Tables

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#13

Table 2-1. Identified areas of interest.

Basin	Tank Number	Former Contents	Diameter (ft)	Height (ft)	Capacity (barrels)
G	0040	MF Reformate	80	39.17	34,000
G	0050	Sulfolane Charge	119	35.5	65,000
B	0130	Blend Stock	150	47.66	142,000
H	0250	Sulfolane	36	42	7,000
C	0270	Sulfolane	67	40	23,000
H	0320	Cyclohexane	25	41.5	3,000
F	0400	Sulfolane Charge	20	18	900
F	0410	Mixed Solvent	20	18	900
F	0420	Process Water	20	18	900
F	0430	Process Water	20	18	900
F	0440	Equipment Washings	55	30	11,000
F	0520	Mixed Solvent	35	24	4,000
Former Process Area	0540	Sulfolane	20	16	NA

Sa
→ for.
→ Screening Values

Table 3-1. Tank 40 sample results.

Sample ID	Analyte	Result	Qualifier	Unit
0040-01-SO-02	Sulfolane	37	U	µg/Kg
0040-01-SO-19	Sulfolane	39	U	µg/Kg
0040-02-SO-02	Sulfolane	38	U	µg/Kg
0040-02-SO-20	Sulfolane	40	U	µg/Kg
0040-03-SO-02	Sulfolane	38	U	µg/Kg
0040-03-SO-19	Sulfolane	39	U	µg/Kg
0040-04-SO-02	Sulfolane	37	U	µg/Kg
0040-04-SO-20	Sulfolane	41	U	µg/Kg
0040-05-SO-02	Sulfolane	39	U	µg/Kg
0040-05-SO-20	Sulfolane	40	U	µg/Kg
0040-06-GW		No water present		
0040-07-GW		No water present		

µg/Kg = milligrams per Kilogram
U = constituent not detected above the associated result.

Table 3-2. Tank 50 sample results.

Sample ID	Analyte	Result	Qualifier	Unit
0050-01-SO-02	Sulfolane	37	U	µg/Kg
0050-01-SO-19	Sulfolane	34	U	µg/Kg
0050-02-SO-02	Sulfolane	37	U	µg/Kg
0050-02-SO-20	Sulfolane	34	U	µg/Kg
0050-03-SO-02	Sulfolane	490		µg/Kg
0050-03-SO-19	Sulfolane	39	U	µg/Kg
0050-04-SO-02	Sulfolane	39	U	µg/Kg
0050-04-SO-20	Sulfolane	35	U	µg/Kg
0050-05-SO-02	Sulfolane	39	U	µg/Kg
0050-05-SO-20	Sulfolane	39	U	µg/Kg
0050-06-GW		No water present		
0050-07-GW	Sulfolane	80		µg/L

µg/Kg = micrograms per Kilogram
µg/L = micrograms per Liter
U = constituent not detected above the associated result.

Table 3-3. Tank 130 sample results.

Sample ID	Analyte	Result	Qualifier	Unit
0130-01-SO-02	Sulfolane	38	U	µg/Kg
0130-01-SO-06	Sulfolane	38	U	µg/Kg
0130-02-SO-02	Sulfolane	37	U	µg/Kg
0130-02-SO-06	Sulfolane	39	U	µg/Kg
0130-03-SO-02	Sulfolane	38	U	µg/Kg
0130-03-SO-10	Sulfolane	41	U	µg/Kg
0130-04-SO-02	Sulfolane	37	U	µg/Kg
0130-04-SO-06	Sulfolane	38	U	µg/Kg
0130-05-SO-02	Sulfolane	38	U	µg/Kg
0130-05-SO-06	Sulfolane	38	U	µg/Kg
0130-06-GW	Sulfolane	9.3	J	µg/L
0130-07-GW	Sulfolane	17		µg/L

µg/Kg = micrograms per Kilogram
µg/L = micrograms per Liter
U = constituent not detected above the associated result; J = constituent present at estimated value.

Table 3-4. Tank 250 sample results.

Sample ID	Analyte	Result	Qualifier	Unit
0250-01-SO-02	Sulfolane	39	U	µg/Kg
0250-01-SO-18	Sulfolane	40	U	µg/Kg
0250-02-SO-02	Sulfolane	38	U	µg/Kg
0250-02-SO-19	Sulfolane	40	U	µg/Kg
0250-03-SO-02	Sulfolane	39	U	µg/Kg
0250-03-SO-18	Sulfolane	41	U	µg/Kg
0250-04-SO-02	Sulfolane	38	U	µg/Kg
0250-04-SO-19	Sulfolane	40	U	µg/Kg
0250-04-SO-20	Sulfolane	60	J	µg/Kg
0250-05-SO-02	Sulfolane	37	U	µg/Kg
0250-05-SO-17	Sulfolane	39	U	µg/Kg
0250-06-GW		No water present		
0250-07-GW		No water present		

µg/Kg = micrograms per Kilogram
U = constituent not detected above the associated result; J = constituent present at estimated value.

