

**ALABAMA RISK-BASED CORRECTIVE ACTION
(ARBCA) COMPUTATIONAL SOFTWARE**

Developed to be consistent with:
**Alabama Risk-Based Corrective Action Guidance Manual
April 2008**

CONTINUE

Version 2.1-R, May 2009.

EXIT

Developed by:
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**ALABAMA RISK-BASED CORRECTIVE ACTION (ARBCA)
COMPUTATIONAL SOFTWARE**

TITLE

SITE INFORMATION

MAIN MENU

SITE No.

SITE NAME

ADDRESS

USACE OMS-28

1622 SOUTH BROAD STREET

MOBILE, ALABAMA

CONTACT NAME

TELEPHONE NO.

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MAIN MENU	
I N P U T	
RM-1 <input checked="" type="radio"/> RM-2 <input type="radio"/>	
SITE	ABBREVIATIONS
1. USER-SPECIFIED COCs & PROPERTIES (OPTIONAL)	2. SELECT COCs
3. EXPOSURE MODEL	4. TARGET RISK
5. PHYSICAL AND CHEMICAL PROPERTIES OF COCs	6. TOXICOLOGICAL PROPERTIES OF COCs
7. EXPOSURE FACTORS	8. FATE AND TRANSPORT PARAMETERS
9. PROTECTION OF GROUNDWATER USE	10. PROTECTION OF SURFACE WATER
11. SOIL & GW PROTECTIVE OF INDOOR INHALATION	12. CHEMICAL-SPECIFIC INPUTS FOR OTHER EXPOSURE PATHWAYS
13. CLEAN-UP LEVEL CALCULATION	
O U T P U T	
FORWARD MODE MENU	BACKWARD MODE MENU

FORWARD MODE MENU

MAIN MENU

I N P U T - REPRESENTATIVE CONCENTRATIONS

RESIDENT

TRESPASSER

PROTECTION OF GROUNDWATER USE

SOIL & GW PROTECTIVE OF INDOOR INHALATION

COMMERCIAL WORKER

CONSTRUCTION WORKER

PROTECTION OF SURFACE WATER

O U T P U T - CALCULATED RISK

RESIDENT CHILD

RESIDENT

TRESPASSER

RESIDENT ADULT

COMMERCIAL WORKER

CONSTRUCTION WORKER

O U T P U T - CALCULATED CONCENTRATIONS

PROTECTION OF GROUNDWATER USE

WITHOUT BIODEGRADATION

WITH BIODEGRADATION

PROTECTION OF SURFACE WATER

WITHOUT BIODEGRADATION

WITH BIODEGRADATION

**SOIL & GROUNDWATER PROTECTIVE OF INDOOR INHALATION
(Includes Horizontal Migration)**

RESIDENT - WITHOUT BIODEGRADATION

RESIDENT - WITH BIODEGRADATION

TRESPASSER - WITHOUT BIODEGRADATION

TRESPASSER - WITH BIODEGRADATION

COMMERCIAL WK. - WITHOUT BIODEGRADATION

COMMERCIAL WK. - WITH BIODEGRADATION

BACKWARD MODE MENU

MAIN MENU

OUTPUT - CLEAN-UP LEVELS

RESIDENT CHILD

RESIDENT

TRESPASSER

RESIDENT ADULT

COMMERCIAL WORKER

CONSTRUCTION WORKER

OUTPUT - ALLOWABLE CONCENTRATIONS

PROTECTION OF GROUNDWATER USE

WITHOUT BIODEGRADATION

WITH BIODEGRADATION

PROTECTION OF SURFACE WATER

WITHOUT BIODEGRADATION

WITH BIODEGRADATION

**SOIL & GROUNDWATER PROTECTIVE OF INDOOR INHALATION
(Includes Horizontal Migration)**

RESIDENT - WITHOUT BIODEGRADATION

RESIDENT - WITH BIODEGRADATION

TRESPASSER - WITHOUT BIODEGRADATION

TRESPASSER - WITH BIODEGRADATION

COMMERCIAL WK. - WITHOUT BIODEGRADATION

COMMERCIAL WK. - WITH BIODEGRADATION

SITE:

**USER-SPECIFIED CHEMICALS OF CONCERN & PROPERTIES
PHYSICAL AND CHEMICAL PROPERTIES**

Chemicals	CAS #	MCL [mg/L]	Molecular Weight (MW) [g/g-mol]	Water Solubility (S) [mg/L]	Henry's Law Constant (H) [L-water/L-air]	Org. Carbon Adsorption Coeff. (K _{oc}) [cm ³ /g]	Soil-Water Partition Coefficient (K _d) [cm ³ /g]	Molecular Diffusion Coefficient	
								in air (D ^a) [cm ² /s]	in water (D ^w) [cm ² /s]
User-Specified Chemical 1									
User-Specified Chemical 2									
User-Specified Chemical 3									
User-Specified Chemical 4									
User-Specified Chemical 5									

TOXICOLOGICAL PROPERTIES

Chemicals	Cancer Group	Slope Factor		Reference Dose		Absorption Factor		Bioconcentration Factor in Fish (BCF) [L/kg]
		Oral (SF _o) [kg-day/mg]	Inh. (SF _i) [kg-day/mg]	Oral (RfD _o) [mg/kg-day]	Inh. (RfD _i) [mg/kg-day]	Dermal (RAF _d) [--]	Oral (RAF _o) [--]	
User-Specified Chemical 1								
User-Specified Chemical 2								
User-Specified Chemical 3								
User-Specified Chemical 4								
User-Specified Chemical 5								

*Type:

V: Volatile Organic Compounds

P: Pesticides & Herbicides

S: Semi-Volatile Organic Compounds

I: Inorganics

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SELECT CHEMICALS OF CONCERN

CHEMICALS	TYPE*	CAS #
<input type="checkbox"/> Acetone	V	67-64-1
<input type="checkbox"/> Acetonitrile	V	75-05-8
<input type="checkbox"/> Acrolein	V	107-02-8
<input type="checkbox"/> Acrylonitrile	V	107-13-1
<input type="checkbox"/> Aldrin	V	309-00-2
<input type="checkbox"/> Allyl Chloride	V	107-05-1
<input type="checkbox"/> Benzene	V	71-43-2
<input type="checkbox"/> Bromodichloromethane	V	75-27-4
<input type="checkbox"/> Bromoform	V	75-25-2
<input type="checkbox"/> Bromomethane	V	74-83-9

MAIN MENU

CLEAR ALL

DONE

* V: Volatile Organic Compounds
P: Pesticides & Herbicides

S: Semi-Volatile Organic Compounds
I: Inorganics

EXPOSURE MODEL

SITE:

Source and Exposure Pathways	Resident *	Commercial Worker	Trespasser	Construction Worker **
Air				
Indoor Air	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>N/A</u>
Outdoor Air	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surficial Soil (0 to 1 ft.)				
Dermal Contact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ingestion	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Outdoor Inhalation of Vapor Emissions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outdoor Inhalation of Particulates	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
or				
Combined Pathway: Outdoor Inhalation of vapor emissions and particulates, Ingestion, and Dermal Contact	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Subsurface Soil (> 1 ft. to watertable)				
Indoor Inhalation of Vapor Emissions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>N/A</u>
Outdoor Inhalation of Vapor Emission	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>N/A</u>
Soil Vapor				
Indoor Inhalation of Vapor Emissions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>N/A</u>
Outdoor Inhalation of Vapor Emissions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Groundwater (First Encountered Zone)				
Indoor Inhalation of Vapor Emissions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>N/A</u>
Outdoor Inhalation of Vapor Emissions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ingestion	<input checked="" type="checkbox"/>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Other Exposure Pathways

Protection of Groundwater Use	<input checked="" type="checkbox"/>
Protection of Surface Water	<input type="checkbox"/>
Soil & Groundwater Protective of Indoor Inhalation	
Resident	<input type="checkbox"/>
Commercial Worker	<input type="checkbox"/>
Trespasser	<input type="checkbox"/>

* Includes calculations for child, and adult.

