ALLEGATO 3

Elaborazioni del software RBCA Tool kit

TERRENI - Rame

CHEMICAL DATA FOR SELECTED COCs

Physical Property Data

Constituent	CAS Number	type	Molecular Weight (g/mole) MW	ref	Diffusion Coefficients in air (cm2/s) Dair	ref	Diffusion Coefficients in water (cm2/s) Dwat	ref	log (Koc) or log(Kd) (@ 20 - 25 C) log(L/kg)	partition	ref	Henry's Law Constant (@ 20 - 25 C) (atm-m3) mol	(unitless)	ref	Vapor Pressure (@ 20 - 25 C) (mm Hg)	ref	Solubility (@ 20 - 25 C) (mg/L)	ref	acid pKa	base pKb	ref
Copper*	7440-50-8	N	63,546	14	0,00E+00	-	0,00E+00	-	1,55	Kd	0	0,00E+00	0,00E+00	-	0,00E+00	14	2,93E+05	27	-	-	-

* = Chemical with user-specified data

Site Name: Stabilimento Edison - S06

Completed By: SCE

Job ID: 11048039

Site Location: Taranto

Date Completed: d-ott-yy

CHEMICAL DATA FOR SELECTED COCs

Toxicity Data

Constituent	Reference Dose (mg/kg/day) Oral RfD_oral	ref	Reference Dose (mg/kg/day) Dermal RfD_dermal	ref	Reference Conc. (mg/m3) Inhalation RfC_Inhal	ref	Slope Factors 1/(mg/kg/day) Oral SF_oral	ref	Slope Factors 1/(mg/kg/day) Dermal SF_dermal	ref	Unit Risk Factor 1/(µg/m3) Inhalation URF_Inhal	ref	EPA Weight of Evidence	Is Constituent Carcinogenic ?
Copper*	4,00E-02	R	4,00E-02	0,04	1,40E-01	-	-	-	-	-	-	-	D	FALSE

* = Chemical with user-specified

Site Name: Stabilimento Edison

Site Location: Taranto

Miscellaneous Chemical Data

Constituent	Maximum Contaminant Level MCL (mg/L)	ref	Time-Weighted Average Workplace Criteria TWA (mg/m3)	ref	Aquatic Life Prot. Criteria AQL (mg/L)	ref	Bioconcentration Factor (L-wat/kg-fish)
Copper*	1,30E+00	-	1,00E+00	OSHA	1,70E-02	33	1

* = Chemical with user-specified

Site Name: Stabilimento Edison

Site Location: Taranto

CHEMICAL DATA FOR SELECTED COCs

Miscellaneous Chemical Data

Constituent	Dermal Relative Absorp. Factor (unitless)	Water Dermal Permeability Data: Dermal Permeability Coeff. (cm/hr)	Lag time for Dermal Exposure (hr)	Critical Exposure Time (hr)	Relative Contr of Derm Perm Coeff (unitless)	Water/Skin Derm Adsorp Factor (cm/event)	ref	Detection Limits: Groundwater (mg/L.)	ref	Soil (mg/kg)	ref	Half Life (First-Order Decay) (days): Saturated	Unsaturated	ref
Copper*	0,01	0,001	-	-	-	3,0E-3	D	0,06	S	0,006	S	-	-	-

* = Chemical with user-specified

Site Name: Stabilimento Edison

Site Location: Taranto

RBCA SITE ASSESSMENT

Input Parameter Summary

Site Name: Stabilimento Edison - S06
Site Location: Taranto

Completed By: SCE
Date Completed: d-ott-yy

Job ID: 11048039

Exposure Parameters		Residential			Commercial/Industrial	
		Adult	(1-6yrs)	(1-16 yrs)	Chronic	Construc.
AT_c	Averaging time for carcinogens (yr)	70				
AT_n	Averaging time for non-carcinogens (yr)	30			25	1
BW	Body weight (kg)	70	15	35	70	
ED	Exposure duration (yr)	30	6	16	25	1
τ	Averaging time for vapor flux (yr)	30			25	1
EF	Exposure frequency (days/yr)	350			73,3	180
EF_D	Exposure frequency for dermal exposure	350			73,3	
IR_w	Ingestion rate of water (L/day)	2			1	
IR_s	Ingestion rate of soil (mg/day)	100	200		50	100
SA	Skin surface area (dermal) (cm^2)	5700		2800	3300	3300
M	Soil to skin adherence factor	1				
ET_{swim}	Swimming exposure time (hr/event)	3				
EV_{swim}	Swimming event frequency (events/yr)	12	12	12		
IR_{swim}	Water ingestion while swimming (L/hr)	0,05	0,5			
SA_{swim}	Skin surface area for swimming (cm^2)	23000		8100		
IR_{fish}	Ingestion rate of fish (kg/yr)	0,025				
FI_{fish}	Contaminated fish fraction (unitless)	1				

