-71-9	1.3E+00	mg/kg	9.7E-08	mg/kg-day	3.5E-01	(mg/kg-day)-1	3.4E-08	3.4E-07	mg/kg-day	5.0E-04	mg/kg-day	6.8E-04
				Dieldrin	60-57-1	6.1E+00	mg/kg	4.4E-07	mg/kg-day	1.6E+01	(mg/kg-day)-1	7.0E-06	1.5E-06	mg/kg-day	5.0E-05	mg/kg-day	3.1E-02
				gamma-Chlordane	12789-03-6	1.5E+00	mg/kg	1.1E-07	mg/kg-day	3.5E-01	(mg/kg-day)-1	3.8E-08	3.8E-07	mg/kg-day	5.0E-04	mg/kg-day	7.6E-04
			Exposure Route Total									1.8E-05					1.1E-01
			Dermal	Aldrin	309-00-2	9.0E+00	mg/kg	--	--	1.7E+01	(mg/kg-day)-1	--	--	--	3.0E-05	mg/kg-day	--
				alpha-Chlordane	5103-71-9	1.3E+00	mg/kg	2.6E-08	mg/kg-day	3.5E-01	(mg/kg-day)-1	9.2E-09	9.2E-08	mg/kg-day	5.0E-04	mg/kg-day	1.8E-04
				Dieldrin	60-57-1	6.1E+00	mg/kg	3.0E-07	mg/kg-day	1.6E+01	(mg/kg-day)-1	4.8E-06	1.1E-06	mg/kg-day	5.0E-05	mg/kg-day	2.1E-02
				gamma-Chlordane	12789-03-6	1.5E+00	mg/kg	3.0E-08	mg/kg-day	3.5E-01	(mg/kg-day)-1	1.0E-08	1.0E-07	mg/kg-day	5.0E-04	mg/kg-day	2.1E-04
			Exposure Route Total									4.8E-06					2.1E-02
	Exposure Medium Total											2.3E-05					1.3E-01
Medium Total												2.3E-05					1.3E-01
Receptor Total: All Soil + Surface Water + Sediment											Total of Receptor Risks Across All Media	3E-05	Total of Receptor Hazards Across All Media				2E-01

Notes:

--	Not available or not applicable
bgs	Below ground surface
CSF	Cancer slope factor
EPA	U.S. Environmental Protection Agency
EPC	Exposure point concentration
mg/kg	Milligram per kilogram
mg/kg-day	Milligram per kilogram per day
(mg/kg-day)-1	1/(Milligram per kilogram per day)
mg/L	Milligram per liter
mg/m3	Milligram per cubic meter
RAGS	Risk Assessment Guidance for Superfund
RfC	Reference concentration
RfD	Reference dose
(ug/m3)-1	1/Microgram per cubic meter

TABLE 9.7.RME: EPA RAGS TABLE 9 - FUTURE ADULT RECREATIONALIST SUMMARY OF RECEPTOR RISKS AND HAZARDS - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Future
Receptor Population: Adult Recreationalist
Receptor Age: >16

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	CAS No.	Carcinogenic Risk				Primary Target Organ(s)	Non-Carcinogenic Hazard Quotient			
					Ingestion	Dermal	Inhalation	Exposure Routes Total		Ingestion	Dermal	Inhalation	Exposure Routes Total
All Soil	All Soil, Particulates / Vapors	All Soil	2,3,7,8-TCDD Equivalent	1746-01-6	1.8E-07	2.3E-08	9.0E-10	2.0E-07	Reproductive, Hepatic, Endocrine, Respiratory, Hematologic, Developmental	6.9E-03	8.8E-04	2.1E-06	7.8E-03
			p,p'-DDT	50-29-3	1.4E-08	1.8E-09	4.4E-15	1.6E-08	Hepatic	2.9E-04	3.7E-05	--	3.3E-04
			Chloroform	67-66-3	1.7E-09	--	1.6E-08	1.7E-08	Hepatic	1.9E-05	--	2.4E-05	4.3E-05
			cis-1,2-Dichloroethylene	156-59-2	--	--	--	--	Urinary, Whole Body	6.5E-04	--	--	
			Trichloroethene	79-01-6	7.3E-09	--	9.8E-09	1.7E-08	Developmental, Cardiovascular, Immune	1.1E-03	--	4.2E-03	5.3E-03
			Chemical Total		2.0E-07	2.5E-08	2.6E-08	2.5E-07		9.0E-03	9.2E-04	4.2E-03	1.3E-02
		Exposure Point Total						2.5E-07					1.3E-02
	All Soil Total							2.5E-07					1.3E-02
Surface Water	Surface Water	Surface Water	alpha-Chlordane	5103-71-9	3.5E-10	2.2E-07	--	2.2E-07	Hepatic	7.0E-06	4.4E-03	--	4.4E-03
			Dieldrin	60-57-1	3.8E-08	6.9E-06	--	6.9E-06	Hepatic	1.6E-04	3.0E-02	--	3.0E-02
			gamma-Chlordane	12789-03-6	3.1E-10	2.0E-07	--	2.0E-07	Hepatic	6.2E-06	3.9E-03	--	3.9E-03
			Chemical Total		3.8E-08	7.3E-06	--	7.3E-06		1.8E-04	3.8E-02	--	3.9E-02
		Exposure Point Total						7.3E-06					3.9E-02
	Surface Water Total							7.3E-06					3.9E-02
Sediment	Sediment	Sediment	Aldrin	309-00-2	1.1E-05	--	--	1.1E-05	Hepatic	7.6E-02	--	--	7.6E-02
			alpha-Chlordane	5103-71-9	3.4E-08	9.2E-09	--	4.3E-08	Hepatic	6.8E-04	1.8E-04	--	8.6E-04
			Dieldrin	60-57-1	7.0E-06	4.8E-06	--	1.2E-05	Hepatic	3.1E-02	2.1E-02	--	5.2E-02
			gamma-Chlordane	12789-03-6	3.8E-08	1.0E-08	--	4.9E-08	Hepatic	7.6E-04	2.1E-04	--	9.7E-04
			Chemical Total		1.8E-05	4.8E-06	--	2.3E-05		1.1E-01	2.1E-02	--	1.3E-01
		Exposure Point Total						2.3E-05					1.3E-01
	Sediment							2.3E-05					1.3E-01
Receptor Total: All Soil + Surface Water + Sediment								3E-05					2E-01