Table 3-5. Tank 270 sample results.

Sample ID	Analyte	Result	Qualifier	Unit
0270-01-SO-02	Sulfolane	39	U	µg/Kg
0270-01-SO-16	Sulfolane	40	U	µg/Kg
0270-02-SO-02	Sulfolane	39	U	µg/Kg
0270-02-SO-10	Sulfolane	35	U	µg/Kg
0270-03-SO-02	Sulfolane	40	U	µg/Kg
0270-03-SO-06	Sulfolane	39	U	µg/Kg
0270-04-SO-02	Sulfolane	39	U	µg/Kg
0270-04-SO-16	Sulfolane	42	U	µg/Kg
0270-05-SO-02	Sulfolane	38	U	µg/Kg
0270-05-SO-16	Sulfolane	40	U	µg/Kg
0270-06-GW	Sulfolane	9	J	µg/L
0270-07-GW	Sulfolane	12		µg/L

µg/Kg = micrograms per Kilogram
µg/L = micrograms per Liter
U = constituent not detected above the associated result; J = constituent present at estimated value.

Table 3-6. Tank 320 sample results.

Sample ID	Analyte	Result	Qualifier	Unit
0320-01-SO-02	Sulfolane	38	U	µg/Kg
0320-01-SO-15	Sulfolane	33	U	µg/Kg
0320-02-SO-02	Sulfolane	37	U	µg/Kg
0320-02-SO-15	Sulfolane	34	U	µg/Kg
0320-03-SO-02	Sulfolane	37	U	µg/Kg
0320-03-SO-15	Sulfolane	37	U	µg/Kg
0320-04-GW	Sulfolane	20		µg/L
0320-05-GW	Sulfolane	0.58	U	µg/L

µg/Kg = micrograms per Kilogram
µg/L = micrograms per Liter
U = constituent not detected above the associated result.

Table 3-7. Tank 400 sample results.

Sample ID	Analyte	Result	Qualifier	Unit
0400-01-SO-02	Sulfolane	37	U	µg/Kg
0400-01-SO-15	Sulfolane	39	U	µg/Kg
0400-02-SO-02	Sulfolane	35	U	µg/Kg
0400-02-SO-16	Sulfolane	39	U	µg/Kg
0400-03-SO-02	Sulfolane	38	U	µg/Kg
0400-03-SO-16	Sulfolane	42	U	µg/Kg

µg/Kg = micrograms per Kilogram
U = constituent not detected above the associated result.

Table 3-8. Tank 410 sample results.

Sample ID	Analyte	Result	Qualifier	Unit
0410-01-SO-02	Sulfolane	37	U	µg/Kg
0410-01-SO-16	Sulfolane	35	U	µg/Kg
0410-02-SO-02	Sulfolane	38	U	µg/Kg
0410-02-SO-16	Sulfolane	35	U	µg/Kg
0410-03-SO-02	Sulfolane	38	U	µg/Kg
0410-03-SO-15	Sulfolane	42	U	µg/Kg
0410-04-GW	Sulfolane	22		µg/L
0410-05-GW	Sulfolane	2.3	J	µg/L
0410-06-GW	Sulfolane	4.4	J	µg/L
0410-07-GW	Sulfolane	0.58	U	µg/L

µg/Kg = micrograms per Kilogram
µg/L = micrograms per Liter
U = constituent not detected above the associated result; J = constituent present at estimated value.

Table 3-9. Tank 420 sample results.

Sample ID	Analyte	Result	Qualifier	Unit
0420-01-SO-02	Sulfolane	37	U	µg/Kg
0420-01-SO-16	Sulfolane	41	U	µg/Kg
0420-02-SO-02	Sulfolane	38	U	µg/Kg
0420-02-SO-16	Sulfolane	38	U	µg/Kg
0420-03-SO-02	Sulfolane	38	U	µg/Kg
0420-03-SO-06	Sulfolane	36	U	µg/Kg

µg/Kg = micrograms per Kilogram
U = constituent not detected above the associated result.

Table 3-10. Tank 430 sample results.

Sample ID	Analyte	Result	Qualifier	Unit
0430-01-SO-02	Sulfolane	39	U	µg/Kg
0430-01-SO-15	Sulfolane	34	U	µg/Kg
0430-02-SO-02	Sulfolane	37	U	µg/Kg
0430-02-SO-15	Sulfolane	34	U	µg/Kg
0430-03-SO-02	Sulfolane	39	U	µg/Kg
0430-03-SO-15	Sulfolane	35	U	µg/Kg
0430-04-SO-02	Sulfolane	38	U	µg/Kg
0430-04-SO-15	Sulfolane	36	U	µg/Kg
0430-05-SO-02	Sulfolane	37	U	µg/Kg
0430-05-SO-15	Sulfolane	34	U	µg/Kg

µg/Kg = micrograms per Kilogram
U = constituent not detected above the associated result.