Complete Exposure Pathways and Receptors	On-site	Off-site 1	Off-site 2
Groundwater:			
Groundwater Ingestion	None	None	None
Soil Leaching to Groundwater Ingestion	None	None	None
Applicable Surface Water Exposure Routes:			
Swimming			NA
Fish Consumption			NA
Aquatic Life Protection			NA
Soil:			
Direct Ingestion and Dermal Contact	None		
Outdoor Air:			
Particulates from Surface Soils	None	None	None
Volatilization from Soils	Commercial	None	None
Volatilization from Groundwater	None	None	None
Indoor Air:			
Volatilization from Subsurface Soils	Commercial	NA	NA
Volatilization from Groundwater	None	NA	NA

Receptor Distance from Source Media	On-site	Off-site 1	Off-site 2	(Units)
Groundwater receptor	NA	NA	NA	(m)
Soil leaching to groundwater receptor	NA	NA	NA	(m)
Outdoor air inhalation receptor	0	NA	NA	(m)

Target Health Risk Values		Individual	Cumulative
TR_{ab}	Target Risk (class A&B carcinogens)	1,0E-5	1,0E-5
TR_c	Target Risk (class C carcinogens)	1,0E-5	
THQ	Target Hazard Quotient (non-carcinogenic risk)	1,0E+0	1,0E+0

Modeling Options	
RBCA tier	Tier 2
Outdoor air volatilization model	Surface & subsurface models
Indoor air volatilization model	Johnson & Ettinger model
Soil leaching model	NA
Use soil attenuation model (SAM) for leachate?	NA
Air dilution factor	NA
Groundwater dilution-attenuation factor	NA

NOTE: NA = Not applicable

Surface Parameters		General	Construction	(Units)
A	Source zone area	2,5E+3	NA	(m^2)
W	Length of source-zone area parallel to wind	5,0E+1	NA	(m)
W_{gw}	Length of source-zone area parallel to GW flow	NA		(m)
U_{air}	Ambient air velocity in mixing zone	2,3E+0		(m/s)
δ_{air}	Air mixing zone height	2,0E+0		(m)
P_a	Areal particulate emission rate	NA		(g/cm^2/s)
L_{ss}	Thickness of affected surface soils	1,0E+0		(m)

Surface Soil Column Parameters		Value			(Units)
h_{cap}	Capillary zone thickness	NA			(m)
h_v	Vadose zone thickness	NA			(m)
ρ_s	Soil bulk density	1,7E+0			(g/cm^3)
f_{oc}	Fraction organic carbon	5,0E-3			(-)
θ_T	Soil total porosity	4,1E-1			(-)
K_{vs}	Vertical hydraulic conductivity	1,2E-3			(cm/s)
k_v	Vapor permeability	1,0E-12			(m^2)
L_{gw}	Depth to groundwater	NA			(m)
L_s	Depth to top of affected soils	0,0E+0			(m)
L_{base}	Depth to base of affected soils	2,0E+0			(m)
L_{subs}	Thickness of affected soils	2,0E+0			(m)
pH	Soil/groundwater pH	6,8E+0			(-)
		capillary	vadose	foundation	
θ_w	Volumetric water content	0,288	0,151	0,12	(-)
θ_a	Volumetric air content	0,122	0,259	0,26	(-)