TABLE 10.7.RME: EPA RAGS TABLE 10 - FUTURE ADULT RECREATIONALIST RISKS AND HAZARDS SUMMARY- RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Future
Receptor Population: Adult Recreationalist
Receptor Age: >16

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	CAS No.	Carcinogenic Risk				Primary Target Organ(s)	Non-Carcinogenic Hazard Quotient			
					Ingestion	Dermal	Inhalation	Exposure Routes Total		Ingestion	Dermal	Inhalation	Exposure Routes Total
All Soil	All Soil, Particulates / Vapors	All Soil	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total		--	--	--	--		--	--	--	--
		Exposure Point Total						--					--
	All Soil Total							0.0E+00					0.0E+00
Surface Water	Surface Water	Surface Water	Dieldrin	60-57-1	3.8E-08	6.9E-06	--	6.9E-06	Hepatic	1.6E-04	3.0E-02	--	3.0E-02
			Chemical Total		3.8E-08	6.9E-06	--	6.9E-06		1.6E-04	3.0E-02	--	3.0E-02
		Exposure Point Total						6.9E-06					3.0E-02
	Surface Water Total							6.9E-06					3.0E-02
Sediment	Sediment	Sediment	Aldrin	309-00-2	1.1E-05	--	--	1.1E-05	Hepatic	7.6E-02	--	--	7.6E-02
			Dieldrin	60-57-1	7.0E-06	4.8E-06	--	1.2E-05	Hepatic	3.1E-02	2.1E-02	--	5.2E-02
			Chemical Total		1.8E-05	4.8E-06	--	2.3E-05		1.1E-01	2.1E-02	--	1.3E-01
		Exposure Point Total						2.3E-05					1.3E-01
	Sediment							2.3E-05					1.3E-01
Receptor Total: All Soil + Surface Water + Sediment								3E-05					2E-01

TABLE 7.8.RME: EPA RAGS TABLE 7 - CURRENT/FUTURE YOUTH TRESSPASSER CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RME

DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Current/Future
Receptor Population: Youth Tresspasser
Receptor Age: 7-16

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potentical Concern	CAS No.	EPC		Cancer Risk Calculations					Noncancer Hazard Quotient				
								Intake/Exposure Concentration		CSF / Unit Risk		Cancer	Intake/Exposure Concentration		RfD / RfC		Hazard
						Value	Units	Value	Units	Value	Units	Risk	Value	Units	Value	Units	Quotient
Surface Soil	Surface Soil,	Surface Soil	Ingestion	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	1.1E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.4E-07	7.6E-12	mg/kg-day	7.0E-10	mg/kg-day	1.1E-02
	Particulates/Vapors			p,p'-DDT	50-29-3	2.3E+00	mg/kg	1.3E-07	mg/kg-day	3.4E-01	(mg/kg-day)-1	4.3E-08	9.0E-07	mg/kg-day	5.0E-04	mg/kg-day	1.8E-03
				Chloroform	67-66-3	7.4E-01	mg/kg	4.2E-08	mg/kg-day	3.1E-02	(mg/kg-day)-1	1.3E-09	2.9E-07	mg/kg-day	1.0E-02	mg/kg-day	2.9E-05
				cis-1,2-Dichloroethylene	156-59-2	1.2E+01	mg/kg	2.0E-06	mg/kg-day	--	--	--	4.8E-06	mg/kg-day	2.0E-03	mg/kg-day	2.4E-03
				Trichloroethene	79-01-6	4.4E+00	mg/kg	7.5E-07	mg/kg-day	4.6E-02	(mg/kg-day)-1	3.4E-08	1.7E-06	mg/kg-day	5.0E-04	mg/kg-day	3.5E-03
			Exposure Route Total									2.2E-07					1.9E-02
			Dermal	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	1.0E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.3E-08	7.2E-13	mg/kg-day	7.0E-10	mg/kg-day	1.0E-03
				p,p'-DDT	50-29-3	2.3E+00	mg/kg	1.2E-08	mg/kg-day	3.4E-01	(mg/kg-day)-1	4.1E-09	8.5E-08	mg/kg-day	5.0E-04	mg/kg-day	1.7E-04
				Chloroform	67-66-3	7.4E-01	mg/kg	--	--	3.1E-02	(mg/kg-day)-1	--	--	--	1.0E-02	mg/kg-day	--
				cis-1,2-Dichloroethylene	156-59-2	1.2E+01	mg/kg	--	--	--	--	--	--	--	2.0E-03	mg/kg-day	--
				Trichloroethene	79-01-6	4.4E+00	mg/kg	--	--	4.6E-02	(mg/kg-day)-1	--	--	--	5.0E-04	mg/kg-day	--
			Exposure Route Total									1.8E-08					1.2E-03
			Inhalation	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	1.0E-11	ug/m3	3.8E+01	(ug/m3)-1	4.0E-10	7.3E-14	mg/m3	4.0E-08	mg/m3	1.8E-06
				p,p'-DDT	50-29-3	2.3E+00	mg/kg	7.8E-11	ug/m3	9.7E-05	(ug/m3)-1	7.5E-15	5.4E-13	mg/m3	--	--	--
				Chloroform	67-66-3	7.4E-01	mg/kg	3.0E-04	ug/m3	2.3E-05	--	6.9E-09	2.1E-06	mg/m3	9.8E-02	mg/m3	2.1E-05
				cis-1,2-Dichloroethylene	156-59-2	1.2E+01	mg/kg	1.5E-02	ug/m3	--	--	--	3.6E-05	mg/m3	--	--	--
				Trichloroethene	79-01-6	4.4E+00	mg/kg	6.4E-03	ug/m3	4.1E-06	(ug/m3)-1	2.6E-08	1.5E-05	mg/m3	2.0E-03	mg/m3	7.5E-03
			Exposure Route Total									3.4E-08					7.5E-03
		Exposure Point Total										2.7E-07					2.7E-02
	Exposure Medium Total											2.7E-07					2.7E-02
Medium Total												2.7E-07					2.7E-02
All Soil	All Soil,	Soil	Ingestion	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	1.1E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.4E-07	7.6E-12	mg/kg-day	7.0E-10	mg/kg-day	1.1E-02
	Particulates/Vapors			p,p'-DDT	50-29-3	5.8E-01	mg/kg	3.3E-08	mg/kg-day	3.4E-01	(mg/kg-day)-1	1.1E-08	2.3E-07	mg/kg-day	5.0E-04	mg/kg-day	4.6E-04
				Chloroform	67-66-3	7.4E-01	mg/kg	4.2E-08	mg/kg-day	3.1E-02	(mg/kg-day)-1	1.3E-09	2.9E-07	mg/kg-day	1.0E-02	mg/kg-day	2.9E-05
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	8.7E-07	mg/kg-day	--	--	--	2.0E-06	mg/kg-day	2.0E-03	mg/kg-day	1.0E-03
				Trichloroethene	79-01-6	2.2E+00	mg/kg	3.7E-07	mg/kg-day	4.6E-02	(mg/kg-day)-1	1.7E-08	8.6E-07	mg/kg-day	5.0E-04	mg/kg-day	1.7E-03
			Exposure Route Total									1.7E-07					1.4E-02
			Dermal	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	1.0E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.3E-08	7.2E-13	mg/kg-day	7.0E-10	mg/kg-day	1.0E-03
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	3.1E-09	mg/kg-day	3.4E-01	(mg/kg-day)-1	1.0E-09	2.2E-08	mg/kg-day	5.0E-04	mg/kg-day	4.3E-05
				Chloroform	67-66-3	7.4E-01	mg/kg	--	--	3.1E-02	(mg/kg-day)-1	--	--	--	1.0E-02	mg/kg-day	--
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	--	--	--	--	--	--	--	2.0E-03	mg/kg-day	--