Table 3-11. Tank 440 sample results.

Sample ID	Analyte	Result	Qualifier	Unit
0440-01-SO-02	Sulfolane	38	U	µg/Kg
0440-01-SO-06	Sulfolane	37	U	µg/Kg
0440-02-SO-02	Sulfolane	36	U	µg/Kg
0440-02-SO-15	Sulfolane	35	U	µg/Kg
0440-03-SO-02	Sulfolane	39	U	µg/Kg
0440-03-SO-10	Sulfolane	38	U	µg/Kg
0440-04-SO-02	Sulfolane	38	U	µg/Kg
0440-04-SO-06	Sulfolane	37	U	µg/Kg
0440-05-SO-02	Sulfolane	38	U	µg/Kg
0440-05-SO-06	Sulfolane	38	U	µg/Kg

µg/Kg = micrograms per Kilogram
U = constituent not detected above the associated result.

Table 3-12. Tank 520 sample results.

Sample ID	Analyte	Result	Qualifier	Unit
0520-01-SO-02	Sulfolane	39	U	µg/Kg
0520-01-SO-10	Sulfolane	35	U	µg/Kg
0520-02-SO-02	Sulfolane	39	U	µg/Kg
0520-02-SO-10	Sulfolane	35	U	µg/Kg
0520-03-SO-02	Sulfolane	38	U	µg/Kg
0520-03-SO-10	Sulfolane	37	U	µg/Kg
0520-04-SO-02	Sulfolane	39	U	µg/Kg
0520-04-SO-13	Sulfolane	37	U	µg/Kg
0520-05-SO-02	Sulfolane	38	U	µg/Kg
0520-05-SO-12	Sulfolane	37	U	µg/Kg

µg/Kg = micrograms per Kilogram
U = constituent not detected above the associated result.

Table 3-13. Tank 540 sample results.

Sample ID	Analyte	Result	Qualifier	Unit
0540-14-SO-02	Sulfolane	160	J	µg/Kg
0540-14-SO-06	Sulfolane	79	J	µg/Kg
0540-15-SO-02	Sulfolane	37	U	µg/Kg
0540-15-SO-18	Sulfolane	40	U	µg/Kg
0540-16-SO-02	Sulfolane	170	J	µg/Kg
0540-16-SO-20	Sulfolane	39	U	µg/Kg
0540-17-SO-02	Sulfolane	1200		µg/Kg
0540-17-SO-20	Sulfolane	62	J	µg/Kg

µg/Kg = micrograms per Kilogram
U = constituent not detected above the associated result; J = constituent present at estimated value.

Table 3-14. Tank MW-167 sample results.

Sample ID	Analyte	Result	Qualifier	Unit
MW-167-01-SO-02	Sulfolane	40	U	µg/Kg
MW-167-01-SO-12	Sulfolane	35	U	µg/Kg
MW-167	Sulfolane	3.8	J	µg/L

µg/Kg = micrograms per Kilogram
µg/L = micrograms per Liter
U = constituent not detected above the associated result; J = constituent present at estimated value.

Table 3-15. PRASA pipeline area sample results.

Sample ID	Analyte	Result	Qualifier	Unit
PRASA-01-SO-10	Sulfolane	39	U	µg/Kg
PRASA-01-GW	Sulfolane	2.4	J	µg/L
PRASA-02-SO-10	Sulfolane	40	U	µg/Kg
PRASA-02-GW	Sulfolane	0.98	J	µg/L
PRASA-03-SO-10	Sulfolane	41	U	µg/Kg
PRASA-03-GW	Sulfolane	37		µg/L
PRASA-04-SO-10	Sulfolane	85	J	µg/Kg
PRASA-04-GW	Sulfolane	250		µg/L
PRASA-05-SO-08	Sulfolane	43	U	µg/Kg
PRASA-05-GW	Sulfolane	64		µg/L
PRASA-06-SO-06	Sulfolane	40	U	µg/Kg
PRASA-06-GW	Sulfolane	85		µg/L

µg/Kg = micrograms per Kilogram
µg/L = micrograms per Liter
U = constituent not detected above the associated result; J = constituent present at estimated value.

Table 3-16. Effluent Channel sediment sample results.

