



Site name:	EX DISCARICA FOSSO GRANDE
Sub-area name:	PE 210021 - SORGENTE B DOPO ARTA
Date:	FEBBRAIO 2022
Type of analysis:	Baseline Risks (Forward Mode)
Type of analysis:	Clean up levels (Backward Mode)
Notes:	-

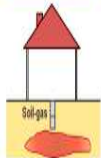
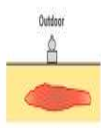
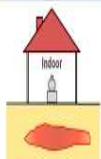
Conceptual Site Model

Source		Exposure pathway	Receptor	
Surface soil	Direct Contact	Soil Ingestion and Dermal Contact	On-Site	No Off-site
		Outdoor Vapor Inhalation	On-Site	Off-Site
	Volatilization	Indoor Vapor Inhalation	On-Site	No Off-site
		Outdoor Particulates Inhalation	On-Site	Off-Site
		Indoor Particulates Inhalation	On-Site	No Off-site
	Leaching	Leaching to Groundwater	POC = 0	POC > 0
Subsurface soil	Volatilization	Outdoor Vapor Inhalation	On-Site	Off-Site
		Indoor Vapor Inhalation	On-Site	No Off-site
	Leaching	Leaching to Groundwater	POC = 0	POC > 0
Groundwater	Volatilization	Outdoor Vapor Inhalation	On-Site	Off-Site
		Indoor Vapor Inhalation	On-Site	Off-Site
	Direct	Groundwater Contamination	POC = 0	POC > 0

Receptors on-site: Adults and Children (Adjusted)

Receptors off-site: Adults and Children (Adjusted)

Integrative characterization

Type of survey		Type of receptor
Soil-gas survey (outdoor)		On-site receptors
		Off-site receptors
Subslab Soil-gas survey		On-site receptors
		No Off-Site
Flux-Chamber survey		On-site receptors
		Off-site receptors
Outdoor Air survey		On-site receptors
		Off-site receptors
Indoor Air survey		On-site receptors
		No Off-Site
Leaching test (Surface soil)		POC = 0
		POC > 0
Leaching test (Subsurface soil)		POC = 0
		POC > 0

Model Options

Description	Value
Account for surface source depletion due to volatilization	✓
Account for subsurface source depletion due to volatilization	✓
Account for vapor attenuation when surface source below ground level	✗
Lower value between volatilization factor from surface and subsurface soil	✓
Off-Site Outdoor Volatilization from groundwater	Atmospheric transport (ADF)
Consider biodegradation during volatilization	✓
Account for surface source depletion due to leaching to groundwater	✓
Account for subsurface source depletion due to leaching to groundwater	✓
Account for the attenuation during leaching to groundwater from surface soil (SAM)	✓
Account for the attenuation during leaching to groundwater from subsurface soil (SAM)	✓
Consider biodegradation during leaching to groundwater	✓
Groundwater dispersion	Dispersion in all directions except upwards (DAF2)
Check on the groundwater mixing zone height	✓
Biodegradation during groundwater transport	✓
Consider Csat for Risk or SSTL assessment	✗
Consider Csat only for SSTL assessment	✓
In the mass balance for source depletion account for NAPL (if present)	✗
Accounts for ADAF	✓
RfD vs RfC	RfC
Account for the bioaccessible fraction for the soil ingestion route	✗
Target Risk	
Individual	0.000001
Cumulative	0.00001
Target Hazard Index	
Individual	1
Cumulative	1

Source Conc.

Contaminant	Surface soil	Subsurface soil	Groundwater	Leaching from surface soil	Leaching from subsurface soil	Outdoor soil-gas	Indoor soil-gas	Flux Chamber	Outdoor air	Indoor air
-	mg/kg	mg/kg	µg/L	µg/L	µg/L	mg/m³	mg/m³	mg/m³	mg/m³	mg/m³
Arsenic			4.08e+1	-	-	-	-	-	-	
Iron			6.65e+3	-	-	-	-	-	-	
Nickel			1.16e+2	-	-	-	-	-	-	
Manganese			1.65e+3	-	-	-	-	-	-	
Boron			2.03e+3	-	-	-	-	-	-	
Nitrite			1.89e+3	-	-	-	-	-	-	
Dichloropropane (1,2)			5.20e-1	-	-	-	-	-	-	
Aliphatics C9-C12			9.79e+2	-	-	-	-	-	-	
Aromatics C11-C12	4.48e+2	9.00e+1	-	-	-	-	-	-	-	
Zinc	-	1.95e+2	-	-	-	-	-	-	-	
Aliphatics C19-C36			-	-	-	-	-	-	-	