				Trichloroethene	79-01-6	2.2E+00	mg/kg	--	--	4.6E-02	(mg/kg-day)-1	--	--	--	5.0E-04	mg/kg-day	--
			Exposure Route Total									1.4E-08					1.1E-03
			Inhalation	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	1.0E-11	ug/m3	3.8E+01	(ug/m3)-1	4.0E-10	7.3E-14	mg/m3	4.0E-08	mg/m3	1.8E-06
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	2.0E-11	ug/m3	9.7E-05	(ug/m3)-1	1.9E-15	1.4E-13	mg/m3	--	--	--
				Chloroform	67-66-3	7.4E-01	mg/kg	3.0E-04	ug/m3	2.3E-05	--	6.9E-09	2.1E-06	mg/m3	9.8E-02	mg/m3	2.1E-05
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	6.6E-03	ug/m3	--	--	--	1.5E-05	mg/m3	--	--	--
				Trichloroethene	79-01-6	2.2E+00	mg/kg	3.2E-03	ug/m3	4.1E-06	(ug/m3)-1	1.3E-08	7.4E-06	mg/m3	2.0E-03	mg/m3	3.7E-03
			Exposure Route Total									2.0E-08					3.7E-03
		Exposure Point Total										2.0E-07					1.9E-02
	Exposure Medium Total											2.0E-07					1.9E-02
Medium Total												2.0E-07					1.9E-02

Surface Water	Surface Water	Surface Water	Ingestion	alpha-Chlordane	5103-71-9	1.1E-01	ug/L	7.8E-10	mg/kg-day	3.5E-01	(mg/kg-day)-1	2.7E-10	5.4E-09	mg/kg-day	5.0E-04	mg/kg-day	1.1E-05
				Dieldrin	60-57-1	2.6E-01	ug/L	1.8E-09	mg/kg-day	1.6E+01	(mg/kg-day)-1	2.9E-08	1.3E-08	mg/kg-day	5.0E-05	mg/kg-day	2.6E-04
				gamma-Chlordane	12789-03-6	9.8E-02	ug/L	6.9E-10	mg/kg-day	3.5E-01	(mg/kg-day)-1	2.4E-10	4.8E-09	mg/kg-day	5.0E-04	mg/kg-day	9.7E-06
			Exposure Route Total									3.0E-08					2.8E-04
			Dermal	alpha-Chlordane	5103-71-9	1.1E-01	ug/L	3.1E-07	mg/kg-day	3.5E-01	(mg/kg-day)-1	1.1E-07	1.4E-05	mg/kg-day	5.0E-04	mg/kg-day	2.7E-02
				Dieldrin	60-57-1	2.6E-01	ug/L	2.1E-07	mg/kg-day	1.6E+01	(mg/kg-day)-1	3.4E-06	9.3E-06	mg/kg-day	5.0E-05	mg/kg-day	1.9E-01
				gamma-Chlordane	12789-03-6	9.8E-02	ug/L	2.8E-07	mg/kg-day	3.5E-01	(mg/kg-day)-1	9.8E-08	1.2E-05	mg/kg-day	5.0E-04	mg/kg-day	2.4E-02
			Exposure Route Total									3.6E-06					2.4E-01
	Exposure Medium Total											3.7E-06					2.4E-01
Medium Total												3.7E-06					2.4E-01
Sediment	Sediment	Sediment	Ingestion	Aldrin	309-00-2	9.0E+00	mg/kg	5.1E-07	mg/kg-day	1.7E+01	(mg/kg-day)-1	8.7E-06	3.6E-06	mg/kg-day	3.0E-05	mg/kg-day	1.2E-01
				alpha-Chlordane	5103-71-9	1.3E+00	mg/kg	7.5E-08	mg/kg-day	3.5E-01	(mg/kg-day)-1	2.6E-08	5.3E-07	mg/kg-day	5.0E-04	mg/kg-day	1.1E-03
				Dieldrin	60-57-1	6.1E+00	mg/kg	3.4E-07	mg/kg-day	1.6E+01	(mg/kg-day)-1	5.5E-06	2.4E-06	mg/kg-day	5.0E-05	mg/kg-day	4.8E-02
				gamma-Chlordane	12789-03-6	1.5E+00	mg/kg	8.51E-08	mg/kg-day	3.5E-01	(mg/kg-day)-1	3.0E-08	6.0E-07	mg/kg-day	5.0E-04	mg/kg-day	1.2E-03
			Exposure Route Total									1.4E-05					1.7E-01
			Dermal	Aldrin	309-00-2	9.0E+00	mg/kg	--	--	1.7E+01	(mg/kg-day)-1	--	--	--	3.0E-05	mg/kg-day	--
				alpha-Chlordane	5103-71-9	1.3E+00	mg/kg	9.5E-09	mg/kg-day	3.5E-01	(mg/kg-day)-1	3.3E-09	6.7E-08	mg/kg-day	5.0E-04	mg/kg-day	1.3E-04
				Dieldrin	60-57-1	6.1E+00	mg/kg	1.1E-07	mg/kg-day	1.6E+01	(mg/kg-day)-1	1.7E-06	7.6E-07	mg/kg-day	5.0E-05	mg/kg-day	1.5E-02
				gamma-Chlordane	12789-03-6	1.5E+00	mg/kg	1.1E-08	mg/kg-day	3.5E-01	(mg/kg-day)-1	3.8E-09	7.5E-08	mg/kg-day	5.0E-04	mg/kg-day	1.5E-04
			Exposure Route Total									1.7E-06					1.6E-02
	Exposure Medium Total											1.6E-05					1.9E-01
Medium Total												1.6E-05					1.9E-01
Receptor Total:Surface Soil + Surface Water + Sediment											Total of Receptor Risks Across All Media	2E-05	Total of Receptor Hazards Across All Media				4E-01
Receptor Total: All Soil + Surface Water + Sediment											Total of Receptor Risks Across All Media	2E-05	Total of Receptor Hazards Across All Media				4E-01