Sample ID	Sampling Date	Analyte	Result	Qualifier	Unit
CHANNEL-1	7/11/2013	Sulfolane	83	U	µg/Kg
CHANNEL-2	7/11/2013	Sulfolane	190	U	µg/Kg
CHANNEL-3	7/11/2013	Sulfolane	47	U	µg/Kg
CHANNEL-1	12/10/2013	Sulfolane	48	U	µg/Kg
CHANNEL-2	12/10/2013	Sulfolane	190	J	µg/Kg
CHANNEL-3	12/10/2013	Sulfolane	57	U	µg/Kg
CHANNEL-11	11/12/2013	Sulfolane	68	J	µg/Kg
CHANNEL-12	11/12/2013	Sulfolane	46	UJ	µg/Kg
CHANNEL-13	11/12/2013	Sulfolane	48	UJ	µg/Kg
CHANNEL-14	11/12/2013	Sulfolane	45	UJ	µg/Kg
CHANNEL-15	11/12/2013	Sulfolane	49	J	µg/Kg
CHANNEL-16	11/11/2013	Sulfolane	45	U	µg/Kg
CHANNEL-17	11/11/2013	Sulfolane	150	J	µg/Kg
CHANNEL-18	11/11/2013	Sulfolane	48	U	µg/Kg
CHANNEL-19	11/11/2013	Sulfolane	46	U	µg/Kg
CHANNEL-20	11/11/2013	Sulfolane	54	U	µg/Kg

µg/Kg = micrograms per Kilogram
U = constituent not detected above the associated result; J = constituent present at estimated value.

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Table 5-1. Exposure point concentrations.

Matrix	Analyte	Total Samples	Total Detects	Maximum Detected	Unit	95UCL	95UCL Basis
MW	Sulfolane	231	165	14000	µg/L	569.9	95UCL
MW_MWD	Sulfolane	316	223	14000	µg/L	574.6	95UCL
MWD	Sulfolane	85	58	4700	µg/L	991.8	95UCL
SB	Sulfolane	317	43	370000	µg/Kg	12357	95UCL
SD	Sulfolane	16	4	190	µg/Kg	74.37	95UCL
SS	Sulfolane	316	40	17000000	µg/Kg	403849	95UCL
SS_SB	Sulfolane	633	83	17000000	µg/Kg	200250	95UCL
SW	Sulfolane	6	5	240	µg/L	60.14	95UCL

MW = Upper Alluvial groundwater
MWD = Lower Alluvial groundwater
MW_MWD = combined groundwater
SB = subsurface soil
SD = sediment
SS = surface soil
SS_SB = combined soil
SW = surface water

Table 5-2. Residential cumulative risk.

Media	Pathway	HI	% HI
Combined Groundwater	**Ingestion**	**4.E+01**	100%
	Dermal	5.E-02	0%
	Inhalation	-	-
	Subtotal	**4.E+01**	100%
	TOTAL	**4.E+01**	100%

Table. 5-3. Resident scenario – child, combined Upper and Lower Aquifer groundwater, potential noncarcinogenic risk.

						Ingestion		Dermal			Inhalation				Total
Chemical	**Cas No.**	**Analysis**	**RfDo**	**RfCi (mg/M^3)**	**EPC (mg/L)**	**CDI (mg/Kg-day)**	**HI**	**GI Factor**	**CDI (mg/Kg-day)**	**HI**	**K_Res**	**IC (mg/m^3)**	**EC (mg/m^3)**	**HI**	**HI**
Sulfolane	126-33-0	SVOC	1.00E-03	2.00E-03	5.75E-01	3.67E-02	4.E+01	5.00E-01	4.69E-05	5.E-02	-	-	-	-	**4.E+01**

General Intake Parameters	**Units**		**Value**
Target Excess Lifetime Cancer Risk (TR_Res)	--	TR_Res	1.00E-06
Target Hazard Index (THI_Res)	--	THI_Res	1
Body Weight Adult (BW_Res)	Kg	BW_Res	70
Body Weight Child (BW_C)	Kg	BW_C	15
Averaging Time, Cancer (ATc_Res)	Yr	ATc_Res	70
Averaging Time, Non-Cancer (ATn_Res)	Yr	ATn_Res	24
Averaging Time, Non-Cancer (ATn_C)	Yr	ATn_C	6
Exposure Frequency (EF_Res)	Days/yr	EF_Res	350
Exposure Time - Showering Child (ET_C)	Hrs	ET_C	1
Exposure Time - Showering (ET_Res)	Hrs	ET_Res	0.58
Exposure Duration (ED_Res)	Yr	ED_Res	30
Exposure Duration Child (ED_C)	Yr	ED_C	6
Water Ingestion Rate - Adult (IRw_Res)	L/day	IRw_Res	2
Water Ingestion Rate - Adult (IRw_C)	L/day	IRw_C	1
Water Ingestion Factor - Age adjusted (IRw_aa)	L-year/Kg-day	IRw_aa	1.09
Air Inhalation Exposure Time (ETRes	days/day	ET_Res_MW	1.00
Air Inhalation Rate - Adult (IRa_Res)	M^3/day	IRa_Res	20
Air Inhalation Rate - Child (IRa_C)	M^3/day	IRa_C	10
Air Inhalation Factor - Age adjusted (IRa_aa)	M^3-yr/Kg-day	IRa_aa	10.9
Volatilization Factor, Water (K_Res)	L/m3	K_Res	-
Skin Surface Area - Adult (SA_Res)	cm^2/day	SA_Res	18000
Skin Surface Area - Child (SA_C)	cm^2/day	SA_C	6600
Skin Factor - Age adjusted (SA_aa)	cm^2-yr/Kg-day	SA_aa	6240
Dermal Permeability (PC)	cm/hr		chem-spec