Exposure Factors - On Site

Exposure			On Site				
Scenario			Residential				Industrial
Exposure Parameters	Symbol	UM	Children	Teenagers	Adults	Seniors	Worker
General Factors							
Body Weight	BW	kg	15	15	70	70	70
Averaging time for carcinogens	AT	y	70				
Exposure duration	ED	y	6	10	24	5	25
Exposure Frequency	EF	d/y	350	350	350	350	250
Accidental Soil Ingestion							
Ingested Soil Fraction	FI	-	1	1	1	1	1
Soil Ingestion Rate	IR	mg/d	200	200	100	100	50
Dermal Contact							
Skin Surface Area	SA	cm ²	2800	2800	5700	5700	3300
Soil Dermal adherence factor	AF	mg/cm ² /d	0.2	0.2	0.07	0.07	0.2
Outdoor Vapors and Dust inhalation							
Outdoor Daily Frequency (c)	EFgo	h/d	24	0.5	24	1.9	8
Outdoor Vapor Inhalation rate (a);(b)	Bo	m ³ /h	0.7	0.7	0.9	0.9	2.5
Particulate Outdoor fraction	Fsd	-	1	1	1	1	1
Indoor Vapors and Dust inhalation							
Indoor Daily Frequency	EFgi	h/d	24	19.6	24	22.4	8
Indoor Vapor Inhalation rate (b)	Bi	m ³ /h	0.7	0.7	0.9	0.9	0.9
Particulate indoor fraction	Fi	-	1	1	1	1	1
Water Ingestion							
Water Rate Ingestion	IRw	L/d	1	1	2	2	1

Exposure Factors - Off Site

Exposure			Off Site				
Scenario			Residential				Industrial
Exposure Parameters	Symbol	UM	Children	Teenagers	Adults	Seniors	Worker
General Factors							
Body Weight	BW	kg	15	15	70	70	70
Averaging time for carcinogens	AT	y	70				
Exposure duration	ED	y	6	10	24	5	25
Exposure Frequency	EF	d/y	350	350	350	350	250
Outdoor Vapors and Dust inhalation							
Outdoor Daily Frequency (c)	EFgo	h/d	24	0.5	24	1.9	8
Outdoor Vapor Inhalation rate (a);(b)	Bo	m³/h	0.7	0.7	0.9	0.9	2.5
Particulate Outdoor fraction	Fsd	-	1	1	1	1	1
Indoor Vapors inhalation							
Indoor Daily Frequency	EFgi	h/d	24	19.6	24	22.4	8
Indoor Vapor Inhalation rate (b)	Bi	m³/h	0.7	0.7	0.9	0.9	0.9
Water Ingestion							
Water Rate Ingestion	IRw	L/d	1	1	2	2	1

Site Parameters - Source Geometry

Description		Value			
Parameter	Symbol	Default	Site-Specific	UM	check
Source Geometry					
Surface soil					
Depth to surface soil source	Ls,SS	0	0	m	✓
Thickness of unsaturated surface soil source	d	1	1	m	✓
Width of source area parallel to groundwater flow direction	W	45	635	m	✓
Width of source area orthogonal to groundwater flow	Sw	45	181	m	✓
Ambient air mixing zone height	∂ air	2	2	m	✓
Width of source area parallel to wind direction	W'	45	100	m	✓
Width of source area orthogonal to wind direction	Sw'	45	50	m	✓
Subsurface soil					
Depth to subsurface soil source	Ls,SP	1	1	m	✓
Thickness of unsaturated subsurface soil source	ds	2	0.15	m	✓
Width of source area parallel to groundwater flow direction	W	45	100	m	✓
Width of source area orthogonal to groundwater flow	Sw	45	50	m	✓
Ambient air mixing zone height	∂ air	2	2	m	✓
Width of source area parallel to wind direction	W'	45	181	m	✓
Width of source area orthogonal to wind direction	Sw'	45	635	m	✓
Groundwater					
Depth to groundwater	Lgw	3	1.15	m	✓
Width of source area parallel to groundwater flow direction	W	45	635	m	✓
Width of source area orthogonal to groundwater flow	Sw	45	181	m	✓
Ambient air mixing zone height	∂ air	2	2	m	✓
Width of source area parallel to wind direction	W'	45	181	m	✓
Width of source area orthogonal to wind direction	Sw'	45	635	m	✓