Building Parameters		Residential	Commercial	(Units)
L_b	Building volume/area ratio	NA	3,00E+0	(m)
A_b	Foundation area	NA	7,00E+1	(m^2)
X_{crk}	Foundation perimeter	NA	3,40E+1	(m)
ER	Building air exchange rate	NA	2,30E-4	(1/s)
L_{crk}	Foundation thickness	NA	1,50E-1	(m)
Z_{crk}	Depth to bottom of foundation slab	NA	1,50E-1	(m)
η	Foundation crack fraction	NA	1,00E-2	(-)
dP	Indoor/outdoor differential pressure	NA	0,00E+0	(g/cm/s^2)
Q_s	Convective air flow through slab	NA	0,00E+0	(m^3/s)

Groundwater Parameters		Value	(Units)
δ_{gw}	Groundwater mixing zone depth	NA	(m)
I_f	Net groundwater infiltration rate	NA	(cm/yr)
U_{gw}	Groundwater Darcy velocity	NA	(cm/s)
V_{gw}	Groundwater seepage velocity	NA	(cm/s)
K_s	Saturated hydraulic conductivity	NA	(cm/s)
i	Groundwater gradient	NA	(-)
S_w	Width of groundwater source zone	NA	(m)
S_d	Depth of groundwater source zone	NA	(m)
θ_{ef}	Effective porosity in water-bearing unit	NA	(-)
f_{oc-sat}	Fraction organic carbon in water-bearing unit	NA	(-)
pH_{sat}	Groundwater pH	NA	(-)
	Biodegradation considered?	NA	

Transport Parameters		Off-site 1	Off-site 2	Off-site 1	Off-site 2	(Units)
Lateral Groundwater Transport		Groundwater Ingestion		Soil Leaching to GW		
α_x	Longitudinal dispersivity	NA	NA	NA	NA	(m)
α_y	Transverse dispersivity	NA	NA	NA	NA	(m)
α_z	Vertical dispersivity	NA	NA	NA	NA	(m)
Lateral Outdoor Air Transport		Soil to Outdoor Air Inhal.		GW to Outdoor Air Inhal.		
α_y	Transverse dispersion coefficient	NA	NA	NA	NA	(m)
α_z	Vertical dispersion coefficient	NA	NA	NA	NA	(m)
ADF	Air dispersion factor	NA	NA	NA	NA	(-)

Surface Water Parameters		Off-site 2	(Units)
Q_{sw}	Surface water flowrate	NA	(m^3/s)
W_{pl}	Width of GW plume at SW discharge	NA	(m)
δ_{pl}	Thickness of GW plume at SW discharge	NA	(m)
DF_{sw}	Groundwater-to-surface water dilution factor	NA	(-)

RBCA SITE ASSESSMENT

Site Name: Stabilimento Edison - S06 | Completed By: SCE | Job ID: 11048039

Site Location: Taranto | Date Completed: d-ott-yy

SOIL (0 - 2 m) SSTL VALUES

Target Risk (Class A & B) 1,0E-5

Target Risk (Class C) 1,0E-5

Target Hazard Quotient 1,0E+0

Groundwater DAF Option:

SSTL Results For Complete Exposure Pathways ("X" If Complete)

				Soil Leaching to Groundwater Ingestion / Discharge to Surface Water			X	Soil Vol. to Indoor Air	X	Soil Volatilization to Outdoor Air				Surface Soil Inhalation, Ingestion,Dermal Contact		Applicable SSTL	SSTL Exceeded ?	Required CRF
CONSTITUENTS OF CONCERN		Representative Concentration	On-site (0 m)	Off-site 1 (0 m)	Off-site 2 (0 m)		On-site (0 m)		On-site (0 m)		Off-site 1 (0 m)	Off-site 2 (0 m)		On-site (0 m)				Only if "yes" left
CAS No.	Name	(mg/kg)	None	None	None		Commercial		Commercial	Construction Worker	None	None		None	Construction Worker	(mg/kg)	"☒" If yes	
7440-50-8	Copper*	6,4E+2	NA	NA	NA		>1.053E+4		>1.053E+4	NA	NA	NA		NA	NA	>1.053E+4	☐	NA

* = Chemical with user-specified data

">" indicates risk-based target concentration greater than constituent residual saturation value. NA = Not applicable. NC = Not calculated.