Notes:

--	Not available or not applicable
bgs	Below ground surface
CSF	Cancer slope factor
EPA	U.S. Environmental Protection Agency
EPC	Exposure point concentration
mg/kg	Milligram per kilogram
mg/kg-day	Milligram per kilogram per day
(mg/kg-day)-1	1/(Milligram per kilogram per day)
mg/L	Milligram per liter
mg/m3	Milligram per cubic meter
RAGS	Risk Assessment Guidance for Superfund
RfC	Reference concentration
RfD	Reference dose
(ug/m3)-1	1/Microgram per cubic meter

TABLE 9.8.RME: EPA RAGS TABLE 9 - CURRENT AND FUTURE ADOLESCENT TRESSPASSER SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Current/Future
Receptor Population: Youth Tresspasser
Receptor Age: 7-16

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	CAS No.	Carcinogenic Risk				Primary Target Organ(s)	Non-Carcinogenic Hazard Quotient			
					Ingestion	Dermal	Inhalation	Exposure Routes Total		Ingestion	Dermal	Inhalation	Exposure Routes Total
Surface Soil	Surface Soil, Particulates / Vapors	Surface Soil	2,3,7,8-TCDD Equivalent	1746-01-6	1.4E-07	1.3E-08	4.0E-10	1.5E-07	Reproductive, Hepatic, Endocrine, Respiratory, Hematologic, Developmental	1.1E-02	1.0E-03	1.8E-06	1.2E-02
			p,p'-DDT	50-29-3	4.3E-08	4.1E-09	7.5E-15	4.8E-08	Hepatic	1.8E-03	1.7E-04	--	2.0E-03
			Chloroform	67-66-3	1.3E-09	--	6.9E-09	8.2E-09	Hepatic	2.9E-05	--	2.1E-05	5.1E-05
			cis-1,2-Dichloroethylene	156-59-2	--	--	--	--	Urinary, Whole Body	2.4E-03	--	--	2.4E-03
			Trichloroethene	79-01-6	3.4E-08	--	2.6E-08	6.1E-08	Developmental, Cardiovascular, Immune	3.5E-03	--	7.5E-03	1.1E-02