Site Parameters - Vadose Zone

Description		Value			
Parameter	Symbol	Default	Site-Specific	UM	check
Vadose Zone					
Soil texture representative of the unsaturated soil			Sandy Loam		
Effective porosity in the unsaturated zone	θ_e	Literature	0.345	-	✓
Volumetric water content in the soil	θ_w	Literature	0.194	-	✓
Volumetric air content in the soil	θ_a	Literature	0.151	-	✓
Volumetric water content in the capillary fringe	$\theta_{w, cap}$	Literature	0.288	-	✓
Volumetric air content in the capillary fringe	$\theta_{a, cap}$	Literature	0.057	-	✓
Capillary fringe thickness	h_{cap}	Literature	0.25	m	✓
Wetting front suction (matric potential)	h_{cr}	Literature	-0.0848	m	✓
Hydraulic conductivity in the vadose zone	K_{sat}	Literature	1.23e-5	m	✓
Ponding depth	H_w	0.25	0.25	m	✓
Soil bulk density	ρ_s	1.7	1.7	g/cm ³	✓
Soil pH	pH	6.8	8	-	✓
Organic Carbon Fraction - surface soil	$f_{oc, SS}$	0.01	0.01	g/g	✓
Organic Carbon Fraction - subsurface soil	$f_{oc, SP}$	0.01	0.01	g/g	✓
Residual void fraction in the soil (for Cres)	S_r	0.04	0.04	m	✓
Unsaturated zone thickness	h_v	Calculated	0.900	m	✓
Soil Infiltration Rate automatically calculated					
Annuale Rainfall Rate	P	129	41.4	cm/y	✓
Outdoor areal fraction of cracks	η_{out}	1	1	cm/y	✓
Soil Infiltration Rate	l_{ef}	Calculated	3.08	cm/y	✓

Site Parameters - Saturated Zone

Description		Value			
Parameter	Symbol	Default	Site-Specific	UM	check
Saturated Zone					
Soil texture representative of the saturated soil			Sandy Loam		
Hydraulic conductivity in groundwater	Ksat	Literature	1.23e-5	m/s	✓
Effective porosity in the saturated zone	$\theta_{e,sat}$	Literature	0.345	-	✓
Groundwater thickness	da	2	5	m	✓
Hydraulic gradient	i	0.01	0.01	m/m	✓
Darcy's velocity	v _{gw}	Calculated	1.23e-7	m/s	✓
Effective groundwater velocity	v _e	Calculated	3.57e-7	-	✓
Organic Carbon Fraction - saturated zone	f _{oc,sat}	0.001	0.001	g/g	✓
Residual void fraction in the saturated soil (for Cres)	S _r	0.04	0.04	g/g	✓
Distance of the point of compliance in groundwater	POC	100	0.1	m	✓
Longitudinal dispersivity	ax	Calculated	1.00e-2	m	✓
Transversal dispersivity	ay	Calculated	3.33e-3	m	✓
Vertical dispersivity	az	Calculated	5.00e-4	m	✓

Site Parameters - Outdoor

Description		Value			
Parameter	Symbol	Default	Site-Specific	UM	check
Outdoor					
Wind speed	Uair	2.25	1.44	m/s	✓
Particulate emission rate	Pe	6.9e-14	6.9e-14	g/cm/s ²	✓
Distance to outdoor air receptor - ADF	POC ADF	100	4	m	✓
Atmospheric Stability Class			Site-specific		
Transversal air dispersion coefficient	σ_y	10	10	m	✓
Vertical air dispersion coefficient	σ_z	10	10	m	✓
Aerobic depth below ground surface	La Outdoor	1	1	m	✓