RBCA SITE ASSESSMENT | **Baseline Risk Summary-All Pathways**

Site Name: Stabilimento Edison - S06
Site Location: Taranto

Completed By: SCE
Date Completed: d-ott-yy

TIER 2 BASELINE RISK SUMMARY TABLE

EXPOSURE PATHWAY	BASELINE CARCINOGENIC RISK					BASELINE TOXIC EFFECTS				
	Individual COC Risk		Cumulative COC Risk		Risk Limit(s) Exceeded?	Hazard Quotient		Hazard Index		Toxicity Limit(s) Exceeded?
	Maximum Value	Target Risk	Total Value	Target Risk		Maximum Value	Applicable Limit	Total Value	Applicable Limit	
OUTDOOR AIR EXPOSURE PATHWAYS										
Complete:	NC	1,0E-5	NC	1,0E-5	☐	NC	1,0E+0	NC	1,0E+0	☐
INDOOR AIR EXPOSURE PATHWAYS										
Complete:	NC	1,0E-5	NC	1,0E-5	☐	NC	1,0E+0	NC	1,0E+0	☐
SOIL EXPOSURE PATHWAYS										
Complete:	NA	NA	NA	NA	☐	NA	NA	NA	NA	☐
GROUNDWATER EXPOSURE PATHWAYS										
Complete:	NA	NA	NA	NA	☐	NA	NA	NA	NA	☐
SURFACE WATER EXPOSURE PATHWAYS										
Complete:	NA	NA	NA	NA	☐	NA	NA	NA	NA	☐

CRITICAL EXPOSURE PATHWAY (Maximum Values From Complete Pathways)										
	NC	***1,0E-5***	***NC***	***1,0E-5***	☐	***NC***	***1,0E+0***	***NC***	***1,0E+0***	☐
	Outdoor Air		***Outdoor Air***			***Outdoor Air***		***Outdoor Air***		

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

SURFACE SOILS (0 - 1 m):

VAPOR INHALATION

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/kg) Receptor				3) Exposure Medium Outdoor Air: POE Conc. (mg/m^3) (1) / (2)			
	Soil Conc. (mg/kg)	On-site (0 m)		Off-site 1 (0 m)	Off-site 2 (0 m)	On-site (0 m)		Off-site 1 (0 m)	Off-site 2 (0 m)
		Commercial	Construction Worker	None	None	Commercial	Construction Worker	None	None
Copper*	6.4E+2	NA							

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Stabilimento Edison - S06
Site Location: Taranto
Completed By: SCE

Date Completed: d-ott-yy
Job ID: 11048039

RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAYS ARE ACTIVE)**

CARCINOGENIC RISK

Constituents of Concern	(1) EPA Carcinogenic Classification	(2) Total Carcinogenic Exposure (mg/m^3)				(3) Inhalation Unit Risk Factor (µg/m^3)^-1	(4) Individual COC Risk (2) x (3) x 1000			
		On-site (0 m)		Off-site 1 (0 m)	Off-site 2 (0 m)		On-site (0 m)		Off-site 1 (0 m)	Off-site 2 (0 m)
		Commercial	Construction Worker	None	None		Commercial	Construction Worker	None	None
Copper*	D									
Total Pathway Carcinogenic Risk =										

Site Name: Stabilimento Edison - S06
Site Location: Taranto

Completed By: SCE
Date Completed: d-ott-yy

Job ID: 11048039

RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAYS ARE ACTIVE)**

TOXIC EFFECTS

Constituents of Concern	(5) Total Toxicant Exposure (mg/m^3)				(6) Inhalation Reference Conc. (mg/m^3)	(7) Individual COC Hazard Quotient (5) / (6)			
	On-site (0 m)		Off-site 1 (0 m)	Off-site 2 (0 m)		On-site (0 m)		Off-site 1 (0 m)	Off-site 2 (0 m)
	Commercial	Construction Worker	None	None		Commercial	Construction Worker	None	None
Copper*					1,4E-1				
Total Pathway Hazard Index =									

Site Name: Stabilimento Edison - S06
Site Location: Taranto

Completed By: SCE
Date Completed: d-ott-yy

Job ID: 11048039

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

INDOOR AIR EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SOILS (0 - 2 m): VAPOR INTRUSION INTO ON-SITE BUILDINGS

Constituents of Concern	1) Source Medium Soil Conc. (mg/kg)	2) NAF Value (m^3/kg) Receptor Commercial	3) Exposure Medium Indoor Air: POE Conc. (mg/m^3) (1) / (2) Commercial	4) Exposure Multiplier (EFxED)/(ATx365) (unitless) Commercial	5) Average Inhalation Exposure Concentration (mg/m^3) (3) X (4) Commercial
Copper*	6,4E+2	NA		2,0E-1	