** For construction worker, thickness of surficial soil is from ground surface to depth of construction.

N/A Not Applicable

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SITE:

TARGET RISK

Parameter	Symbol	Default Value	Value Used	Comment
Potential Carcinogenic Health Effects				
Individual Excessive Lifetime Cancer Risk for all chemicals and all exposure pathways	TR _{cum}	1.00E-05	1.00E-05	Default Value
Potential Non-Carcinogenic Health Effects				
Hazard Index for all chemicals and all exposure pathways	HI	1.0	1.0	Default Value

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SITE:

PHYSICAL AND CHEMICAL PROPERTIES OF CHEMICALS OF CONCERN

Chemicals of Concern	Molecular Weight (MW) [g/mol]	Water Solubility (S) [mg/L]	Henry's Law Constant (H) [L-water/L-air]	Org. Carbon Adsorption Coeff. (K _{oc}) [cm ³ /g]	Soil-Water Sorption Coeff. Vadose Zone (K _{sv}) [cm ³ -water /g-soil]	Soil-Water Sorption Coeff. Saturated zone (K _{ss}) [cm ³ /g]	Molecular Diffusion Coefficient		Saturated Soil Concentration [mg/kg]
							in air (D ^a) [cm ² /s]	in water (D ^w) [cm ² /s]	
Tetrachloroethene (PCE)	1.66E+02	2.00E+02	7.50E-01	1.60E+02	3.20E-01	3.20E-01	7.20E-02	8.20E-06	9.18E+01
Trichloroethene (TCE)	1.31E+02	1.10E+03	4.20E-01	1.70E+02	3.40E-01	3.40E-01	7.90E-02	9.10E-06	4.86E+02

NA: Not Available

The values in red are calculated.

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SITE:

TOXICOLOGICAL PROPERTIES OF CHEMICALS OF CONCERN

Chemicals of Concern	Slope Factor		Reference Dose		Absorption Factor	
	Oral (SF _o)	Inh. (SF _i)	Oral (RfD _o)	Inh. (RfD _i)	Oral (RAF _o)	Dermal (RAF _d)
	[kg-day/mg]	[kg-day/mg]	[mg/kg-day]	[mg/kg-day]	[--]	[--]
Tetrachloroethene (PCE)	5.40E-01	2.10E-02	1.00E-02	1.40E-01	1	0.01
Trichloroethene (TCE)	1.30E-02	7.00E-03	6.00E-03	5.67E-03	1	0.01

NA: Not Available

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SITE:

EXPOSURE FACTORS

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Parameter	Symbol	Unit	Default Value	Value Used	Comment
Averaging Time for Carcinogen	AT _c	year	70	70	Default Value
Averaging Time for Non-Carcinogen	AT _n	year	=ED	=ED	Default Value
Body Weight:					
Resident Child	BW	kg	15	15	Default Value
Resident Adult	BW	kg	70	70	Default Value
Trespasser	BW	kg	45	45	Default Value
Commercial Worker	BW	kg	70	70	Default Value
Construction Worker	BW	kg	70	70	Default Value
Exposure Duration:					
Resident Child	ED	year	6	6	Default Value
Resident Adult	ED	year	30	30	Default Value
Trespasser	ED	year	10	10	Default Value
Commercial Worker	ED	year	25	25	Default Value
Construction Worker	ED	year	1	1	Default Value
Exposure Frequency:					
Resident Child	EF	day/year	350	350	Default Value
Resident Adult	EF	day/year	350	350	Default Value
Trespasser	EF	day/year	350	350	Default Value
Commercial Worker	EF	day/year	250	250	Default Value
Construction Worker	EF	day/year	250	250	Default Value
Soil Ingestion Rate:					
Resident Child	IRS	mg/day	200	200	Default Value
Resident Adult	IRS	mg/day	100	100	Default Value
Trespasser	IRS	mg/day	100	100	Default Value
Commercial Worker	IRS	mg/day	75	75	Default Value
Construction Worker	IRS	mg/day	177	177	Default Value
Water Ingestion Rate:					
Resident Child	IRW	L/day	1	1	Default Value
Resident Adult	IRW	L/day	2	2	Default Value
Hourly Indoor Inhalation Rate:					
Resident Child	IR _{ai}	m ³ /hr	0.5	0.500	Default Value
Resident Adult	IR _{ai}	m ³ /hr	0.833	0.833	Default Value
Trespasser	IR _{ai}	m ³ /hr	1.5	1.500	Default Value
Commercial Worker	IR _{ai}	m ³ /hr	1.5	1.500	Default Value
Construction Worker	IR _{ai}	m ³ /hr	1.5	1.500	Default Value
Exposure Time for Indoor Inhalation:					
Resident Child	ET _{in}	hr/day	24	24	Default Value
Resident Adult	ET _{in}	hr/day	24	24	Default Value
Trespasser	ET _{in}	hr/day	24	24	Default Value
Commercial Worker	ET _{in}	hr/day	10	10	Default Value
Construction Worker	ET _{in}	hr/day	10	10	Default Value
Daily Indoor Inhalation Rate:					
Resident Child	IR _{ai_d}	m ³ /day	12.0	12.0	Calculated
Resident Adult	IR _{ai_d}	m ³ /day	20.0	20.0	Calculated
Trespasser	IR _{ai_d}	m ³ /day	36.0	36.0	Calculated
Commercial Worker	IR _{ai_d}	m ³ /day	15.0	15.0	Calculated
Construction Worker	IR _{ai_d}	m ³ /day	15.0	15.0	Calculated

The values in red are calculated.

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SITE:

EXPOSURE FACTORS

(Page 2 of 2)

Parameter	Symbol	Unit	Default Value	Value Used	Comment
Hourly Outdoor Inhalation Rate:					
Resident Child	IR _{ao}	m ³ /hr	0.5	0.500	Default Value
Resident Adult	IR _{ao}	m ³ /hr	0.833	0.833	Default Value
Trespasser	IR _{ao}	m ³ /hr	1.5	1.500	Default Value
Commercial Worker	IR _{ao}	m ³ /hr	1.5	1.500	Default Value
Construction Worker	IR _{ao}	m ³ /hr	1.5	1.500	Default Value
Exposure Time for Outdoor Inhalation:					
Resident Child	ET _{out}	hr/day	10	10	Default Value
Resident Adult	ET _{out}	hr/day	10	10	Default Value
Trespasser	ET _{out}	hr/day	10	10	Default Value
Commercial Worker	ET _{out}	hr/day	10	10	Default Value
Construction Worker	ET _{out}	hr/day	10	10	Default Value
Daily Outdoor Inhalation Rate:					
Resident Child	IR _{ao_d}	m ³ /day	5.0	5.0	Calculated
Resident Adult	IR _{ao_d}	m ³ /day	8.3	8.3	Calculated
Trespasser	IR _{ao_d}	m ³ /day	15.0	15.0	Calculated
Commercial Worker	IR _{ao_d}	m ³ /day	15.0	15.0	Calculated
Construction Worker	IR _{ao_d}	m ³ /day	15.0	15.0	Calculated
Soil to Skin Adherence Factor:					
Resident Child	M	mg/cm ²	0.2	0.2	Default Value
Resident Adult	M	mg/cm ²	0.07	0.07	Default Value
Trespasser	M	mg/cm ²	0.2	0.2	Default Value
Commercial Worker	M	mg/cm ³	0.2	0.2	Default Value
Construction Worker	M	mg/cm ²	0.2	0.2	Default Value
Skin Surface Area for Dermal Contact:					
Resident Child	SA	cm ² /day	2800	2800	Default Value
Resident Adult	SA	cm ² /day	5700	5700	Default Value
Trespasser	SA	cm ² /day	5700	5700	Default Value
Commercial Worker	SA	cm ² /day	5700	5700	Default Value
Construction Worker	SA	cm ² /day	5700	5700	Default Value

The values in red are calculated.