Site Parameters - Indoor

Description		Value			
Parameter	Symbol	Default	Site-Specific	UM	check
Indoor					
Depth to base of enclosed space foundation	Z crack	0.15	0.15	m	✓
Thickness foundations	L crack	0.15	0.15	m	✓
Areal fraction of cracks in foundations/walls	η	0.01	0.01	m	✓
Enclosed space volume/infiltration area ratio	Lb	2	2	m	✓
Volumetric water content in the foundations	$\theta_{w,crack}$	0.12	0.12	-	✓
Volumetric air content in the foundations	$\theta_{a,crack}$	0.26	0.26	-	✓
Enclosed-space air exchange rate	ER	0.00014	0.00014	1/s	✓
Differential outdoor/indoor air pressure	Δp	0	0	g/cm/s ²	no check
Area of building foundation	Ab	70	70	m ²	✓
Soil vapor permeability*	Kv	1e-12	1e-12	m ²	✓
Enclosed space foundation perimeter	x crack	34	34	m	✓
Vapor Viscosity	μ_{air}	0.000181	0.000181	g/cm/s	✓
Soil to building air flowrate	Qs	Calculated	0.00e+0	L/min	✓
Aerobic depth below foundations	La Indoor	1	1	m	✓

Site Parameters - Indoor (off-site)

Description		Value			
Parameter	Symbol	Default	Site-Specific	UM	check
Indoor (off-site)					
Depth to base of enclosed space foundation	Z crack	0.15	0.15	m	✓
Thickness foundations	L crack	0.15	0.15	m	✓
Areal fraction of cracks in foundations/walls	η	0.01	0.01	m	✓
Enclosed space volume/infiltration area ratio	Lb	2	2	m	✓
Volumetric water content in the foundations	$\theta_{w,crack}$	0.12	0.12	-	✓
Volumetric air content in the foundations	$\theta_{a,crack}$	0.26	0.26	-	✓
Enclosed-space air exchange rate	ER	0.00014	0.00014	1/s	✓
Differential outdoor/indoor air pressure	Δp	0	0	g/cm/s ²	no check
Soil vapor permeability*	Kv	1e-12	1e-12	m ²	✓
Enclosed space foundation perimeter	x crack	34	34	m	✓
Soil to building air flowrate	Qs	Calculated	0.00e+0	L/min	✓
Vapor Viscosity	μ_{air}	0.000181	0.000181	g/cm/s	✓

Selected contaminants - Physico-chemical parameters (Loaded DB file: Default Database (ISS-INAIL, 2018))

Contaminant	Vol	Sol	H	Kd	Kd(pH)	Koc	Koc(pH)	Dair	Dw	ρ
-	-	mg/L	-	L/kg	L/kg	L/kg	L/kg	cm ² /s	cm ² /s	kg/L
Arsenic	PM				31					
Iron	PM			25						7.87
Nickel	PM				1900					
Manganese	PM			65						7.3
Boron	PM			3						2.34
Nitrite	PM									
Dichloropropane (1,2)	VOC*	2800	0.115			60.7		0.0733	0.00000973	1.16
Aliphatics C9-C12	VOC*	0.01	69			680000		0.07	0.000005	
Aromatics C11-C12	VOC*	5.8	0.03			5000		0.06	0.00001	
Zinc	PM				530					
Aliphatics C19-C36	POM	0.0000015	110			398000000				

Selected contaminants - Toxicological parameters (Loaded DB file: Default Database (ISS-INAIL, 2018))

Contaminant	ADAFc	ADAFa	SFing	SFinal	IUR	RfDing	RfDinal	RfC	ABS
	-	-	(mg/kg/d)-1	(mg/kg/d)-1	(µg/m³)-1	(mg/kg/d)	(mg/kg/d)	(µg/m³)	-
Arsenic			1.5		0.0043	0.0003		0.000015	0.03
Iron						0.7			0.01
Nickel					0.00026	0.02		0.00009	0.01
Manganese						0.14		0.00005	0.01
Boron						0.2		0.02	0.01
Nitrite						0.1			0.01
Dichloropropane (1,2)			0.037		0.0000037	0.04		0.004	0.1
Aliphatics C9-C12						0.1		0.2	0.1
Aromatics C11-C12						0.02		0.025	0.1
Zinc						0.3		1.05	0.01
Aliphatics C19-C36						2		0.2	0.1