* = Chemical with user-specified data

NOTE: AT = Averaging time (days) EF = Exposure frequency (days/yr) ED = Exposure duration (yr) NAF = Natural attenuation factor POE = Point of exposure

Site Name: Stabilimento Edison - S06
Site Location: Taranto
Completed By: SCE

Date Completed: d-ott-yy
Job ID: 11048039

RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

INDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAYS ARE ACTIVE)**

	TOXIC EFFECTS		
	(5) Total Toxicant Exposure (mg/m^3)	(6) Inhalation Reference Concentration	(7) Individual COC Hazard Quotient (5) / (6)
Constituents of Concern	Commercial	(mg/m^3)	Commercial
Copper*		1,4E-1	

Total Pathway Hazard Index =

Site Name: Stabilimento Edison - S06
Site Location: Taranto
Completed By: SCE

Date Completed: d-ott-yy
Job ID: 11048039

RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

INDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAYS ARE ACTIVE)**

	CARCINOGENIC RISK			
Constituents of Concern	(1) EPA Carcinogenic Classification	(2) Total Carcinogenic Exposure (mg/m^3) Commercial	(3) Inhalation Unit Risk Factor (µg/m^3)^-1	(4) Individual COC Risk (2) x (3) x 1000 Commercial
Copper*	D			

Total Pathway Carcinogenic Risk =

Site Name: Stabilimento Edison - S06
Site Location: Taranto
Completed By: SCE

Date Completed: d-ott-yy
Job ID: 11048039

TERRENI – Idrocarburi pesanti (C>12)

CHEMICAL DATA FOR SELECTED COCs

Physical Property Data

Constituent	CAS Number	type	Molecular Weight (g/mole) MW	ref	Diffusion Coefficients in air (cm2/s) Dair	ref	Diffusion Coefficients in water (cm2/s) Dwat	ref	log (Koc) or log(Kd) (@ 20 - 25 C) log(L/kg)	partition	ref	Henry's Law Constant (@ 20 - 25 C) (atm-m3) mol	(unitless)	ref	Vapor Pressure (@ 20 - 25 C) (mm Hg)	ref	Solubility (@ 20 - 25 C) (mg/L)	ref	acid pKa	base pKb	ref
TPH MADEP - Aliph C9-C18*	0-00-0	-	170	-	7,00E-02	-	5,00E-06	-	5,83	Koc	-	1,67E+00	6,90E+01	-	1,06E-01	-	1,00E-02	-	-	-	-
TPH MADEP - Aliph C19-C36*	0-00-0	-	-	-	-	-	-	-	-	Kd	-	0,00E+00	0,00E+00	-	-	-	-	-	-	-	-
TPH MADEP - Arom C11-C22*	0-00-0	-	150	-	6,00E-02	-	1,00E-05	-	3,70	Koc	-	7,27E-04	3,00E-02	-	2,43E-02	-	5,80E+00	-	-	-	-

* = Chemical with user-specified data

Site Name: Stabilimento Edison - sorgente Terreni

Completed By: SCE

Job ID: 11048039

Site Location: Taranto

Date Completed: d-lug-yy

CHEMICAL DATA FOR SELECTED COCs

Toxicity Data

	Reference Dose (mg/kg/day)				Reference Conc. (mg/m3)		Slope Factors 1/(mg/kg/day)				Unit Risk Factor 1/(µg/m3)			
Constituent	Oral RfD_oral	ref	Dermal RfD_dermal (mg/kg/day)	ref	Inhalation RfC_Inhal	ref	Oral SF_oral	ref	Dermal SF_dermal 1/(mg/kg/day)	ref	Inhalation URF_Inhal	ref	EPA Weight of Evidence	Is Constituent Carcinogenic ?
TPH MADEP - Aliph C9-C18*	1,00E-01	-	1,00E-01	0,1	2,00E-01	-	-	-	-	-	-	-	-	FALSE
TPH MADEP - Aliph C19-C36*	2,00E+00	-	2,00E+00	2	-	-	-	-	-	-	-	-	-	FALSE
TPH MADEP - Arom C11-C22*	3,00E-02	-	3,00E-02	0,03	-	-	-	-	-	-	-	-	D	FALSE