Ingestion CDI = EPC*IRw_C*EF_C*ED_C/BW_C/ATn_C/365

Dermal CDI = EPC*SA_WC*PC*ET_WC*EF_WC*ED_WC*0.001/BW_WC/AT/365

Inhalation IC = EPC*K_Res

Inhalation EC = IC*EF_Res*ED_C/ATn_C/365

ELCR = CDI * SF

Dermal HI = CDI/RfDo/GI Factor

HI = CDI/RfD

Table 5-4. Industrial worker cumulative risk.

Media	Pathway	HI	% HI
Surface Soil	**Ingestion**	4.E-01	43%
	Dermal	5.E-01	57%
	Inhalation	4.E-05	0%
	Subtotal	9.E-01	100%
	TOTAL	9.E-01	100%

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Table 5-5. Industrial worker scenario, onsite soil, potential noncarcinogenic risk.

						Ingestion		Dermal				Inhalation				Total
Chemical	**Cas No.**	**Analysis**	**RfDo**	**RfCi (mg/M^3)**	**EPC (mg/Kg)**	**CDI (mg/Kg-day)**	**HI**	**ABS**	**GI Factor**	**CDI (mg/Kg-day)**	**HI**	**VFi**	**IC (mg/m^3)**	**EC (mg/m^3)**	**HI**	**HI**
Sulfolane	126-33-0	SVOC	1.00E-03	2.00E-03	4.04E+02	3.95E-04	4.E-01	1.00E-01	5.00E-01	5.22E-04	5.E-01	-	3.73E-07	8.52E-08	4.E-05	9.E-01

General Intake Parameters	**Units**		**Value**
Target Excess Lifetime Cancer Risk (TR_SI)	--	TR_SI	1.00E-06
Target Hazard Index (THI_SI)	--	THI_SI	1
Body Weight Adult (BW_SI)	Kg	BW_SI	70
Averaging Time, Cancer (ATc_SI)	Yr	ATc_SI	70
Averaging Time, Non-Cancer (ATn_SI)	Yr	ATn_SI	25
Exposure Frequency (EF_SI)	Days/yr	EF_SI	250
Exposure Duration (ED_SI)	Yr	ED_SI	25
Soil Ingestion Rate - Adult (IRs_SI)	mg/day	IRs_SI	100
Air Inhalation Exposure Time (ET_IW)	days/day	ET_IW	0.33
Air Inhalation Rate - Adult (IRa_SI)	M^3/day	IRa_SI	20
Particulate Emission Factor (PEF_SI)	M^3/Kg	PEF_SI	1.08E+09
Volatilization Factor, Soil (VFc)	M^3/Kg		chem-spec
Skin Surface Area - Adult (SA_SI)	cm^2/day	SA_SI	3300
Adherence Factor Adult (AF_SI)	mg/cm^2	AF_SI	0.2
Absorption Factor (ABS)	--		chem-spec
Gastro-intestinal Factor (GI Factor)	--		chem-spec

Ingestion CDI = EPC*IRs_SI*EF_SI*ED_SI*0.000001/BW_SI/AT/365

Dermal CDI = EPC*SA_SI*AF_SI*ABS*EF_SI*ED_SI*0.000001/BW_SI/AT/365/GI Factor

Inhalation IC = EPC*(1/PEF_SI+1/VFi), Inhalation EC = IC*EF_SI*ED_SI/ATc_SI/365

ELCR = CDI * SF

HI = CDI/RfD

Table 5-6. Construction worker cumulative risk.

Media	**Pathway**	**HI**	**% HI**
Combined Soil	**Ingestion**	6.E-01	63%
	Dermal	4.E-01	37%
	Inhalation	3.E-03	0%
	Subtotal	**1.E+00**	100%
Groundwater	**Ingestion**	-	-
	Dermal	2.E-03	0%
	Inhalation	-	-
	Subtotal	2.E-03	0%
	TOTAL	**1.E+00**	100%

Table 5-7. Construction worker scenario, onsite combined soil, potential noncarcinogenic risk.