			Chemical Total		2.2E-07	1.8E-08	3.4E-08	2.7E-07		1.9E-02	1.2E-03	7.5E-03	2.7E-02
		Exposure Point Total						2.7E-07					2.7E-02
	Surface Soil Total							2.7E-07					2.7E-02
All Soil	All Soil	All Soil	2,3,7,8-TCDD Equivalent	1746-01-6	1.4E-07	1.3E-08	4.0E-10	1.5E-07	Reproductive, Hepatic, Endocrine, Respiratory, Hematologic, Developmental	1.1E-02	1.0E-03	1.8E-06	1.2E-02
	Particulates / Vapors		p,p'-DDT	50-29-3	1.1E-08	1.0E-09	1.9E-15	1.2E-08	Hepatic	4.6E-04	4.3E-05	--	5.0E-04
			Chloroform	67-66-3	1.3E-09	--	6.9E-09	8.2E-09	Hepatic	2.9E-05	--	2.1E-05	5.1E-05
			cis-1,2-Dichloroethylene	156-59-2	--	--	--	--	Urinary, Whole Body	1.0E-03	--	--	
			Trichloroethene	79-01-6	1.7E-08	--	1.3E-08	3.0E-08	Developmental, Cardiovascular, Immune	1.7E-03	--	3.7E-03	5.4E-03
			Chemical Total		1.7E-07	1.4E-08	2.0E-08	2.0E-07		1.4E-02	1.1E-03	3.7E-03	1.8E-02
		Exposure Point Total						2.0E-07					1.8E-02
	All Soil Total							2.0E-07					1.8E-02
Surface Water	Surface Water	Surface Water	alpha-Chlordane	5103-71-9	2.7E-10	1.1E-07	--	1.1E-07	Hepatic	1.1E-05	2.7E-02	--	2.7E-02
			Dieldrin	60-57-1	2.9E-08	3.4E-06	--	3.5E-06	Hepatic	2.6E-04	1.9E-01	--	1.9E-01
			gamma-Chlordane	12789-03-6	2.4E-10	9.8E-08	--	9.8E-08	Hepatic	9.7E-06	2.4E-02	--	2.4E-02
			Chemical Total		3.0E-08	3.6E-06	--	3.7E-06		2.8E-04	2.4E-01	--	2.4E-01
		Exposure Point Total						3.7E-06					2.4E-01
	Surface Water Total							3.7E-06					2.4E-01
Sediment	Sediment	Sediment	Aldrin	309-00-2	8.7E-06	--	--	8.7E-06	Hepatic	1.2E-01	--	--	1.2E-01
			alpha-Chlordane	5103-71-9	2.6E-08	3.3E-09	--	3.0E-08	Hepatic	1.1E-03	1.3E-04	--	1.2E-03
			Dieldrin	60-57-1	5.5E-06	1.7E-06	--	7.2E-06	Hepatic	4.8E-02	1.5E-02	--	6.3E-02
			gamma-Chlordane	12789-03-6	3.0E-08	3.8E-09	--	3.4E-08	Hepatic	1.2E-03	1.5E-04	--	1.3E-03
			Chemical Total		1.4E-05	1.7E-06	--	1.6E-05		1.7E-01	1.6E-02	--	1.9E-01
		Exposure Point Total						1.6E-05					1.9E-01
	Sediment							1.6E-05					1.9E-01
Receptor Total: Surface Soil + Surface Water + Sediment								2E-05					4E-01
Receptor Total: All Soil + Surface Water + Sediment								2E-05					4E-01

TABLE 10.8.RME: EPA RAGS TABLE 10 - CURRENT AND FUTURE TRESSPASSER RECREATIONALIST RISK AND HAZARD SUMMARY - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Current/Future
Receptor Population: Youth Tresspasser
Receptor Age: 7-16

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	CAS No.	Carcinogenic Risk				Primary Target Organ(s)	Non-Carcinogenic Hazard Quotient			
					Ingestion	Dermal	Inhalation	Exposure Routes Total		Ingestion	Dermal	Inhalation	Exposure Routes Total
Surface Soil	Surface Soil, Particulates / Vapors	Surface Soil	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total		--	--	--	--		--	--	--	--
		Exposure Point Total						--					--
	Surface Soil Total							0.0E+00					0.0E+00
All Soil	Subsurface Soil, Particulates / Vapors	Subsurface Soil	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total		--	--	--	--		--	--	--	--
		Exposure Point Total						--					--
	All Soil Total							0.0E+00					0.0E+00
Surface Water	Surface Water	Surface Water	Dieldrin	60-57-1	2.9E-08	3.4E-06	--	3.5E-06	Hepatic	2.6E-04	1.9E-01	--	1.9E-01
			Chemical Total		2.9E-08	3.4E-06	--	3.5E-06		2.6E-04	1.9E-01	--	1.9E-01
		Exposure Point Total						3.5E-06					1.9E-01
	Surface Water Total							3.5E-06					1.9E-01
Sediment	Sediment	Sediment	Aldrin	309-00-2	8.7E-06	--	--	8.7E-06	Hepatic	1.2E-01	--	--	1.2E-01
			Dieldrin	60-57-1	5.5E-06	1.7E-06	--	7.2E-06	Hepatic	4.8E-02	1.5E-02	--	6.3E-02
			Chemical Total		1.4E-05	1.7E-06	--	1.6E-05		1.7E-01	1.5E-02	--	1.8E-01
		Exposure Point Total						1.6E-05					1.8E-01
	Sediment							1.6E-05					1.8E-01
Receptor Total: Surface Soil + Surface Water + Sediment								2E-05					4E-01
Receptor Total: All Soil + Surface Water + Sediment								2E-05					4E-01

TABLE 7.9.RME: EPA RAGS TABLE 7 - CURRENT/FUTURE ADULT TRESSPASSER CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Current/Future
Receptor Population: Adult Tresspasser
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potentical Concern	CAS No.	EPC		Cancer Risk Calculations					Noncancer Hazard Quotient				
								Intake/Exposure Concentration		CSF / Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD / RfC		Hazard Quotient
						Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil, Particulates/Vapors	Surface Soil	Ingestion	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	1.4E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.8E-07	4.7E-12	mg/kg-day	7.0E-10	mg/kg-day	6.8E-03
				p,p'-DDT	50-29-3	2.3E+00	mg/kg	1.6E-07	mg/kg-day	3.4E-01	(mg/kg-day)-1	5.4E-08	5.6E-07	mg/kg-day	5.0E-04	mg/kg-day	1.1E-03
				Chloroform	67-66-3	7.4E-01	mg/kg	5.2E-08	mg/kg-day	3.1E-02	(mg/kg-day)-1	1.6E-09	1.8E-07	mg/kg-day	1.0E-02	mg/kg-day	1.8E-05
				cis-1,2-Dichloroethylene	156-59-2	1.2E+01	mg/kg	8.5E-07	mg/kg-day	--	--	--	3.0E-06	mg/kg-day	2.0E-03	mg/kg-day	1.5E-03
				Trichloroethene	79-01-6	4.4E+00	mg/kg	3.1E-07	mg/kg-day	4.6E-02	(mg/kg-day)-1	1.4E-08	1.1E-06	mg/kg-day	5.0E-04	mg/kg-day	2.2E-03
			Exposure Route Total									2.5E-07					1.2E-02
			Dermal	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	3.4E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	4.5E-08	1.2E-12	mg/kg-day	7.0E-10	mg/kg-day	1.7E-03
				p,p'-DDT	50-29-3	2.3E+00	mg/kg	4.0E-08	mg/kg-day	3.4E-01	(mg/kg-day)-1	1.4E-08	1.4E-07	mg/kg-day	5.0E-04	mg/kg-day	2.8E-04
				Chloroform	67-66-3	7.4E-01	mg/kg	--	--	3.1E-02	(mg/kg-day)-1	--	--	--	1.0E-02	mg/kg-day	--
				cis-1,2-Dichloroethylene	156-59-2	1.2E+01	mg/kg	--	--	--	--	--	--	--	2.0E-03	mg/kg-day	--
				Trichloroethene	79-01-6	4.4E+00	mg/kg	--	--	4.6E-02	(mg/kg-day)-1	--	--	--	5.0E-04	mg/kg-day	--
			Exposure Route Total									5.8E-08					2.0E-03
			Inhalation	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	2.8E-10	ug/m3	3.8E+01	(ug/m3)-1	1.1E-08	9.7E-13	mg/m3	4.0E-08	mg/m3	2.4E-05
				p,p'-DDT	50-29-3	2.3E+00	mg/kg	2.1E-09	ug/m3	9.7E-05	(ug/m3)-1	2.0E-13	7.2E-12	mg/m3	--	--	--
				Chloroform	67-66-3	7.4E-01	mg/kg	8.0E-03	ug/m3	2.3E-05	--	1.8E-07	2.8E-05	mg/m3	9.8E-02	mg/m3	2.9E-04
				cis-1,2-Dichloroethylene	156-59-2	1.2E+01	mg/kg	1.4E-01	ug/m3	--	--	--	4.8E-04	mg/m3	--	--	--