* = Chemical with user-specified

Site Name: Stabilimento Edison

Site Location: Taranto

Miscellaneous Chemical Data

Constituent	Maximum Contaminant Level MCL (mg/L)	ref	Time-Weighted Average Workplace Criteria TWA (mg/m3)	ref	Aquatic Life Prot. Criteria AQL (mg/L)	ref	Biocon-centration Factor (L-wat/kg-fish)
TPH MADEP - Aliph C9-C18*	-	-	-	-	-	-	-
TPH MADEP - Aliph C19-C36*	-	-	-	-	-	-	-
TPH MADEP - Arom C11-C22*	-	-	-	-	-	-	-

* = Chemical with user-specified

Site Name: Stabilimento Edison

Site Location: Taranto

CHEMICAL DATA FOR SELECTED COCs

Miscellaneous Chemical Data

Constituent	Dermal Relative Absorp. Factor (unitless)	Water Dermal Permeability Data: Dermal Permeability Coeff. (cm/hr)	Lag time for Dermal Exposure (hr)	Critical Exposure Time (hr)	Relative Contr of Derm Perm Coeff (unitless)	Water/Skin Derm Adsorp Factor (cm/event)	ref	Detection Limits: Groundwater (mg/L)	ref	Soil (mg/kg)	ref	Half Life (First-Order Decay) (days): Saturated	Unsaturated	ref
TPH MADEP - Aliph C9-C18*	0,1	8,2	-	-	-	-	-	-	-	-	-	-	-	-
TPH MADEP - Aliph C19-C36*	0,1	92	-	-	-	-	-	-	-	-	-	-	-	-
TPH MADEP - Arom C11-C22*	0,1	1,5	-	-	-	-	-	-	-	-	-	-	-	-

* = Chemical with user-specified

Site Name: Stabilimento Edison

Site Location: Taranto

RBCA SITE ASSESSMENT

Input Parameter Summary

Site Name: Stabilimento Edison - sorgente Terreni
Site Location: Taranto

Completed By: SCE
Date Completed: d-lug-yy

Job ID: 11048039

Exposure Parameters		Residential			Commercial/Industrial	
		Adult	(1-6yrs)	(1-16 yrs)	Chronic	Construc.
AT_c	Averaging time for carcinogens (yr)	70				
AT_n	Averaging time for non-carcinogens (yr)	30			25	1
BW	Body weight (kg)	70	15	35	70	
ED	Exposure duration (yr)	30	6	16	25	1
τ	Averaging time for vapor flux (yr)	30			25	1
EF	Exposure frequency (days/yr)	350			73,3	180
EF_D	Exposure frequency for dermal exposure	350			73,3	
IR_w	Ingestion rate of water (L/day)	2			1	
IR_s	Ingestion rate of soil (mg/day)	100	200		50	100
SA	Skin surface area (dermal) (cm^2)	5700		2800	3300	3300
M	Soil to skin adherence factor	1				
ET_{swim}	Swimming exposure time (hr/event)	3				
EV_{swim}	Swimming event frequency (events/yr)	12	12	12		
IR_{swim}	Water ingestion while swimming (L/hr)	0,05	0,5			
SA_{swim}	Skin surface area for swimming (cm^2)	23000		8100		
IR_{fish}	Ingestion rate of fish (kg/yr)	0,025				
FI_{fish}	Contaminated fish fraction (unitless)	1				

Complete Exposure Pathways and Receptors	On-site	Off-site 1	Off-site 2
Groundwater:			
Groundwater Ingestion	None	None	None
Soil Leaching to Groundwater Ingestion	None	None	None
Applicable Surface Water Exposure Routes:			
Swimming			NA
Fish Consumption			NA
Aquatic Life Protection			NA
Soil:			
Direct Ingestion and Dermal Contact	None		
Outdoor Air:			
Particulates from Surface Soils	None	None	None
Volatilization from Soils	Commercial	None	None
Volatilization from Groundwater	None	None	None
Indoor Air:			
Volatilization from Subsurface Soils	Commercial	NA	NA
Volatilization from Groundwater	None	NA	NA