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SITE:

FATE AND TRANSPORT PARAMETERS

Parameter	Symbol	Unit	Default Value	Value Used	Comment
SOIL PARAMETERS:					
Length of soil source area parallel to wind direction	W_a	cm	**	1500	Site-Specific Value
Depth to subsurface soil sources	L_s	cm	30.48	30.48	Default Value
Lower depth of surficial soil zone	d	cm	30.48	30.48	Default Value
Depth to soil vapor measurement	d_{sv}	cm	30.48	30.48	Default Value
VADOSE ZONE:					
Total soil porosity	θ_T	cm^3/cm^3 -soil	0.30	0.300	Default Value
Volumetric water content	θ_{ws}	cm^3/cm^3	0.10	0.10	Default Value
Volumetric air content	θ_{as}	cm^3/cm^3	0.20	0.20	Calculated
Thickness	h_v	cm	295	295	Calculated
Dry soil bulk density	ρ_s	g/cm^3	1.8	1.8	Default Value
Fractional organic carbon content	f_{oc}	$g-C/g$ -soil	0.002	0.002	Default Value
FOUNDATION/WALL CRACKS:					
Total soil porosity	θ_{Tcrack}	cm^3/cm^3 -soil	0.30	0.300	Default Value
Volumetric water content	θ_{wcrack}	cm^3/cm^3	0.10	0.10	Default Value
Volumetric air content	θ_{acrack}	cm^3/cm^3	0.20	0.20	Calculated
CAPILLARY FRINGE:					
Total soil porosity	θ_{Tcap}	cm^3/cm^3 -soil	0.30	0.300	Default Value
Volumetric water content	θ_{wcap}	cm^3/cm^3	0.27	0.27	Calculated
Volumetric air content	θ_{acap}	cm^3/cm^3	0.03	0.03	Calculated
Thickness	h_{cap}	cm	5	5	Default Value
GROUNDWATER PARAMETERS:					
Depth to groundwater	L_{gw}	cm	300	300	Default Value
Width of GW source perpendicular to GW flow direction	Y	cm	**	1500	Site-Specific Value
Length of GW source parallel to GW flow direction	W	cm	**	1500	Site-Specific Value
Total soil porosity in the saturated zone	θ_{TS}	cm^3/cm^3	0.30	0.30	Default Value
Dry soil bulk density in the saturated zone	ρ_{ss}	g/cm^3	1.8	1.8	Default Value
Fractional organic carbon content in the saturated zone	f_{ocs}	$g-C/g$ -soil	0.002	0.002	Default Value
Groundwater mixing zone thickness	δ_{gw}	cm	200	200	Default Value
Hydraulic conductivity in the saturated zone	K	cm/year	31536	31536	Default Value
Hydraulic gradient in the saturated zone	i	cm/cm	0.005	0.005	Default Value
Groundwater darcy velocity	U_{gw}	cm/year	157.68	157.68	Calculated
Infiltration rate	I	cm/year	14.8	14.8	Default Value
AMBIENT AIR PARAMETERS:					
Breathing zone height	δ_a	cm	200	200	Default Value
Wind speed within the breathing zone	U_a	cm/s	225	225	Default Value
ENCLOSED SPACE PARAMETERS:					
Enclosed Space Air Exchange Rate:					
Residential	ER	1/sec	0.00014	0.00014	Default Value
Trespasser	ER	1/sec	0.00014	0.00014	Default Value
Commercial/construction worker	ER	1/sec	0.00023	0.00023	Default Value
Enclosed Space Volume/Infiltration Area Ratio:					
Residential	L_B	cm	200	200	Default Value
Trespasser	L_B	cm	200	200	Default Value
Commercial/construction worker	L_B	cm	300	609.6	Site-Specific Value
Enclosed Space Foundation or Wall Thickness:					
Residential	L_{crack}	cm	15	15	Default Value
Trespasser	L_{crack}	cm	15	15	Default Value
Commercial/construction worker	L_{crack}	cm	15	15	Default Value
Area Fraction of Cracks in Foundation/Walls:					
Residential	η	cm^2/cm^2	0.01	0.01	Default Value
Trespasser	η	cm^2/cm^2	0.01	0.01	Default Value
Commercial/construction worker	η	cm^2/cm^2	0.01	0.01	Default Value
PARTICULATE EMISSION RATE:					
Residential and commercial	P_e	g/cm^2 sec	6.90E-14	6.90E-14	Default Value
Trespasser	P_e	g/cm^2 sec	6.90E-09	6.90E-09	Default Value
Construction worker	P_e	g/cm^2 sec	6.90E-09	6.90E-09	Default Value
AVERAGING TIME FOR VAPOR FLUX:					
Resident child	τ	sec	1.89E+08	1.89E+08	Calculated
Resident adult	τ	sec	9.46E+08	9.46E+08	Calculated
Trespasser	τ	sec	3.15E+08	3.15E+08	Calculated
Commercial worker	τ	sec	7.88E+08	7.88E+08	Calculated
Construction worker	τ	sec	3.15E+07	3.15E+07	Calculated

** : The source area (assumed to be square) should be classified as either (i) small (270 yd) = (1500 cm X 1500 cm), (ii) medium (1/2 acre) = (4,498 cm X 4,498 cm), or (iii) large (1 acre) = (6,362 cm X 6,362 cm)

The values in red are calculated.

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SITE:

PROTECTION OF GROUNDWATER USE

Parameter	Symbol	Unit	Default Value	Value Used	Comment
Distance from the Downgradient Edge of the Groundwater Source to the Point of Exposure	X_{poe}	ft	variable	1000	Site-specific
Longitudinal Dispersivity	α_x	ft	variable	100.000	Calculated
Transverse Dispersivity	α_y	ft	variable	33.333	Calculated
Vertical Dispersivity	α_z	ft	variable	5.000	Calculated
Distance from the Downgradient Edge of the Groundwater Source to the Point of Compliance	X_{poc}	ft	variable	1000	Site-specific
Longitudinal Dispersivity	α_x	ft	variable	100.000	Calculated
Transverse Dispersivity	α_y	ft	variable	33.333	Calculated
Vertical Dispersivity	α_z	ft	variable	5.000	Calculated

Enter additional chemical-specific values on the "Chemical-Specific Inputs for Other Exposure Pathways" table.

The values in red are calculated.

This software evaluates the groundwater protection pathway using the Domenico Model. For sites in geologic environments not suited for the Domenico Model (such as karst or fractured flow regimes), an alternative more appropriate model or modeling pack should be used.

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SITE:

PROTECTION OF SURFACE WATER

Parameter	Symbol	Unit	Value Used	Comment
Concentration protective of surface water (Allowable stream concentration at the downstream edge of the stream's mixing zone or at point of discharge if mixing zone is not used)	C_{sw}	mg/L	Chemical-specific ¹	Refer to Guidance Document
Average minimum flow of stream for seven consecutive days that has a probable recurrence interval of once-in-ten years	7Q10	ft ³ /sec		Site-specific
7Q10 either is a user-input above, or if left blank above, is calculated as per equation D-4.9 in Appendix D of the guidance document assuming that weighting is not necessary.				
Average minimum flow of stream for seven consecutive days that has a probable recurrence interval of once-in-ten years	7Q10	ft ³ /sec	Enter Data	Calculated
Stream flow recession index	G	--		Site-specific
Contributing drainage area	A	miles ²		Site-specific
Mean annual precipitation	P	inches		Site-specific
Stream flow rate	Q_{sw}	ft ³ /day	0.00	Calculated
Impacted groundwater discharge into the stream	Q_{gw}	ft ³ /day	35.87	Calculated
Cross-sectional area of the impacted groundwater flow	A_{gw}	ft ²	2530.88	Calculated
Width of the groundwater plume discharging into the stream	L_p	ft		Site-specific
<u>L_p either is a user-input above, or if left blank above, is calculated as per equation D-4.5 in Appendix D of the guidance document.</u>				
Width of the groundwater plume discharging into the stream	L_p	ft	122.24	Calculated
Thickness of the groundwater plume discharging into the stream	D_p	ft	20.70	Calculated
Concentration upstream of the point of groundwater discharge into the stream	C_{su}	mg/L	Chemical-specific ¹	Site-specific
Distance from the downgradient edge of the groundwater source to the stream	X_s	ft	200.00	Site-specific
Longitudinal dispersivity	α_x	ft	20.00	Calculated
Transverse dispersivity	α_y	ft	6.67	Calculated
Vertical dispersivity	α_z	ft	1.00	Calculated
Distance from the downgradient edge of the groundwater source to the point of compliance	X_{spoc}	ft	60.00	Site-specific
Longitudinal dispersivity	α_x	ft	6.00	Calculated
Transverse dispersivity	α_y	ft	2.00	Calculated
Vertical dispersivity	α_z	ft	0.30	Calculated

¹: Enter the chemical-specific values on the "Chemical-Specific Inputs for Other Exposure Pathways" input table.

The values in red are calculated.