						Ingestion		Dermal				Inhalation				Total
Chemical	**Cas No.**	**Analysis**	**RfDo**	**RfCi (mg/M³)**	**EPC (mg/Kg)**	**CDI (mg/Kg-day)**	**HI**	**ABS**	**GI Factor**	**CDI (mg/Kg-day)**	**HI**	**VFc**	**IC (mg/m³)**	**EC (mg/m³)**	**HI**	**HI**
Sulfolane	126-33-0	SVOC	1.00E-03	2.00E-03	2.00E+02	6.47E-04	6.E-01	1.00E-01	5.00E-01	3.88E-04	4.E-01	-	2.46E-05	5.62E-06	3.E-03	**1.E+00**

General Intake Parameters	**Units**		**Value**
Target Excess Lifetime Cancer Risk (TR_SC)	--	TR_SC	1.00E-06
Target Hazard Index (THI_SC)	--	THI_SC	1
Body Weight Adult (BW_SC)	Kg	BW_SC	70
Averaging Time, Cancer (ATc_SC)	Yr	ATc_SC	70
Averaging Time, Non-Cancer (ATn_SC)	Yr	ATn_SC	1
Exposure Frequency (EF_SC)	Days/yr	EF_SC	250
Exposure Duration (ED_SC)	Yr	ED_SC	1
Soil Ingestion Rate - Adult (IRs_SC)	mg/day	IRs_SC	330
Air Inhalation Exposure Time (ET_CW)	days/day	ET_CW	0.33
Air Inhalation Rate - Adult (IRa_SC)	M³/day	IRa_SC	20
Particulate Emission Factor (PEF_SC)	M³/Kg	PEF_SC	8.14E+06
Volatilization Factor, Soil (VFc)	M³/Kg		chem-spec
Skin Surface Area - Adult (SA_SC)	cm²/day	SA_SC	3300
Adherence Factor Adult (AF_SC)	mg/cm²	AF_SC	0.3
Absorption Factor (ABS_SC)	--		chem-spec
Gastro-intestinal Factor (GI Factor)	--		chem-spec

Ingestion CDI = EPC*IRs_SC*EF_SC*ED_SC*0.000001/BW_SC/AT/365

Dermal CDI = EPC*SA_SC*AF_SC*ABS*EF_SC*ED_SC*0.000001/BW_SC/AT/365/GI Factor

Inhalation IC = EPC*(1/PEF_SC+1/VFc), Inhalation EC = IC*EF_SC*ED_SC/ATn_SC/365

ELCR = CDI * SF

HI = CDI/RfD

Table 5-8. Construction worker scenario, combined groundwater, potential noncarcinogenic risk.

						Ingestion		Dermal			Inhalation				Total
Chemical	**Cas No.**	**Analysis**	**RfDo**	**RfCi (mg/M³)**	**EPC (mg/L)**	**CDI (mg/Kg-day)**	**HI**	**GI Factor**	**CDI (mg/Kg-day)**	**HI**	**K_WC**	**IC (mg/m³)**	**EC (mg/m³)**	**HI**	**HI**
Sulfolane	126-33-0	SVOC	1.00E-03	2.00E-03	5.70E-01	-	-	5.00E-01	1.65E-06	2.E-03	-	-	-	-	2.E-03

General Intake Parameters	**Units**		**Value**
Target Excess Lifetime Cancer Risk (TR_WC)	--	TR_WC	1.00E-06
Target Hazard Index (THI_WC)	--	THI_WC	1
Body Weight Adult (BW_WC)	Kg	BW_WC	70
Averaging Time, Cancer (ATc_WC)	Yr	ATc_WC	70
Averaging Time, Non-Cancer (ATn_WC)	Yr	ATn_WC	1
Exposure Frequency (EF_WC)	Days/yr	EF_WC	25
Exposure Time (ET_WC)	Hrs	ET_WC	8
Exposure Duration (ED_WC)	Yr	ED_WC	1
Water Ingestion Rate - Adult (Irw_WC)	L/day	IRw_WC	
Air Inhalation Exposure Time (ET_CW)	days/day	ET_CW	0.33
Air Inhalation Rate - Adult (IRa_WC)	M³/day	IRa_WC	20
Volatilization Factor, Water (K_WC)	L/m3	K_WC	-
Skin Surface Area - Adult (SA_WC)	cm²/day	SA_WC	3300
Dermal Permeability (Kp)	cm/hr		chem-spec

Ingestion CDI = EPC*IRw_WC*EF_WC*ED_WC/BW_WC/AT/365

Dermal CDI = See Constructionworker_DAD GW.xls spreadsheet

Inhalation IC = EPC*K_WC

Inhalation EC = IC*EF_WC*ED_WC/ATn_WC/365

ELCR = CDI * SF

HI = CDI/RfD

Table 5-9. Trespasser cumulative risk.