Selected contaminants - Screening Values (Loaded DB file: Default Database (ISS-INAIL, 2018))

Contaminant	PRG Soil Residential	PRG Soil Industrial	PRG Groundwater
	mg/kg	mg/kg	mg/L
Arsenic	20	50	0.01
Iron			0.2
Nickel	120	500	0.02
Manganese			0.05
Boron			1
Nitrite			0.5
Dichloropropane (1,2)	0.3	5	0.00015
Aliphatics C9-C12	10	250	0.35
Aromatics C11-C12	10	250	0.35
Zinc	150	1500	3
Aliphatics C19-C36	50	750	0.35

Selected contaminants - Biodegradation constant (Loaded DB file: Default Database (ISS-INAIL, 2018))

Contaminant	First-order biodegradation constant (groundwater)	First-order biodegradation constant (leaching)	First-order biodegradation constant (vapors)
	1/d	1/d	1/d
Arsenic			
Iron			
Nickel			
Manganese			
Boron			
Nitrite			
Dichloropropane (1,2)			
Aliphatics C9-C12			
Aromatics C11-C12			
Zinc			
Aliphatics C19-C36			

Risk from Surface Soil

Contaminant	CRS	f	CRS/f	Csat	Cres	R (HH)	HI (HH)	Rgw (GW)
-	mg/kg	-	mg/kg	mg/kg	mg/kg	-	-	-
Arsenic			-	-	-	-	-	-
Iron			-	-	-	-	-	-
Nickel			-	-	-	-	-	-
Manganese			-	-	-	-	-	-
Boron			-	-	-	-	-	-
Nitrite			-	-	-	-	-	-
Dichloropropane (1,2)			-	2.05e+3	1.15e+4	-	-	-
Aliphatics C9-C12			-	6.81e+1	6.81e+1	-	-	-
Aromatics C11-C12	4.48e+2		4.48e+2	2.91e+2	2.91e+2	-	5.81e-1	1.12e+1
Zinc	-		-	-	-	-	-	-
Aliphatics C19-C36			-	5.97e+0	5.97e+0	-	-	-
Cumulative Outdoor Risk (On-site)						-	5.81e-1	
Cumulative Indoor Risk (On-site)						-	-	
Cumulative Risk water ingestion (On-site)						-	-	
Cumulative Outdoor Risk (Off-site)						-	6.69e-2	
Cumulative Risk water ingestion (Off-site)						-	-	

Risk from Subsurface Soil

Contaminant	CRS	f	CRS/f	Csat	Cres	R (HH)	HI (HH)	Rgw (GW)
-	mg/kg	-	mg/kg	mg/kg	mg/kg	-	-	-
Arsenic			-	-	-	-	-	-
Iron			-	-	-	-	-	-
Nickel			-	-	-	-	-	-
Manganese			-	-	-	-	-	-
Boron			-	-	-	-	-	-
Nitrite			-	-	-	-	-	-
Dichloropropane (1,2)			-	2.05e+3	1.15e+4	-	-	-
Aliphatics C9-C12			-	6.81e+1	6.81e+1	-	-	-
Aromatics C11-C12	9.00e+1		9.00e+1	2.91e+2	2.91e+2	-	1.22e-2	7.04e-1
Zinc	1.95e+2		1.95e+2	-	-	-	-	1.68e-2
Aliphatics C19-C36			-	5.97e+0	5.97e+0	-	-	-
Cumulative Outdoor Risk (On-site)						-	1.22e-2	
Cumulative Indoor Risk (On-site)						-	-	
Cumulative Risk water ingestion (On-site)						-	-	
Cumulative Outdoor Risk (Off-site)						-	1.22e-2	
Cumulative Risk water ingestion (Off-site)						-	-	