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SITE:

SOIL & GROUNDWATER PROTECTIVE OF INDOOR INHALATION

Parameter	Symbol	Unit	Default Value	Value Used	Comment
Resident					
Distance from the Downgradient Edge of the Groundwater Source to the On/Off-site Building	X_{bld}	ft	variable	1000	Site-specific
Longitudinal Dispersivity	α_x	ft	variable	100.000	Calculated
Transverse Dispersivity	α_y	ft	variable	33.333	Calculated
Vertical Dispersivity	α_z	ft	variable	5.000	Calculated
Distance from the Downgradient Edge of the Groundwater Source to the Point of Compliance (Sentry Well)	X_{poc}	ft	variable	1000	Site-specific
Longitudinal Dispersivity	α_x	ft	variable	100.000	Calculated
Transverse Dispersivity	α_y	ft	variable	33.333	Calculated
Vertical Dispersivity	α_z	ft	variable	5.000	Calculated
Commercial Worker					
Distance from the Downgradient Edge of the Groundwater Source to the On/Off-site Building	X_{bld}	ft	variable	1000	Site-specific
Longitudinal Dispersivity	α_x	ft	variable	100.000	Calculated
Transverse Dispersivity	α_y	ft	variable	33.333	Calculated
Vertical Dispersivity	α_z	ft	variable	5.000	Calculated
Distance from the Downgradient Edge of the Groundwater Source to the Point of Compliance (Sentry Well)	X_{poc}	ft	variable	1000	Site-specific
Longitudinal Dispersivity	α_x	ft	variable	100.000	Calculated
Transverse Dispersivity	α_y	ft	variable	33.333	Calculated
Vertical Dispersivity	α_z	ft	variable	5.000	Calculated
Trespasser					
Distance from the Downgradient Edge of the Groundwater Source to the On/Off-site Building	X_{bld}	ft	variable	1000	Site-specific
Longitudinal Dispersivity	α_x	ft	variable	100.000	Calculated
Transverse Dispersivity	α_y	ft	variable	33.333	Calculated
Vertical Dispersivity	α_z	ft	variable	5.000	Calculated
Distance from the Downgradient Edge of the Groundwater Source to the Point of Compliance (Sentry Well)	X_{poc}	ft	variable	1000	Site-specific
Longitudinal Dispersivity	α_x	ft	variable	100.000	Calculated
Transverse Dispersivity	α_y	ft	variable	33.333	Calculated
Vertical Dispersivity	α_z	ft	variable	5.000	Calculated

Enter additional chemical-specific values on the "Chemical-Specific Inputs for Other Exposure Pathways" table.

The values in red are calculated.

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SITE:

CHEMICAL-SPECIFIC INPUTS FOR OTHER EXPOSURE PATHWAYS

Chemicals of Concern	MCL [mg/L]	Unsaturated Zone DAF			Half-Life [days]	Concentration Upstream of the Point of Discharge (C _{su}) [mg/L]	Bioconcentration Factor in Fish (BCF) [L/kg]	Concentration Protective of Surface Water (C _{sw})			
		Default Value [--]	Value Used [--]	Comment				Default Value ¹ [mg/L]	User-Specified Value [mg/L]	Value Used [mg/L]	Comment
<input type="checkbox"/> Tetrachloroethene (PCE)	0.005	1.00E+00	1	Default		30.60	6.03E-03		6.03E-03	Default	
<input checked="" type="checkbox"/> Trichloroethene (TCE)	0.005	1.00E+00	1	Default		10.60	2.40E-02		2.40E-02	Default	

¹: The default concentration protective of surface water at the downstream edge of the mixing zone or at point of discharge is calculated based on consumption of water and fish.

NA: Not Available

NTOX: Default value for C_{sw} cannot be calculated since toxicological properties for the COC is not available.

MCL: Maximum Contaminant Levels

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SITE:

CLEAN-UP LEVEL CALCULATION

When the cumulative risk criteria has to be satisfied clean-up levels are not unique. Several different combinations of clean-up levels can satisfy the cumulative risk criteria. Following are two of the many options available:

- Option 1** - Reduce each of the representative concentrations by the risk reduction factor. Risk reduction factor is the ratio of the calculated site-wide risk to the target cumulative risk.
- Option 2** - Each of the representative concentration is reduced by a factor such that the risk from each COC and each ROE is identical.

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SITE:

ABBREVIATIONS

Parameter	
HI	Hazard Index (sum of hazard quotient)
HQ	Hazard Quotient
IELCR	Individual Excess Lifetime Cancer Risk
M	The concentration is MCL.
N/A	The soil concentration at the source is not applicable since the groundwater concentration has been entered/selected.
NA	Volatilization factor was not calculated due to lack of Henry's law constant
NC	Pathway is not complete.
NCL	The clean-up level is not calculated since the target risk is not exceeded.
NCOG	The risk/clean-up level cannot be calculated since the chemical of concern is not selected/entered.
NCsw	The concentrations cannot be calculated since the conc. protective of surface water (Csw) is not available/entered.
NHL	The DAF/concentration cannot be calculated since the half-life for the COC is not available/entered.
NMZ	No mixing zone
NPCP	The risk/concentration cannot be calculated since the physical and chemical properties for the COC is not available.
NREP	The risk cannot be calculated since the representative concentration is not available/entered.
NTOX	The risk/concentration cannot be calculated since the toxicological properties for the COC is not available.
RM	Risk Management
--	The clean-up level/concentration cannot be calculated for this COC since the input properties is not available/entered.
*	Calculated concentration exceeded saturated soil concentration. Calculated value is shown.
+	Calculated concentration exceeded saturated vapor concentration. Calculated value is shown.
#	Calculated concentration exceeded solubility. Calculated value is shown.
>1E+300	When DAF is greater then >1+300, the concentrations shown is saturated soil concentration for soil and/or solubility for groundwater.

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SITE:

REPRESENTATIVE CONCENTRATION FOR A RESIDENT

CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER		
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion
	[mg/m ³ -air]		[mg/kg]							[mg/m ³]		[mg/L]		
Tetrachloroethene (PCE)	NA	NA	9.33E-01	9.33E-01	NA	9.33E-01	NA	NA	NA	NA	NA	NA	NA	2.34E-01
Trichloroethene (TCE)	NA	NA	5.86E-01	5.86E-01	NA	5.86E-01	NA	NA	NA	NA	NA	NA	NA	1.62E-01

Soil concentrations are presented on a dry weight basis.

NA: Not Available

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SITE:

REPRESENTATIVE CONCENTRATION FOR A COMMERCIAL WORKER

CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER	
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
	[mg/m ³ -air]		[mg/kg]					[mg/m ³]		[mg/L]			
Tetrachloroethene (PCE)	NA	NA	9.33E-01	9.33E-01	NA	9.33E-01	NA	NA	NA	NA	NA	NA	NA
Trichloroethene (TCE)	NA	NA	5.86E-01	5.86E-01	NA	5.86E-01	NA	NA	NA	NA	NA	NA	NA

Soil concentrations are presented on a dry weight basis.

NA: Not Available

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SITE:

REPRESENTATIVE CONCENTRATION FOR A TRESPASSER

CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER	
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
	[mg/m ³ -air]		[mg/kg]					[mg/m ³]		[mg/L]			
Tetrachloroethene (PCE)	NA	NA	9.33E-01	9.33E-01	NA	9.33E-01	NA	NA	NA	NA	NA	NA	NA
Trichloroethene (TCE)	NA	NA	5.86E-01	5.86E-01	NA	5.86E-01	NA	NA	NA	NA	NA	NA	NA

Soil concentrations are presented on a dry weight basis.

NA: Not Available

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SITE:

REPRESENTATIVE CONCENTRATION FOR A CONSTRUCTION WORKER

CHEMICALS OF CONCERN	AIR	SOIL UPTO DEPTH OF CONSTRUCTION					SOIL VAPOR	GROUNDWATER
	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
	[mg/m ³ -air]	[mg/kg]					[mg/m ³]	[mg/L]
Tetrachloroethene (PCE)	NA	9.33E-01	9.33E-01	NA	9.33E-01	NA	NA	NA
Trichloroethene (TCE)	NA	5.86E-01	5.86E-01	NA	5.86E-01	NA	NA	NA

Soil concentrations are presented on a dry weight basis.

NA: Not Available

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SITE:

**REPRESENTATIVE CONCENTRATION FOR
PROTECTION OF GROUNDWATER USE**

CHEMICALS OF CONCERN	SOURCE CONCENTRATIONS	
	Soil ●	Groundwater ○
	[mg/kg]	[mg/L]
Tetrachloroethene (PCE)	9.33E-01	
Trichloroethene (TCE)	5.86E-01	

Soil concentrations are presented on a dry weight basis by Melissa Montgomery of Thompson Engineering, Inc.