Media	Pathway	HI	% HI
Surface Soil	**Ingestion**	9.E-02	27%
	Dermal	3.E-01	72%
	Inhalation	4.E-06	0%
	Subtotal	4.E-01	97%
Sediment	**Ingestion**	6.E-06	0%
	Dermal	5.E-05	0%
	Inhalation	8.E-10	0%
	Subtotal	5.E-05	0%
Surface Water	**Ingestion**	9.E-03	3%
	Dermal	2.E-04	0%
	Inhalation	-	-
	Subtotal	9.E-03	3%
	TOTAL	**1.E+00**	100%

Table 5-10. Trespasser scenario, surface soil, potential noncarcinogenic risk.

						Ingestion		Dermal				Inhalation				Total
Chemical	**Cas No.**	**Analysis**	**RfDo**	**RfCi (mg/M^3)**	**EPC (mg/Kg)**	**CDI (mg/Kg-day)**	**HI**	**ABS**	**GI Factor**	**CDI (mg/Kg-day)**	**HI**	**VFc**	**IC (mg/m^3)**	**EC (mg/m^3)**	**HI**	**HI**
Sulfolane	126-33-0	SVOC	1.00E-03	2.00E-03	4.04E+02	9.22E-05	9.E-02	1.00E-01	5.00E-01	2.58E-04	3.E-01	-	3.73E-07	8.52E-09	4.E-06	4.E-01

General Intake Parameters	**Units**		**Value**
Target Excess Lifetime Cancer Risk (TR_TRES)	--	TR_TRES	1.00E-06
Target Hazard Index (THI_TRES)	--	THI_TRES	1
Body Weight Adult (BW_TRES)	Kg	BW_TRES	45
Averaging Time, Cancer (ATc_TRES)	Yr	ATc_TRES	70
Averaging Time, Non-Cancer (ATn_TRES)	Yr	ATn_TRES	12
Exposure Frequency (EF_TRES)	Days/yr	EF_TRES	50
Exposure Duration (ED_TRES)	Yr	ED_TRES	12
Water Ingestion Rate (IRw_TRES)	L/day	IRw_TRES	0.05
Sediment Ingestion Rate - Adult (IRs_TRES)	mg/day	IRsed_TRES	25
Soil Ingestion Rate - Adult (IRs_TRES)	mg/day	IRs_TRES	75
Air Inhalation Exposure Time (ET_Tres)	days/day	ET_Tres	0.17
Air Inhalation Rate - Adult (IRa_TRES)	M^3/day	IRa_TRES	2.25
Particulate Emission Factor (PEF_TRES)	M^3/Kg	PEF_TRES	1.08E+09
Volatilization Factor, Soil (VFc)	M^3/Kg		chem-spec
Skin Surface Area - Adult (SA_TRES)	cm^2/day	SA_TRES	3500
Adherence Factor Adult (AF_TRES)	mg/cm^2	AF_TRES	0.3
Absorption Factor (ABS_TRES)	--		chem-spec
Gastro-intestinal Factor (GI Factor)	--		chem-spec

Ingestion CDI = EPC*IRs_TRES*EF_TRES*ED_TRES*0.000001/BW_TRES/ATn_TRES/365

Dermal CDI = EPC*SA_TRES*AF_TRES*ABS*EF_TRES*ED_TRES*0.000001/BW_TRES/ATn_TRES/365/GI Factor

Inhalation IC = EPC*(1/PEF_TRES+1/VFc), Inhalation EC = IC*EF_TRES*ED_TRES/BW_TRES/ATn_TRES/365

ELCR = CDI * SF

HI = CDI/RfD

Table 5-11. Trespasser scenario, surface water, potential noncarcinogenic risk.

						Ingestion		Dermal			Inhalation				Total
Chemical	**Cas No.**	**Analysis**	**RfDo**	**RfCi (mg/M^3)**	**EPC (mg/L)**	**CDI (mg/Kg-day)**	**HI**	**GI Factor**	**CDI (mg/Kg-day)**	**HI**	**K_Tres**	**IC (mg/m^3)**	**EC (mg/m^3)**	**HI**	**HI**
Sulfolane	126-33-0	SVOC	1.00E-03	2.00E-03	6.01E-02	9.15E-06	9.E-03	5.00E-01	1.91E-07	2.E-04	-	-	-	-	9.E-03