				Trichloroethene	79-01-6	4.4E+00	mg/kg	5.7E-02	ug/m3	4.1E-06	(ug/m3)-1	2.3E-07	2.0E-04	mg/m3	2.0E-03	mg/m3	9.9E-02
			Exposure Route Total									4.3E-07					1.0E-03
		Exposure Point Total										7.3E-07					1.1E-01
	Exposure Medium Total											7.3E-07					1.1E-01
Medium Total												7.3E-07					1.1E-01

All Soil	All Soil, Particulates/Vapors	Soil	Ingestion	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	1.4E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.8E-07	4.7E-12	mg/kg-day	7.0E-10	mg/kg-day	6.8E-03
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	4.1E-08	mg/kg-day	3.4E-01	(mg/kg-day)-1	1.4E-08	1.4E-07	mg/kg-day	5.0E-04	mg/kg-day	2.8E-04
				Chloroform	67-66-3	7.4E-01	mg/kg	5.2E-08	mg/kg-day	3.1E-02	(mg/kg-day)-1	1.6E-09	1.8E-07	mg/kg-day	1.0E-02	mg/kg-day	1.8E-05
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	3.6E-07	mg/kg-day	--	--	--	1.3E-06	mg/kg-day	2.0E-03	mg/kg-day	6.3E-04
				Trichloroethene	79-01-6	2.2E+00	mg/kg	1.5E-07	mg/kg-day	4.6E-02	(mg/kg-day)-1	7.1E-09	5.4E-07	mg/kg-day	5.0E-04	mg/kg-day	1.1E-03
			Exposure Route Total									2.0E-07					8.8E-03
			Dermal	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	3.4E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	4.5E-08	1.2E-12	mg/kg-day	7.0E-10	mg/kg-day	1.7E-03
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	1.0E-08	mg/kg-day	3.4E-01	(mg/kg-day)-1	3.5E-09	3.6E-08	mg/kg-day	5.0E-04	mg/kg-day	7.2E-05
				Chloroform	67-66-3	7.4E-01	mg/kg	--	--	3.1E-02	(mg/kg-day)-1	--	--	--	1.0E-02	mg/kg-day	--
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	--	--	--	--	--	--	--	2.0E-03	mg/kg-day	--
				Trichloroethene	79-01-6	2.2E+00	mg/kg	--	--	4.6E-02	(mg/kg-day)-1	--	--	--	5.0E-04	mg/kg-day	--
			Exposure Route Total									4.8E-08					1.8E-03
			Inhalation	2,3,7,8-TCDD Equivalen	1746-01-6	1.9E-05	mg/kg	2.8E-10	ug/m3	3.8E+01	(ug/m3)-1	1.1E-08	9.7E-13	mg/m3	4.0E-08	mg/m3	2.4E-05
				p,p'-DDT	50-29-3	5.8E-01	mg/kg	5.2E-10	ug/m3	9.7E-05	(ug/m3)-1	5.1E-14	1.8E-12	mg/m3	--	--	--
				Chloroform	67-66-3	7.4E-01	mg/kg	8.0E-03	ug/m3	2.3E-05	--	1.8E-07	2.8E-05	mg/m3	9.8E-02	mg/m3	2.9E-04
				cis-1,2-Dichloroethylene	156-59-2	5.1E+00	mg/kg	5.8E-02	ug/m3	--	--	--	2.0E-04	mg/m3	--	--	--
				Trichloroethene	79-01-6	2.2E+00	mg/kg	2.8E-02	ug/m3	4.1E-06	(ug/m3)-1	1.1E-07	9.8E-05	mg/m3	2.0E-03	mg/m3	4.9E-02
			Exposure Route Total									3.1E-07					4.9E-02
		Exposure Point Total										5.6E-07					6.0E-02
	Exposure Medium Total											5.6E-07					6.0E-02
Medium Total												5.6E-07					6.0E-02