SITE:

**REPRESENTATIVE CONCENTRATION FOR
PROTECTION OF SURFACE WATER**

CHEMICALS OF CONCERN	SOURCE CONCENTRATIONS	
	Soil ●	Groundwater ○
	[mg/kg]	[mg/L]
Tetrachloroethene (PCE)	9.33E-01	
Trichloroethene (TCE)	5.86E-01	

Soil concentrations are presented on a dry weight basis by Melissa Montgomery of Thompson Engineering, Inc.

SITE:

REPRESENTATIVE CONCENTRATION FOR SOIL & GROUNDWATER PROTECTIVE OF INDOOR INHALATION

CHEMICALS OF CONCERN	SOURCE CONC. FOR RESIDENT		SOURCE CONC. FOR COMMERCIAL WK.		SOURCE CONC. FOR TRESPASSER.	
	Soil ○	Groundwater●	Soil ●	Groundwater○	Soil ●	Groundwater○
	[mg/kg]	[mg/L]	[mg/kg]	[mg/L]	[mg/kg]	[mg/L]
Tetrachloroethene (PCE)		2.34E-01	9.33E-01		9.33E-01	
Trichloroethene (TCE)		1.62E-01	5.86E-01		5.86E-01	

Soil concentrations are presented on a dry weight basis.

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SITE:

RM-1 CARCINOGENIC CLEAN-UP LEVELS FOR A RESIDENT CHILD

CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER		
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion
	[mg/m ³ -air]		[mg/kg]					[mg/m ³ -air]		[mg/L]				
Tetrachloroethene (PCE)	NC	NC	1.32E-02	1.32E-02	NC	1.32E-02	NC	NC	NC	NC	NC	NC	NC	3.32E-03
Trichloroethene (TCE)	NC	NC	8.32E-03	8.32E-03	NC	8.32E-03	NC	NC	NC	NC	NC	NC	NC	2.30E-03

AIR		
Indoor	Outdoor	Dermal Contact
[mg/m ³ -air]		
NC	NC	2.89E-01
NC	NC	1.82E-01

Soil concentrations are presented on a dry weight basis.

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SITE:

RM-1 NON-CARCINOGENIC CLEAN-UP LEVELS FOR A RESIDENT CHILD

CHEMICALS OF CONCERN	SURFICIAL SOIL				SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER		
	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion
	[mg/kg]				[mg/m ³ -air]		[mg/L]				
Tetrachloroethene (PCE)	2.89E-01	NC	2.89E-01	NC	NC	NC	NC	NC	NC	NC	7.26E-02
Trichloroethene (TCE)	1.82E-01	NC	1.82E-01	NC	NC	NC	NC	NC	NC	NC	5.02E-02

AIR		SURFICIAL SOIL		
Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions
[mg/m ³ -air]				
NC	NC	1.32E-02	1.32E-02	NC
NC	NC	8.32E-03	8.32E-03	NC

Soil concentrations are presented on a c

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SITE:

RM-1 CLEAN-UP LEVELS FOR A RESIDENT CHILD

CHEMICALS OF CONCERN	L		SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER		
	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion
	[mg/kg]				[mg/m ³]		[mg/L]		
Tetrachloroethene (PCE)	1.32E-02	NC	NC	NC	NC	NC	NC	NC	3.32E-03
Trichloroethene (TCE)	8.32E-03	NC	NC	NC	NC	NC	NC	NC	2.30E-03

Soil concentrations are presented on a c

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SITE:

RM-1 IELCR FOR A RESIDENT CHILD

CUMULATIVE IELCR	7.04E-04		AIR		SURFICIAL SOIL				SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER			
	CUMULATIVE HI	3.22E+00	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion
CHEMICALS OF CONCERN																
Tetrachloroethene (PCE)	NC	NC	1.55E-08	5.52E-07	NC	1.23E-15	NC	NC	NC	NC	NC	NC	NC	NC	NC	6.92E-04
Trichloroethene (TCE)	NC	NC	2.34E-10	8.35E-09	NC	2.58E-16	NC	NC	NC	NC	NC	NC	NC	NC	NC	1.15E-05
CUMULATIVE RISK																

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SITE:

RM-1 HQ FOR A RESIDENT CHILD

CUMULATIVE IELCR	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER		
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion
7.04E-04														
CUMULATIVE HI	3.22E+00													
CHEMICALS OF CONCERN														
Tetrachloroethene (PCE)	NC	NC	3.34E-05	1.19E-03	NC	4.90E-12	NC	NC	NC	NC	NC	NC	NC	1.50E+00
Trichloroethene (TCE)	NC	NC	3.50E-05	1.25E-03	NC	7.60E-11	NC	NC	NC	NC	NC	NC	NC	1.73E+00
CUMULATIVE RISK														

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SITE:

RM-1 CUMULATIVE RISK FOR A RESIDENT CHILD

CUMULATIVE IELCR	7.04E-04	SUM OF IELCR	SUM OF HQ (HI)
CUMULATIVE HI	3.22E+00		
CHEMICALS OF CONCERN			
Tetrachloroethene (PCE)		6.93E-04	1.50E+00
Trichloroethene (TCE)		1.15E-05	1.73E+00
CUMULATIVE RISK		7.04E-04	3.22E+00

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SITE:

RM-1 CLEAN-UP LEVELS FOR A RESIDENT ADULT

CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER		
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion
	[mg/m ³ -air]		[mg/kg]							[mg/m ³]		[mg/L]		
Tetrachloroethene (PCE)	NC	NC	6.18E-03	6.18E-03	NC	6.18E-03	NC	NC	NC	NC	NC	NC	NC	1.55E-03
Trichloroethene (TCE)	NC	NC	3.88E-03	3.88E-03	NC	3.88E-03	NC	NC	NC	NC	NC	NC	NC	1.07E-03

Soil concentrations are presented on a dry weight basis.

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SITE:

RM-1 IELCR FOR A RESIDENT ADULT

CUMULATIVE IELCR	1.51E-03		AIR		SURFICIAL SOIL			SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	CUMULATIVE HI	1.38E+00	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion
CHEMICALS OF CONCERN																
Tetrachloroethene (PCE)			NC	NC	1.18E-08	2.96E-07	NC	2.20E-15	NC	NC	NC	NC	NC	NC	NC	1.48E-03
Trichloroethene (TCE)			NC	NC	1.78E-10	4.47E-09	NC	4.61E-16	NC	NC	NC	NC	NC	NC	NC	2.47E-05
CUMULATIVE RISK																

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SITE:

RM-1 HQ FOR A RESIDENT ADULT

CUMULATIVE IELCR	1.51E-03		AIR		SURFICIAL SOIL			SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	CUMULATIVE HI	1.38E+00	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion
CHEMICALS OF CONCERN																
Tetrachloroethene (PCE)			NC	NC	5.10E-06	1.28E-04	NC	1.75E-12	NC	NC	NC	NC	NC	NC	NC	6.41E-01
Trichloroethene (TCE)			NC	NC	5.34E-06	1.34E-04	NC	2.71E-11	NC	NC	NC	NC	NC	NC	NC	7.40E-01
CUMULATIVE RISK																

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SITE:

RM-1 CUMULATIVE RISK FOR A RESIDENT ADULT

CUMULATIVE IELCR		SUM OF IELCR	SUM OF HQ (HI)
CUMULATIVE HI	1.38E+00		
CHEMICALS OF CONCERN			
Tetrachloroethene (PCE)		1.48E-03	6.41E-01
Trichloroethene (TCE)		2.47E-05	7.40E-01
CUMULATIVE RISK		1.51E-03	1.38E+00

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SITE:

RM-1 CLEAN-UP LEVELS FOR A RESIDENT

CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER		
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion
	[mg/m ³ -air]		[mg/kg]					[mg/m ³]		[mg/L]				
Tetrachloroethene (PCE)	NC	NC	6.18E-03	6.18E-03	NC	6.18E-03	NC	NC	NC	NC	NC	NC	NC	1.55E-03
Trichloroethene (TCE)	NC	NC	3.88E-03	3.88E-03	NC	3.88E-03	NC	NC	NC	NC	NC	NC	NC	1.07E-03

Soil concentrations are presented on a dry weight basis.