Risk from Groundwater

Contaminant	CRS	f	CRS/f	Sol	R (HH)	HI (HH)	Rgw (GW)
-	µg/L	-	µg/L	µg/L	-	-	-
Arsenic	4.08e+1		4.08e+1	-	-	-	4.08e+0
Iron	6.65e+3		6.65e+3	-	-	-	3.33e+1
Nickel	1.16e+2		1.16e+2	-	-	-	5.80e+0
Manganese	1.65e+3		1.65e+3	-	-	-	3.30e+1
Boron	2.03e+3		2.03e+3	-	-	-	2.03e+0
Nitrite	1.89e+3		1.89e+3	-	-	-	3.78e+0
Dichloropropane (1,2)	5.20e-1		5.20e-1	2.80e+6	1.08e-10	1.70e-5	3.47e+0
Aliphatics C9-C12	9.79e+2		9.79e+2	1.00e+1	-	3.02e-1	2.80e+0
Aromatics C11-C12	-		-	5.80e+3	-	-	-
Zinc	-		-	-	-	-	-
Aliphatics C19-C36	-		-	1.50e-3	-	-	-
Cumulative Outdoor Risk (On-site)					1.08e-10	3.02e-1	
Cumulative Indoor Risk (On-site)					-	-	
Cumulative Risk water ingestion (On-site)					-	-	
Cumulative Outdoor Risk (Off-site)					1.08e-10	3.02e-1	
Cumulative Indoor Risk (Off-site)					-	-	
Cumulative Risk water ingestion (Off-site)					-	-	

SSTL for Surface Soil

Contaminant	CRS	Csat	Cres	PRG	SSTL (HH)	SSTL (GW)	SSTL
-	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Arsenic		-	-	2.00e+1	3.89e-1	7.12e-1	3.89e-1
Iron		-	-		5.33e+4	1.15e+1	1.15e+1
Nickel		-	-	1.20e+2	1.52e+3	8.70e+1	8.70e+1
Manganese		-	-		1.06e+4	7.45e+0	7.45e+0
Boron		-	-		1.52e+4	7.13e+0	7.13e+0
Nitrite		-	-		7.61e+3	-	7.61e+3
Dichloropropane (1,2)		2.05e+3	1.15e+4	3.00e-1	5.85e+0	2.51e-4	2.51e-4
Aliphatics C9-C12		6.81e+1	6.81e+1	1.00e+1	6.00e+3	> Csat	5.45e+3
Aromatics C11-C12	4.48e+2	2.91e+2	2.91e+2	1.00e+1	1.07e+3	4.01e+1	4.01e+1
Zinc	-	-	-	1.50e+2	2.28e+4	3.64e+3	3.64e+3
Aliphatics C19-C36		5.97e+0	5.97e+0	5.00e+1	1.22e+5	> Csat	1.22e+5

SSTL for Subsurface Soil

Contaminant	CRS	Csat	Cres	PRG	SSTL (HH)	SSTL (GW)	SSTL
-	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Arsenic		-	-	2.00e+1	-	2.27e+0	2.27e+0
Iron		-	-		-	3.66e+1	3.66e+1
Nickel		-	-	1.20e+2	-	2.77e+2	2.77e+2
Manganese		-	-		-	2.37e+1	2.37e+1
Boron		-	-		-	2.27e+1	2.27e+1
Nitrite		-	-		-	-	-
Dichloropropane (1,2)		2.05e+3	1.15e+4	3.00e-1	3.88e+1	7.99e-4	7.99e-4
Aliphatics C9-C12		6.81e+1	6.81e+1	1.00e+1	> Csat	> Csat	> Csat
Aromatics C11-C12	9.00e+1	2.91e+2	2.91e+2	1.00e+1	> Csat	1.28e+2	1.28e+2
Zinc	1.95e+2	-	-	1.50e+2	-	1.16e+4	1.16e+4
Aliphatics C19-C36		5.97e+0	5.97e+0	5.00e+1	-	> Csat	> Csat

SSTL for Groundwater

Contaminant	CRS	Sol	PRG	SSTL (HH)	SSTL (GW)	SSTL
-	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Arsenic	4.08e+1	-	1.00e+1	-	1.00e+1	1.00e+1
Iron	6.65e+3	-	2.00e+2	-	2.00e+2	2.00e+2
Nickel	1.16e+2	-	2.00e+1	-	2.00e+1	2.00e+1
Manganese	1.65e+3	-	5.00e+1	-	5.00e+1	5.00e+1
Boron	2.03e+3	-	1.00e+3	-	1.00e+3	1.00e+3
Nitrite	1.89e+3	-	5.00e+2	-	5.00e+2	5.00e+2
Dichloropropane (1,2)	5.20e-1	2.80e+6	1.50e-1	4.81e+3	1.50e-1	1.50e-1
Aliphatics C9-C12	9.79e+2	1.00e+1	3.50e+2	> Sol	3.50e+2	3.50e+2
Aromatics C11-C12	-	5.80e+3	3.50e+2	> Sol	3.50e+2	3.50e+2
Zinc	-	-	3.00e+3	-	3.00e+3	3.00e+3
Aliphatics C19-C36	-	1.50e-3	3.50e+2	-	3.50e+2	3.50e+2