Surface Water	Surface Water	Surface Water	Ingestion	alpha-Chlordane	5103-71-9	1.1E-01	ug/L	1.9E-09	mg/kg-day	3.5E-01	(mg/kg-day)-1	6.8E-10	6.8E-09	mg/kg-day	5.0E-04	mg/kg-day	1.4E-05
				Dieldrin	60-57-1	2.6E-01	ug/L	4.6E-09	mg/kg-day	1.6E+01	(mg/kg-day)-1	7.3E-08	1.6E-08	mg/kg-day	5.0E-05	mg/kg-day	3.2E-04
				gamma-Chlordane	12789-03-6	9.8E-02	ug/L	1.7E-09	mg/kg-day	3.5E-01	(mg/kg-day)-1	6.0E-10	6.0E-09	mg/kg-day	5.0E-04	mg/kg-day	1.2E-05
			Exposure Route Total									7.5E-08					3.5E-04
			Dermal	alpha-Chlordane	5103-71-9	1.1E-01	ug/L	1.2E-06	mg/kg-day	3.5E-01	(mg/kg-day)-1	4.3E-07	3.0E-05	mg/kg-day	5.0E-04	mg/kg-day	6.0E-02
				Dieldrin	60-57-1	2.6E-01	ug/L	8.4E-07	mg/kg-day	1.6E+01	(mg/kg-day)-1	1.3E-05	2.1E-05	mg/kg-day	5.0E-05	mg/kg-day	4.1E-01
				gamma-Chlordane	12789-03-6	9.8E-02	ug/L	1.1E-06	mg/kg-day	3.5E-01	(mg/kg-day)-1	3.8E-07	2.7E-05	mg/kg-day	5.0E-04	mg/kg-day	5.4E-02
			Exposure Route Total									1.4E-05					5.2E-01
	Exposure Medium Total											1.4E-05					5.2E-01
Medium Total												1.4E-05					5.2E-01
Sediment	Sediment	Sediment	Ingestion	Aldrin	309-00-2	9.0E+00	ug/L	1.3E-06	mg/kg-day	1.7E+01	(mg/kg-day)-1	2.2E-05	4.5E-06	mg/kg-day	3.0E-05	mg/kg-day	1.5E-01
				alpha-Chlordane	5103-71-9	1.3E+00	ug/L	1.9E-07	mg/kg-day	3.5E-01	(mg/kg-day)-1	6.6E-08	6.6E-07	mg/kg-day	5.0E-04	mg/kg-day	1.3E-03
				Dieldrin	60-57-1	6.1E+00	ug/L	8.6E-07	mg/kg-day	1.6E+01	(mg/kg-day)-1	1.4E-05	3.0E-06	mg/kg-day	5.0E-05	mg/kg-day	6.0E-02
				gamma-Chlordane	12789-03-6	1.5E+00	ug/L	2.12E-07	mg/kg-day	3.5E-01	(mg/kg-day)-1	7.4E-08	7.4E-07	mg/kg-day	5.0E-04	mg/kg-day	1.5E-03
			Exposure Route Total									3.6E-05					2.1E-01
			Dermal	Aldrin	309-00-2	9.0E+00	ug/L	--	--	1.7E+01	(mg/kg-day)-1	--	--	--	3.0E-05	mg/kg-day	--
				alpha-Chlordane	5103-71-9	1.3E+00	ug/L	1.2E-08	mg/kg-day	3.5E-01	(mg/kg-day)-1	4.2E-09	4.2E-08	mg/kg-day	5.0E-04	mg/kg-day	8.4E-05
				Dieldrin	60-57-1	6.1E+00	ug/L	1.4E-07	mg/kg-day	1.6E+01	(mg/kg-day)-1	2.2E-06	4.8E-07	mg/kg-day	5.0E-05	mg/kg-day	9.6E-03
				gamma-Chlordane	12789-03-6	1.5E+00	ug/L	1.4E-08	mg/kg-day	3.5E-01	(mg/kg-day)-1	4.7E-09	4.7E-08	mg/kg-day	5.0E-04	mg/kg-day	9.5E-05
			Exposure Route Total									2.2E-06					9.7E-03
	Exposure Medium Total											3.8E-05					2.2E-01
Medium Total												3.8E-05					2.2E-01
Receptor Total:Surface Soil + Surface Water + Sediment											Total of Receptor Risks Across All Media	5E-05	Total of Receptor Hazards Across All Media				9E-01
Receptor Total: All Soil + Surface Water + Sediment											Total of Receptor Risks Across All Media	5E-05	Total of Receptor Hazards Across All Media				8E-01

Notes:

--	Not available or not applicable
bgs	Below ground surface
CSF	Cancer slope factor
EPA	U.S. Environmental Protection Agency
EPC	Exposure point concentration
mg/kg	Milligram per kilogram
mg/kg-day	Milligram per kilogram per day
(mg/kg-day)-1	1/(Milligram per kilogram per day)
mg/L	Milligram per liter
mg/m3	Milligram per cubic meter
RAGS	Risk Assessment Guidance for Superfund
RfC	Reference concentration
RfD	Reference dose
(ug/m3)-1	1/Microgram per cubic meter