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SITE:

RM-1 IELCR FOR A RESIDENT

CUMULATIVE IELCR	AIR		SURFICIAL SOIL				SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER			
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion
1.51E-03														
CUMULATIVE HI	3.22E+00													
CHEMICALS OF CONCERN														
Tetrachloroethene (PCE)	NC	NC	1.55E-08	5.52E-07	NC	2.20E-15	NC	NC	NC	NC	NC	NC	NC	1.48E-03
Trichloroethene (TCE)	NC	NC	2.34E-10	8.35E-09	NC	4.61E-16	NC	NC	NC	NC	NC	NC	NC	2.47E-05
CUMULATIVE RISK														

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SITE:

RM-1 HQ FOR A RESIDENT

CUMULATIVE IELCR	1.51E-03		AIR		SURFICIAL SOIL			SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	CUMULATIVE HI	3.22E+00	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion
CHEMICALS OF CONCERN																
Tetrachloroethene (PCE)			NC	NC	3.34E-05	1.19E-03	NC	4.90E-12	NC	NC	NC	NC	NC	NC	NC	1.50E+00
Trichloroethene (TCE)			NC	NC	3.50E-05	1.25E-03	NC	7.60E-11	NC	NC	NC	NC	NC	NC	NC	1.73E+00
CUMULATIVE RISK																

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SITE:

CUMULATIVE IFLCR	1.51E-03
CUMULATIVE HI	3.22E+00
CHEMICALS OF CONCERN	
Tetrachloroethene (PCE)	
Trichloroethene (TCE)	
CUMULATIVE RISK	

SITE:

RM-1 CUMULATIVE RISK FOR A RESIDENT

		SUM OF IELCR	SUM OF HQ (HI)
CUMULATIVE IELCR	1.51E-03		
CUMULATIVE HI	3.22E+00		
CHEMICALS OF CONCERN			
Tetrachloroethene (PCE)		1.48E-03	1.50E+00
Trichloroethene (TCE)		2.47E-05	1.73E+00
CUMULATIVE RISK	1.51E-03		3.22E+00

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SITE:

RM-1 CARCINOGENIC CLEAN-UP LEVELS FOR A COMMERCIAL WORKER

RM-1 NON-CAR

CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER	
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
	[mg/m ³ -air]		[mg/kg]					[mg/m ³ -air]		[mg/L]			
Tetrachloroethene (PCE)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL
Trichloroethene (TCE)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL

AIR		S	
Indoor	Outdoor	Dermal Contact	Ingestion
[mg/m ³ -air]			
NCL	NCL	NCL	NCL
NCL	NCL	NCL	NCL

Soil concentrations are presented on a dry weight basis.

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SITE:

GENOTOXIC CLEAN-UP LEVELS FOR A COMMERCIAL WORKER

RM-1 CLEAN-UP LEVELS

CHEMICALS OF CONCERN	SURFICIAL SOIL			SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER	
	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
	[mg/kg]					[mg/m ³ -air]		[mg/L]	
Tetrachloroethene (PCE)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL
Trichloroethene (TCE)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL

AIR		SURFICIAL SOIL			
Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates
[mg/m ³ -air]		[mg/kg]			
NCL	NCL	NCL	NCL	NCL	NCL
NCL	NCL	NCL	NCL	NCL	NCL

Soil concentrations are presented on a

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SITE: /ELS FOR A COMMERCIAL WORKER

CHEMICALS OF CONCERN	SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER		
	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
			[mg/m ³]		[mg/L]		
Tetrachloroethene (PCE)	NCL	NCL	NCL	NCL	NCL	NCL	NCL
Trichloroethene (TCE)	NCL	NCL	NCL	NCL	NCL	NCL	NCL

Soil concentrations are presented on a

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SITE:

RM-1 IELCR FOR A COMMERCIAL WORKER

<table border="1"> <tr> <td>CUMULATIVE IELCR</td> <td>1.54E-07</td> </tr> <tr> <td>CUMULATIVE HI</td> <td>1.61E-04</td> </tr> <tr> <td colspan="2">CHEMICALS OF CONCERN</td> </tr> </table>	CUMULATIVE IELCR	1.54E-07	CUMULATIVE HI	1.61E-04	CHEMICALS OF CONCERN		AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER	
	CUMULATIVE IELCR	1.54E-07																	
CUMULATIVE HI	1.61E-04																		
CHEMICALS OF CONCERN																			
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions						
Tetrachloroethene (PCE)	NC	NC	2.01E-08	1.32E-07	NC	2.36E-15	NC	NC	NC	NC	NC	NC	NC						
Trichloroethene (TCE)	NC	NC	3.03E-10	2.00E-09	NC	4.95E-16	NC	NC	NC	NC	NC	NC	NC						
CUMULATIVE RISK																			

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SITE:

RM-1 HQ FOR A COMMERCIAL WORKER

CUMULATIVE IEL CR	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER	
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
1.54E-07													
CUMULATIVE HI	1.61E-04												
CHEMICALS OF CONCERN													
Tetrachloroethene (PCE)	NC	NC	1.04E-05	6.85E-05	NC	2.25E-12	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	1.09E-05	7.17E-05	NC	3.49E-11	NC	NC	NC	NC	NC	NC	NC
CUMULATIVE RISK													

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SITE:

RM-1 CUMULATIVE RISK FOR A COMMERCIAL WORKER

CUMULATIVE IELCR	1.54E-07	SUM OF IELCR	SUM OF HQ (HI)
CUMULATIVE HI	1.61E-04		
CHEMICALS OF CONCERN			
Tetrachloroethene (PCE)		1.52E-07	7.89E-05
Trichloroethene (TCE)		2.30E-09	8.26E-05
CUMULATIVE RISK		1.54E-07	1.61E-04

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SITE:

RM-1 CLEAN-UP LEVELS FOR A TRESPASSER

CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER	
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
	[mg/m ³ -air]		[mg/kg]							[mg/m ³]		[mg/L]	
Tetrachloroethene (PCE)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL
Trichloroethene (TCE)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL

Soil concentrations are presented on a dry weight basis.

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SITE:

RM-1 IELCR FOR A TRESPASSER

CUMULATIVE IELCR	1.74E-07		AIR		SURFICIAL SOIL				SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER		
	CUMULATIVE HI	4.61E-04	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
CHEMICALS OF CONCERN															
Tetrachloroethene (PCE)	NC	NC	1.75E-08	1.53E-07	NC	2.06E-10	NC	NC	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	2.64E-10	2.32E-09	NC	4.31E-11	NC	NC	NC	NC	NC	NC	NC	NC	NC
CUMULATIVE RISK															

For exclusive use by Melissa Montgomery of Thompson Engineering, Inc.

SITE:

RM-1 HQ FOR A TRESPASSER

CUMULATIVE IELCR	AIR		SURFICIAL SOIL				SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER		
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
CUMULATIVE HI	4.61E-04												
CHEMICALS OF CONCERN													
Tetrachloroethene (PCE)	NC	NC	2.27E-05	1.99E-04	NC	4.90E-07	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	2.37E-05	2.08E-04	NC	7.60E-06	NC	NC	NC	NC	NC	NC	NC
CUMULATIVE RISK													

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SITE:

RM-1 CUMULATIVE RISK FOR A TRESPASSER

CUMULATIVE IELCR	1.74E-07	SUM OF IELCR	SUM OF HQ (HI)
CUMULATIVE HI	4.61E-04		
CHEMICALS OF CONCERN			
Tetrachloroethene (PCE)		1.71E-07	2.22E-04
Trichloroethene (TCE)		2.63E-09	2.39E-04
CUMULATIVE RISK		1.74E-07	4.61E-04

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SITE:

RM-1 CLEAN-UP LEVELS FOR A CONSTRUCTION WORKER

CHEMICALS OF CONCERN	AIR	SOIL UPTO DEPTH OF CONSTRUCTION					SOIL VAPOR	GROUNDWATER
	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
	[mg/m ³ -air]	[mg/kg]					[mg/m ³]	[mg/L]
Tetrachloroethene (PCE)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL
Trichloroethene (TCE)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL

Soil concentrations are presented on a dry weight basis.

For exclusive use by Melissa Montgomery of Thompson Engineering, Inc.