Cumulative SSTL - Surface Soil

Contaminant	CRS	SSTLind	f	SSTLcum	Csat	R (HH)	HI (HH)	Rgw (GW)
-	mg/kg	mg/kg	-	mg/kg	mg/kg	-	-	-
Arsenic		3.89e-1		3.89e-1	-	1.00e-6	1.80e-2	5.46e-1
Iron		1.15e+1		1.15e+1	-	-	2.16e-4	1.00e+0
Nickel		8.70e+1		8.70e+1	-	2.23e-10	5.72e-2	1.00e+0
Manganese		7.45e+0		7.45e+0	-	-	7.03e-4	1.00e+0
Boron		7.13e+0		7.13e+0	-	-	4.68e-4	1.00e+0
Nitrite		7.61e+3		7.61e+3	-	-	1.00e+0	-
Dichloropropane (1,2)		2.51e-4		2.51e-4	2.05e+3	4.30e-11	3.86e-6	1.00e+0
Aliphatics C9-C12		5.45e+3		5.45e+3	6.81e+1	-	9.10e-1	1.25e-2
Aromatics C11-C12	4.48e+2	4.01e+1		4.01e+1	2.91e+2	-	5.21e-2	1.00e+0
Zinc	-	3.64e+3		3.64e+3	-	-	1.59e-1	1.00e+0
Aliphatics C19-C36		1.22e+5		1.22e+5	5.97e+0	-	1.00e+0	1.87e-6
Cumulative Outdoor Risk (On-site)						1.00e-6	3.20e+0	
Cumulative Indoor Risk (On-site)						-	-	
Cumulative Risk water ingestion (On-site)						-	-	
Cumulative Outdoor Risk (Off-site)						8.21e-11	1.16e-2	
Cumulative Risk water ingestion (Off-site)						-	-	

SSTL Hydrocarbons (MADEP) for Surface Soil

Contaminant	CRS	Fraction			C _{sat}	SSTL (HH)	SSTL/fr (HH)			SSTL (GW)	SSTL/fr (GW)		
		C<12	C>12	TOT			C<12	C>12	TOT		C<12	C>12	TOT
-	mg/kg	-	-	-	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Aliphatics C9-C12		-	-	-	6.81e +1	6.00e+3	-	-	-	-	-	-	-
Aromatics C11- C12	4.48e +2	1.00	-	1.00	2.91e +2	1.07e+3	1.07e+3	-	1.07e+3	4.01e+1	4.01e+1	-	4.01e+1
Aliphatics C19- C36		-	-	-	5.97e +0	1.22e+5	-	-	-	-	-	-	-
Critical Fraction						SSTL (HH)	1.07e+3	1.00e+6	1.07e+3	SSTL (GW)	4.01e+1	1.00e+6	4.01e+1

Cumulative SSTL - Subsurface Soil

Contaminant	CRS	SSTLind	f	SSTLcum	Csat	R (HH)	HI (HH)	Rgw (GW)
-	mg/kg	mg/kg	-	mg/kg	mg/kg	-	-	-
Arsenic		2.27e+0		2.27e+0	-	-	-	1.00e+0
Iron		3.66e+1		3.66e+1	-	-	-	1.00e+0
Nickel		2.77e+2		2.77e+2	-	-	-	1.00e+0
Manganese		2.37e+1		2.37e+1	-	-	-	1.00e+0
Boron		2.27e+1		2.27e+1	-	-	-	1.00e+0
Nitrite		-		-	-	-	-	-
Dichloropropane (1,2)		7.99e-4		7.99e-4	2.05e+3	2.06e-11	3.25e-6	1.00e+0
Aliphatics C9-C12		> Csat		> Csat	6.81e+1	-	5.53e-3	3.92e-3
Aromatics C11-C12	9.00e+1	1.28e+2		1.28e+2	2.91e+2	-	1.74e-2	1.00e+0
Zinc	1.95e+2	1.16e+4		1.16e+4	-	-	-	1.00e+0
Aliphatics C19-C36		> Csat		> Csat	5.97e+0	-	-	5.88e-7
Cumulative Outdoor Risk (On-site)						2.06e-11	2.29e-2	
Cumulative Indoor Risk (On-site)						-	-	
Cumulative Risk water ingestion (On-site)						-	-	
Cumulative Outdoor Risk (Off-site)						2.06e-11	2.29e-2	
Cumulative Risk water ingestion (Off-site)						-	-	