TABLE 9.9.RME: EPA RAGS TABLE 9 - CURRENT AND FUTURE ADULT TRESSPASSER SUMMARY OF RECEPTOR RISKS AND HAZARDS - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Current/Future
Receptor Population: Adult Tresspasser
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	CAS No.	Carcinogenic Risk				Primary Target Organ(s)	Non-Carcinogenic Hazard Quotient			
					Ingestion	Dermal	Inhalation	Exposure Routes Total		Ingestion	Dermal	Inhalation	Exposure Routes Total
Surface Soil	Surface Soil, Particulates / Vapors	Surface Soil	2,3,7,8-TCDD Equivalent	1746-01-6	1.8E-07	4.5E-08	1.1E-08	2.3E-07	Reproductive, Hepatic, Endocrine, Respiratory, Hematologic, Developmental	6.8E-03	1.7E-03	2.4E-05	8.5E-03
			p,p'-DDT	50-29-3	5.4E-08	1.4E-08	2.0E-13	6.8E-08	Hepatic	1.1E-03	2.8E-04	--	1.4E-03
			Chloroform	67-66-3	1.6E-09	--	1.8E-07	1.9E-07	Hepatic	1.8E-05	--	2.9E-04	3.0E-04
			cis-1,2-Dichloroethylene	156-59-2	--	--	--	--	Urinary, Whole Body	1.5E-03	--	--	1.5E-03
			Trichloroethene	79-01-6	1.4E-08	--	2.3E-07	2.5E-07	Developmental, Cardiovascular, Immune	2.2E-03	--	9.9E-02	1.0E-01
			Chemical Total		2.5E-07	5.8E-08	4.3E-07	7.3E-07		1.2E-02	2.0E-03	1.0E-03	1.1E-01
		Exposure Point Total						7.3E-07					1.1E-01
	Surface Soil Total							7.3E-07					1.1E-01
All Soil	All Soil Particulates / Vapors	All Soil	2,3,7,8-TCDD Equivalent	1746-01-6	1.8E-07	4.5E-08	1.1E-08	2.3E-07	Reproductive, Hepatic, Endocrine, Respiratory, Hematologic, Developmental	6.8E-03	1.7E-03	2.4E-05	8.5E-03
			p,p'-DDT	50-29-3	1.4E-08	3.5E-09	5.1E-14	1.7E-08	Hepatic	2.8E-04	7.2E-05	--	3.6E-04
			Chloroform	67-66-3	1.6E-09	--	1.8E-07	1.9E-07	Hepatic	1.8E-05	--	2.9E-04	3.0E-04
			cis-1,2-Dichloroethylene	156-59-2	--	--	--	--	Urinary, Whole Body	6.3E-04	--	--	
			Trichloroethene	79-01-6	7.1E-09	--	1.1E-07	1.2E-07	Developmental, Cardiovascular, Immune	1.1E-03	--	4.9E-02	5.0E-02
			Chemical Total		2.0E-07	4.8E-08	3.1E-07	5.6E-07		8.8E-03	1.8E-03	4.9E-02	5.9E-02
		Exposure Point Total						5.6E-07					5.9E-02
	All Soil Total							5.6E-07					5.9E-02
Surface Water	Surface Water	Surface Water	alpha-Chlordane	5103-71-9	6.8E-10	4.3E-07	--	4.3E-07	Hepatic	1.4E-05	6.0E-02	--	6.0E-02
			Dieldrin	60-57-1	7.3E-08	1.3E-05	--	1.3E-05	Hepatic	3.2E-04	4.1E-01	--	4.1E-01
			gamma-Chlordane	12789-03-6	6.0E-10	3.8E-07	--	3.8E-07	Hepatic	1.2E-05	5.4E-02	--	5.4E-02
			Chemical Total		7.5E-08	1.4E-05	--	1.4E-05		3.5E-04	5.2E-01	--	5.2E-01
		Exposure Point Total						1.4E-05					5.2E-01
	Surface Water Total							1.4E-05					5.2E-01
Sediment	Sediment	Sediment	Aldrin	309-00-2	2.2E-05	--	--	2.2E-05	Hepatic	1.5E-01	--	--	1.5E-01
			alpha-Chlordane	5103-71-9	6.6E-08	4.2E-09	--	7.0E-08	Hepatic	1.3E-03	8.4E-05	--	1.4E-03
			Dieldrin	60-57-1	1.4E-05	2.2E-06	--	1.6E-05	Hepatic	6.0E-02	9.6E-03	--	7.0E-02
			gamma-Chlordane	12789-03-6	7.4E-08	4.7E-09	--	7.9E-08	Hepatic	1.5E-03	9.5E-05	--	1.6E-03
			Chemical Total		3.6E-05	2.2E-06	--	3.8E-05		2.1E-01	9.7E-03	--	2.2E-01
		Exposure Point Total						3.8E-05					2.2E-01
	Sediment							3.8E-05					2.2E-01
Receptor Total: Surface Soil + Surface Water + Sediment								5E-05					9E-01
Receptor Total: All Soil + Surface Water + Sediment								5E-05					8E-01

TABLE 10.9.RME:EPA RAGS TABLE 10 - CURRENT AND FUTURE ADULT TRESSPASSER RISK AND HAZARD SUMMARY - RME
DES MOINES TCE SITE, DES MOINES, IOWA

Scenario Timeframe: Current/Future
Receptor Population: Adult Tresspasser
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	CAS No.	Carcinogenic Risk				Primary Target Organ(s)	Non-Carcinogenic Hazard Quotient			
					Ingestion	Dermal	Inhalation	Exposure Routes Total		Ingestion	Dermal	Inhalation	Exposure Routes Total
Surface Soil	Surface Soil, Particulates / Vapors	Surface Soil	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total		--	--	--	--		--	--	--	--
		Exposure Point Total						--					--
	Surface Soil Total							0.0E+00					0.0E+00
All Soil	Subsurface Soil, Particulates / Vapors	Subsurface Soil	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total		--	--	--	--		--	--	--	--
		Exposure Point Total						--					--
	All Soil Total							0.0E+00					0.0E+00
Surface Water	Surface Water	Surface Water	Dieldrin	60-57-1	7.3E-08	1.3E-05	--	1.3E-05	Hepatic	3.2E-04	4.1E-01	--	4.1E-01
			Chemical Total		7.3E-08	1.3E-05	--	1.3E-05		3.2E-04	4.1E-01	--	4.1E-01
		Exposure Point Total						1.3E-05					4.1E-01
	Surface Water Total							1.3E-05					4.1E-01
Sediment	Sediment	Sediment	Aldrin	309-00-2	2.2E-05	--	--	2.2E-05	Hepatic	1.5E-01	--	--	1.5E-01
			Dieldrin	60-57-1	1.4E-05	2.2E-06	--	1.6E-05	Hepatic	6.0E-02	9.6E-03	--	7.0E-02
			Chemical Total		3.5E-05	2.2E-06	--	3.8E-05		2.1E-01	9.6E-03	--	2.2E-01
		Exposure Point Total						3.8E-05					2.2E-01
	Sediment							3.8E-05					2.2E-01
Receptor Total: Surface Soil + Surface Water + Sediment								5E-05					6E-01
Receptor Total: All Soil + Surface Water + Sediment								5E-05					6E-01