SITE:

RM-1 IELCR FOR A CONSTRUCTION WORKER

CUMULATIVE IELCR	1.35E-08	AIR	SOIL UPTO DEPTH OF CONSTRUCTION				SOIL VAPOR	GROUNDWATER
		Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Outdoor Inhalation of Vapor Emissions
CUMULATIVE HI	3.56E-04							
CHEMICALS OF CONCERN								
Tetrachloroethene (PCE)		NC	8.03E-10	1.25E-08	NC	9.45E-12	NC	NC
Trichloroethene (TCE)		NC	1.21E-11	1.88E-10	NC	1.98E-12	NC	NC
CUMULATIVE RISK								

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SITE:

RM-1 HQ FOR A CONSTRUCTION WORKER

CUMULATIVE IELCR	1.35E-08	AIR	SOIL UPTO DEPTH OF CONSTRUCTION				SOIL VAPOR	GROUNDWATER
		Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Outdoor Inhalation of Vapor Emissions
CUMULATIVE HI	3.56E-04							
CHEMICALS OF CONCERN								
Tetrachloroethene (PCE)		NC	1.04E-05	1.62E-04	NC	2.25E-07	NC	NC
Trichloroethene (TCE)		NC	1.09E-05	1.69E-04	NC	3.49E-06	NC	NC
CUMULATIVE RISK								

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SITE:

RM-1 CUMULATIVE RISK FOR A CONSTRUCTION WORKER

CUMULATIVE IELCR	1.35E-08	SUM OF IELCR	SUM OF HQ (HI)
CUMULATIVE HI	3.56E-04		
CHEMICALS OF CONCERN			
Tetrachloroethene (PCE)		1.33E-08	1.72E-04
Trichloroethene (TCE)		2.03E-10	1.84E-04
CUMULATIVE RISK		1.35E-08	3.56E-04

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SITE:

PROTECTION OF GROUNDWATER USE - WITHOUT BIODEGRADATION

CHEMICALS OF CONCERN	DILUTION ATTENUATION FACTORS			ALLOWABLE CONCENTRATION AT			
	Unsaturated Zone	Point of Compliance (Sentry Well)	Point of Exposure	Soil Source	Groundwater Source	Point of Compliance (Sentry Well)	Point of Exposure
	[--]	[--]	[--]	[mg/kg]	[mg/L]	[mg/L]	[mg/L]
Tetrachloroethene (PCE)	1.00E+00	2.52E+02	2.52E+02	1.40E+00	1.26E+00	5.00E-03	5.00E-03 M
Trichloroethene (TCE)	1.00E+00	2.52E+02	2.52E+02	1.35E+00	1.26E+00	5.00E-03	5.00E-03 M

Soil concentrations are presented on a dry weight basis.

For exclusive use by Melissa Montgomery of Thompson Engineering, Inc.

SITE:

PROTECTION OF GROUNDWATER USE - WITH BIODEGRADATION

CHEMICALS OF CONCERN	HALF-LIFE [days]	DILUTION ATTENUATION FACTOR			ALLOWABLE CONCENTRATION AT			
		Unsaturated zone [--]	Point of Compliance (Sentry Well) [--]	Point of Exposure [--]	Soil Source [mg/kg]	Groundwater Source [mg/L]	Point of Compliance (Sentry Well) [mg/L]	Point of Exposure [mg/L]
Tetrachloroethene (PCE)		1.00E+00	NHL	NHL	NHL	NHL	NHL	5.00E-03 M
Trichloroethene (TCE)		1.00E+00	NHL	NHL	NHL	NHL	NHL	5.00E-03 M

Soil concentrations are presented on a dry weight basis.

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SITE:

PROTECTION OF GROUNDWATER USE - WITHOUT BIODEGRADATION

CHEMICALS OF CONCERN	DILUTION ATTENUATION FACTORS			CONCENTRATION AT			
	Unsaturated Zone	Point of Compliance (Sentry Well)	Point of Exposure	Soil Source	Groundwater Source	Point of Compliance (Sentry Well)	Point of Exposure
	[--]	[--]	[--]	[mg/kg]	[mg/L]	[mg/L]	[mg/L]
Tetrachloroethene (PCE)	1.00E+00	2.52E+02	2.52E+02	9.33E-01	8.40E-01	3.34E-03	3.34E-03
Trichloroethene (TCE)	1.00E+00	2.52E+02	2.52E+02	5.86E-01	5.47E-01	2.17E-03	2.17E-03

Soil concentrations are presented on a dry weight basis.

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SITE:

PROTECTION OF GROUNDWATER USE - WITH BIODEGRADATION

CHEMICALS OF CONCERN	HALF-LIFE [days]	DILUTION ATTENUATION FACTOR			CONCENTRATION AT			
		Unsaturated zone [--]	Point of Compliance (Sentry Well) [--]	Point of Exposure [--]	Soil Source [mg/kg]	Groundwater Source [mg/L]	Point of Compliance (Sentry Well) [mg/L]	Point of Exposure [mg/L]
Tetrachloroethene (PCE)		1.00E+00	NHL	NHL	9.33E-01	NHL	NHL	NHL
Trichloroethene (TCE)		1.00E+00	NHL	NHL	5.86E-01	NHL	NHL	NHL

Soil concentrations are presented on a dry weight basis.

For exclusive use by Melissa Montgomery of Thompson Engineering, Inc.

SITE:

PROTECTION OF SURFACE WATER - WITHOUT BIODEGRADATION

CHEMICALS OF CONCERN	DILUTION ATTENUATION FACTOR			ALLOWABLE CONCENTRATION AT					Conc. Protective of Surface Water (Csw) [mg/L]
	Unsaturated Zone	Point of Compliance (Sentry Well)	Point of Discharge	Soil Source	Groundwater Source	Point of Compliance (Sentry Well)	Point of Discharge	End of Mixing Zone	
	[--]	[--]	[--]	[mg/kg]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	
Tetrachloroethene (PCE)	NC	NC	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	NC	NC	NC	NC	NC	NC	NC

Soil concentrations are presented on a dry weight basis.

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SITE:

PROTECTION OF SURFACE WATER - WITH BIODEGRADATION

CHEMICALS OF CONCERN	HALF-LIFE [days]	DILUTION ATTENUATION FACTORS			ALLOWABLE CONCENTRATION AT					Conc. Protective of Surface Water (C _{sw}) [mg/L]
		Unsaturated Zone [--]	Point of Compliance (Sentry Well) [--]	Point of Discharge [--]	Soil Source [mg/kg]	Groundwater Source [mg/L]	Point of Compliance (Sentry Well) [mg/L]	Point of Discharge [mg/L]	End of Mixing Zone [mg/L]	
Tetrachloroethene (PCE)	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Soil concentrations are presented on a dry weight basis.

For exclusive use by Melissa Montgomery of Thompson Engineering, Inc.

SITE:

PROTECTION OF SURFACE WATER - WITHOUT BIODEGRADATION

CHEMICALS OF CONCERN	DILUTION ATTENUATION FACTOR			CONCENTRATION AT					Conc. Protective of Surface Water (Csw) [mg/L]
	Unsaturated Zone	Point of Compliance (Sentry Well)	Point of Discharge	Soil Source	Groundwater Source	Point of Compliance (Sentry Well)	Point of Discharge	End of Mixing Zone	
	[--]	[--]	[--]	[mg/kg]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	
Tetrachloroethene (PCE)	NC	NC	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	NC	NC	NC	NC	NC	NC	NC

Soil concentrations are presented on a dry weight basis.

For exclusive use by Melissa Montgomery of Thompson Engineering, Inc.

SITE:

PROTECTION OF SURFACE WATER - WITH BIODEGRADATION

CHEMICALS OF CONCERN	HALF-LIFE [days]	DILUTION ATTENUATION FACTORS			CONCENTRATION AT					Conc. Protective of Surface Water (C _{sw}) [mg/L]
		Unsaturated Zone [--]	Point of Compliance (Sentry Well) [--]	Point of Discharge [--]	Soil Source [mg/kg]	Groundwater Source [mg/L]	Point of Compliance (Sentry Well) [mg/L]	Point of Discharge [mg/L]	End of Mixing Zone [mg/L]	
Tetrachloroethene (PCE)	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Soil concentrations are presented on a dry weight basis.

For exclusive use by Melissa Montgomery of Thompson Engineering, Inc.

SITE:

SOIL & GROUNDWATER PROTECTIVE OF INDOOR INHALATION FOR A RESIDENT - WITHOUT BIODEGRADATION

CHEMICALS OF CONCERN	DILUTION ATTENUATION FACTORS			ALLOWABLE CONCENTRATION AT			
	Unsaturated Zone	Point of Compliance (Sentry Well)	On/Off-site Building	Soil Source	Groundwater Source	Point of Compliance (Sentry Well)	On/Off-site Building
	[--]	[--]	[--]	[mg/kg]	[mg/L]	[mg/L]	[mg/L]
Tetrachloroethene (PCE)	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	NC	NC	NC	NC	NC

Soil concentrations are presented on a dry weight basis.

For exclusive use by Melissa Montgomery of Thompson Engineering, Inc.