General Intake Parameters	**Units**		**Value**
Target Excess Lifetime Cancer Risk (TR_TRES)	--	TR_TRES	1.00E-06
Target Hazard Index (THI_TRES)	--	THI_TRES	1
Body Weight Adult (BW_TRES)	Kg	BW_TRES	45
Averaging Time, Cancer (ATc_TRES)	Yr	ATc_TRES	70
Averaging Time, Non-Cancer (ATn_TRES)	Yr	ATn_TRES	12
Exposure Frequency (EF_TRES)	Days/yr	EF_TRES	50
Exposure Duration (ED_TRES)	Yr	ED_TRES	12
Water Ingestion Rate (IRw_TRES)	L/day	IRw_TRES	0.05
Soil Ingestion Rate - Adult (IRs_TRES)	mg/day	IRs_TRES	100
Air Inhalation Expsoure Time (ET_Tres)	days/day	ET_Tres	0.17
Air Inhalation Rate - Adult (IRa_TRES)	M^3/day	IRa_TRES	2.25
Particulate Emission Factor (PEF_TRES)	M^3/Kg	PEF_TRES	8.47E+08
Volatilization Factor, Soil (VFc)	M^3/Kg	VFc	chem-spec
Volatilization Factor, Water (K_Tres)	L/m3	K_Tres	-
Skin Surface Area - Adult (SA_TRES)	cm^2/day	SA_TRES	3500
Dermal contact time (t_Event)	hr/event	t_Event	2
Adherence Factor Adult (AF_TRES)	mg/cm^2	AF_TRES	0.3
Absorption Factor (ABS_TRES)	--		chem-spec
Gastro-intestinal Factor (GI Factor)	--		chem-spec

Ingestion CDI = EPC*IRw_WC*EF_WC*ED_WC/BW_WC/AT/365

Dermal CDI = See Constructionworker_DAD GW xls spreadsheet

Inhalation IC = EPC*K_Tres

Inhalation EC = IC*EF_Tres*ED_Tres/ATn_Tres/365

ELCR = CDI * SF

HI = CDI/RfD

Table 5-12. Trespasser scenario, sediment, potential noncarcinogenic risk.

Chemical	Cas No.	Analysis	RfDo	RfCi (mg/M³)	EPC (mg/Kg)	Ingestion CDI (mg/Kg-day)	Ingestion HI	Dermal ABS	Dermal GI Factor	Dermal CDI (mg/Kg-day)	Dermal HI	Inhalation VFc	Inhalation IC (mg/m³)	Inhalation EC (mg/m³)	Inhalation HI	Total HI
Sulfolane	126-33-0	SVOC	1.00E-03	2.00E-03	7.44E-02	5.66E-09	6.E-06	1.00E-01	5.00E-01	4.75E-08	5.E-05	-	6.87E-11	1.57E-12	8.E-10	5.E-05

General Intake Parameters	Units		Value
Target Excess Lifetime Cancer Risk (TR_TRES)	--	TR_TRES	1.00E-06
Target Hazard Index (THI_TRES)	--	THI_TRES	1
Body Weight Adult (BW_TRES)	Kg	BW_TRES	45
Averaging Time, Cancer (ATc_TRES)	Yr	ATc_TRES	70
Averaging Time, Non-Cancer (ATn_TRES)	Yr	ATn_TRES	12
Exposure Frequency (EF_TRES)	Days/yr	EF_TRES	50
Exposure Duration (ED_TRES)	Yr	ED_TRES	12
Water Ingestion Rate (IRw_TRES)	L/day	IRw_TRES	0.05
Sediment Ingestion Rate - Adult (IRs_TRES)	mg/day	IRsed_TRES	25
Soil Ingestion Rate - Adult (IRs_TRES)	mg/day	IRs_TRES	75
Air Inhalation Exposure Time (ET_Tres)	days/day	ET_Tres	0.17
Air Inhalation Rate - Adult (IRa_TRES)	M³/day	IRa_TRES	2.25
Particulate Emission Factor (PEF_TRES)	M³/Kg	PEF_TRES	1.08E+09
Volatilization Factor, Soil (VFc)	M³/Kg		chem-spec
Skin Surface Area - Adult (SA_TRES)	cm²/day	SA_TRES	3500
Adherence Factor Adult (AF_TRES)	mg/cm²	AF_TRES	0.3
Absorption Factor (ABS_TRES)	--		chem-spec
Gastro-intestinal Factor (GI Factor)	--		chem-spec

Ingestion CDI = EPC*IRs_TRES*EF_TRES*ED_TRES*0.000001/BW_TRES/ATn_TRES/365

Dermal CDI = EPC*SA_TRES*AF_TRES*ABS*EF_TRES*ED_TRES*0.000001/BW_TRES/ATn_TRES/365/GI Factor

Inhalation IC = EPC*(1/PEF_TRES+1/VFc), Inhalation EC = IC*EF_TRES*ED_TRES/ATn_TRES/365

ELCR = CDI * SF

HI = CDI/RfD