SSTL Hydrocarbons (MADEP) for Subsurface Soil

Contaminant	CRS	Fraction			Csat	SSTL (HH)	SSTL/fr (HH)			SSTL (GW)	SSTL/fr (GW)		
		C<12	C>12	TOT			C<12	C>12	TOT		C<12	C>12	TOT
-	mg/kg	-	-	-	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Aliphatics C9-C12		-	-	-	6.81e +1	-	-	-	-	-	-	-	-
Aromatics C11- C12	9.00e +1	1.00	-	1.00	2.91e +2	-	-	-	-	1.28e+2	1.28e+2	-	1.28e+2
Aliphatics C19- C36		-	-	-	5.97e +0	-	-	-	-	-	-	-	-
Critical Fraction						SSTL (HH)	-	-	-	SSTL (GW)	1.28e+2	-	1.28e+2

Cumulative SSTL - Groundwater

Contaminant	CRS	SSTLind	f	SSTLcum	Sol	R (HH)	HI (HH)	Rgw (GW)
-	µg/L	µg/L	-	µg/L	µg/L	-	-	-
Arsenic	4.08e+1	1.00e+1		1.00e+1	-	-	-	1.00e+0
Iron	6.65e+3	2.00e+2		2.00e+2	-	-	-	1.00e+0
Nickel	1.16e+2	2.00e+1		2.00e+1	-	-	-	1.00e+0
Manganese	1.65e+3	5.00e+1		5.00e+1	-	-	-	1.00e+0
Boron	2.03e+3	1.00e+3		1.00e+3	-	-	-	1.00e+0
Nitrite	1.89e+3	5.00e+2		5.00e+2	-	-	-	1.00e+0
Dichloropropane (1,2)	5.20e-1	1.50e-1		1.50e-1	2.80e+6	3.12e-11	4.91e-6	1.00e+0
Aliphatics C9-C12	9.79e+2	3.50e+2		3.50e+2	1.00e+1	-	3.09e-3	1.00e+0
Aromatics C11-C12	-	3.50e+2		3.50e+2	5.80e+3	-	6.24e-4	1.00e+0
Zinc	-	3.00e+3		3.00e+3	-	-	-	1.00e+0
Aliphatics C19-C36	-	3.50e+2		3.50e+2	1.50e-3	-	-	1.00e+0
Cumulative Outdoor Risk (On-site)						3.12e-11	3.72e-3	
Cumulative Indoor Risk (On-site)						-	-	
Cumulative Risk water ingestion (On-site)						-	-	
Cumulative Outdoor Risk (Off-site)						3.12e-11	3.72e-3	
Cumulative Indoor Risk (Off-site)						-	-	
Cumulative Risk water ingestion (Off-site)						-	-	

SSTL Hydrocarbons (MADEP) for Groundwater

Contaminant	CRS	Fraction			Sol	SSTL (HH)	SSTL/fr (HH)			SSTL (GW)	SSTL/fr (GW)		
		C<12	C>12	TOT			C<12	C>12	TOT		C<12	C>12	TOT
-	µg/L	-	-	-	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Aliphatics C9-C12	9.79e+2	1.00	-	1.00	1.00e+1	-	-	-	-	3.50e+2	3.50e+2	-	3.50e+2
Aromatics C11-C12	-	-	-	-	5.80e+3	-	-	-	-	3.50e+2	-	-	-
Aliphatics C19-C36	-	-	-	-	1.50e-3	-	-	-	-	3.50e+2	-	-	-
Critical Fraction						SSTL (HH)	-	-	-	SSTL (GW)	3.50e+2	-	3.50e+2