SITE:

SOIL & GROUNDWATER PROTECTIVE OF INDOOR INHALATION FOR A RESIDENT - WITH BIODEGRADATION

CHEMICALS OF CONCERN	HALF-LIFE [days]	DILUTION ATTENUATION FACTOR			ALLOWABLE CONCENTRATION AT			
		Unsaturated zone [--]	Point of Compliance (Sentry Well) [--]	On/Off-site Building [--]	Soil Source [mg/kg]	Groundwater Source [mg/L]	Point of Compliance (Sentry Well) [mg/L]	On/Off-site Building [mg/L]
Tetrachloroethene (PCE)	NC	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	NC	NC	NC	NC	NC	NC

Soil concentrations are presented on a dry weight basis.

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SITE:

SOIL & GROUNDWATER PROTECTIVE OF INDOOR INHALATION FOR A RESIDENT - WITHOUT BIODEGRADATION

CHEMICALS OF CONCERN	DILUTION ATTENUATION FACTORS			CONCENTRATION AT			
	Unsaturated Zone	Point of Compliance (Sentry Well)	On/Off-site Building	Soil Source	Groundwater Source	Point of Compliance (Sentry Well)	On/Off-site Building
	[--]	[--]	[--]	[mg/kg]	[mg/L]	[mg/L]	[mg/L]
Tetrachloroethene (PCE)	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	NC	NC	NC	NC	NC

Soil concentrations are presented on a dry weight basis.

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SITE:

SOIL & GROUNDWATER PROTECTIVE OF INDOOR INHALATION FOR A RESIDENT - WITH BIODEGRADATION

CHEMICALS OF CONCERN	HALF-LIFE [days]	DILUTION ATTENUATION FACTOR			CONCENTRATION AT			
		Unsaturated zone [--]	Point of Compliance (Sentry Well) [--]	On/Off-site Building [--]	Soil Source [mg/kg]	Groundwater Source [mg/L]	Point of Compliance (Sentry Well) [mg/L]	On/Off-site Building [mg/L]
Tetrachloroethene (PCE)	NC	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	NC	NC	NC	NC	NC	NC

Soil concentrations are presented on a dry weight basis.

For exclusive use by Melissa Montgomery of Thompson Engineering, Inc.

SITE:

**SOIL & GROUNDWATER PROTECTIVE OF INDOOR INHALATION FOR A COMMERCIAL WORKER
WITHOUT BIODEGRADATION**

CHEMICALS OF CONCERN	DILUTION ATTENUATION FACTORS			ALLOWABLE CONCENTRATION AT			
	Unsaturated Zone	Point of Compliance (Sentry Well)	On/Off-site Building	Soil Source	Groundwater Source	Point of Compliance (Sentry Well)	On/Off-site Building
	[--]	[--]	[--]	[mg/kg]	[mg/L]	[mg/L]	[mg/L]
Tetrachloroethene (PCE)	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	NC	NC	NC	NC	NC

Soil concentrations are presented on a dry weight basis.

For exclusive use by Melissa Montgomery of Thompson Engineering, Inc.

SOIL & GROUNDWATER PROTECTIVE OF INDOOR INHALATION FOR A COMMERCIAL WORKER - WITH BIODEGRADATION

SITE:

CHEMICALS OF CONCERN	HALF-LIFE [days]	DILUTION ATTENUATION FACTOR			ALLOWABLE CONCENTRATION AT			
		Unsaturated zone [--]	Point of Compliance (Sentry Well) [--]	On/Off-site Building [--]	Soil Source [mg/kg]	Groundwater Source [mg/L]	Point of Compliance (Sentry Well) [mg/L]	On/Off-site Building [mg/L]
Tetrachloroethene (PCE)	NC	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	NC	NC	NC	NC	NC	NC

Soil concentrations are presented on a dry weight basis.

For exclusive use by Melissa Montgomery of Thompson Engineering, Inc.

SITE:

**SOIL & GROUNDWATER PROTECTIVE OF INDOOR INHALATION FOR A COMMERCIAL WORKER
WITHOUT BIODEGRADATION**

CHEMICALS OF CONCERN	DILUTION ATTENUATION FACTORS			CONCENTRATION AT			
	Unsaturated Zone	Point of Compliance (Sentry Well)	On/Off-site Building	Soil Source	Groundwater Source	Point of Compliance (Sentry Well)	On/Off-site Building
	[--]	[--]	[--]	[mg/kg]	[mg/L]	[mg/L]	[mg/L]
Tetrachloroethene (PCE)	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	NC	NC	NC	NC	NC

Soil concentrations are presented on a dry weight basis.

For exclusive use by Melissa Montgomery of Thompson Engineering, Inc.

SOIL & GROUNDWATER PROTECTIVE OF INDOOR INHALATION FOR A COMMERCIAL WORKER - WITH BIODEGRADATION

SITE:

CHEMICALS OF CONCERN	HALF-LIFE [days]	DILUTION ATTENUATION FACTOR			CONCENTRATION AT			
		Unsaturated zone [--]	Point of Compliance (Sentry Well) [--]	On/Off-site Building [--]	Soil Source [mg/kg]	Groundwater Source [mg/L]	Point of Compliance (Sentry Well) [mg/L]	On/Off-site Building [mg/L]
Tetrachloroethene (PCE)	NC	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	NC	NC	NC	NC	NC	NC

Soil concentrations are presented on a dry weight basis.

For exclusive use by Melissa Montgomery of Thompson Engineering, Inc.

SITE:

SOIL & GROUNDWATER PROTECTIVE OF INDOOR INHALATION FOR A TRESPASSER - WITHOUT BIODEGRADATION

CHEMICALS OF CONCERN	DILUTION ATTENUATION FACTORS			ALLOWABLE CONCENTRATION AT			
	Unsaturated Zone	Point of Compliance (Sentry Well)	On/Off-site Building	Soil Source	Groundwater Source	Point of Compliance (Sentry Well)	On/Off-site Building
	[--]	[--]	[--]	[mg/kg]	[mg/L]	[mg/L]	[mg/L]
Tetrachloroethene (PCE)	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	NC	NC	NC	NC	NC

Soil concentrations are presented on a dry weight basis.

For exclusive use by Melissa Montgomery of Thompson Engineering, Inc.

SITE:

**SOIL & GROUNDWATER PROTECTIVE OF INDOOR INHALATION FOR A TRESPASSER - WITH
BIODEGRADATION**

CHEMICALS OF CONCERN	HALF-LIFE [days]	DILUTION ATTENUATION FACTOR			ALLOWABLE CONCENTRATION AT			
		Unsaturated zone [--]	Point of Compliance (Sentry Well) [--]	On/Off-site Building [--]	Soil Source [mg/kg]	Groundwater Source [mg/L]	Point of Compliance (Sentry Well) [mg/L]	On/Off-site Building [mg/L]
Tetrachloroethene (PCE)	NC	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	NC	NC	NC	NC	NC	NC

Soil concentrations are presented on a dry weight basis.

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SITE:

SOIL & GROUNDWATER PROTECTIVE OF INDOOR INHALATION FOR A TRESPASSER - WITHOUT BIODEGRADATION

CHEMICALS OF CONCERN	DILUTION ATTENUATION FACTORS			CONCENTRATION AT			
	Unsaturated Zone	Point of Compliance (Sentry Well)	On/Off-site Building	Soil Source	Groundwater Source	Point of Compliance (Sentry Well)	On/Off-site Building
	[--]	[--]	[--]	[mg/kg]	[mg/L]	[mg/L]	[mg/L]
Tetrachloroethene (PCE)	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	NC	NC	NC	NC	NC

Soil concentrations are presented on a dry weight basis.

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SITE:

**SOIL & GROUNDWATER PROTECTIVE OF INDOOR INHALATION FOR A TRESPASSER - WITH
BIODEGRADATION**

CHEMICALS OF CONCERN	HALF-LIFE [days]	DILUTION ATTENUATION FACTOR			CONCENTRATION AT			
		Unsaturated zone [--]	Point of Compliance (Sentry Well) [--]	On/Off-site Building [--]	Soil Source [mg/kg]	Groundwater Source [mg/L]	Point of Compliance (Sentry Well) [mg/L]	On/Off-site Building [mg/L]
Tetrachloroethene (PCE)	NC	NC	NC	NC	NC	NC	NC	NC
Trichloroethene (TCE)	NC	NC	NC	NC	NC	NC	NC	NC

Soil concentrations are presented on a dry weight basis.

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