Receptor Distance from Source Media	On-site	Off-site 1	Off-site 2	(Units)
Groundwater receptor	NA	NA	NA	(m)
Soil leaching to groundwater receptor	NA	NA	NA	(m)
Outdoor air inhalation receptor	0	NA	NA	(m)

Target Health Risk Values		Individual	Cumulative
TR_{ab}	Target Risk (class A&B carcinogens)	1,0E-5	1,0E-5
TR_c	Target Risk (class C carcinogens)	1,0E-5	
THQ	Target Hazard Quotient (non-carcinogenic risk)	1,0E+0	1,0E+0

Modeling Options	
RBCA tier	Tier 2
Outdoor air volatilization model	Surface & subsurface models
Indoor air volatilization model	Johnson & Ettinger model
Soil leaching model	NA
Use soil attenuation model (SAM) for leachate?	NA
Air dilution factor	NA
Groundwater dilution-attenuation factor	NA

NOTE: NA = Not applicable

Surface Parameters		General	Construction	(Units)
A	Source zone area	2,5E+3	NA	(m^2)
W	Length of source-zone area parallel to wind	5,0E+1	NA	(m)
W_{gw}	Length of source-zone area parallel to GW flow	NA		(m)
U_{air}	Ambient air velocity in mixing zone	2,3E+0		(m/s)
δ_{air}	Air mixing zone height	2,0E+0		(m)
P_a	Areal particulate emission rate	NA		(g/cm^2/s)
L_{ss}	Thickness of affected surface soils	1,0E+0		(m)

Surface Soil Column Parameters		Value			(Units)
h_{cap}	Capillary zone thickness	NA			(m)
h_v	Vadose zone thickness	NA			(m)
ρ_b	Soil bulk density	1,7E+0			(g/cm^3)
f_{oc}	Fraction organic carbon	5,0E-3			(-)
θ_T	Soil total porosity	4,1E-1			(-)
K_{vs}	Vertical hydraulic conductivity	1,2E-3			(cm/s)
k_v	Vapor permeability	1,0E-12			(m^2)
L_{gw}	Depth to groundwater	NA			(m)
L_s	Depth to top of affected soils	0,0E+0			(m)
L_{base}	Depth to base of affected soils	6,0E+0			(m)
L_{subs}	Thickness of affected soils	6,0E+0			(m)
pH	Soil/groundwater pH	6,8E+0			(-)
		capillary	vadose	foundation	
θ_w	Volumetric water content	0,288	0,151	0,12	(-)
θ_a	Volumetric air content	0,122	0,259	0,26	(-)

Building Parameters		Residential	Commercial	(Units)
L_b	Building volume/area ratio	NA	3,00E+0	(m)
A_b	Foundation area	NA	7,00E+1	(m^2)
X_{crk}	Foundation perimeter	NA	3,40E+1	(m)
ER	Building air exchange rate	NA	2,30E-4	(1/s)
L_{crk}	Foundation thickness	NA	1,50E-1	(m)
Z_{crk}	Depth to bottom of foundation slab	NA	1,50E-1	(m)
η	Foundation crack fraction	NA	1,00E-2	(-)
dP	Indoor/outdoor differential pressure	NA	0,00E+0	(g/cm/s^2)
Q_s	Convective air flow through slab	NA	0,00E+0	(m^3/s)

Groundwater Parameters		Value	(Units)
δ_{gw}	Groundwater mixing zone depth	NA	(m)
I_f	Net groundwater infiltration rate	NA	(cm/yr)
U_{gw}	Groundwater Darcy velocity	NA	(cm/s)
V_{gw}	Groundwater seepage velocity	NA	(cm/s)
K_s	Saturated hydraulic conductivity	NA	(cm/s)
i	Groundwater gradient	NA	(-)
S_w	Width of groundwater source zone	NA	(m)
S_d	Depth of groundwater source zone	NA	(m)
θ_{eff}	Effective porosity in water-bearing unit	NA	(-)
f_{oc-sat}	Fraction organic carbon in water-bearing unit	NA	(-)
pH_{sat}	Groundwater pH	NA	(-)
	Biodegradation considered?	NA	

Transport Parameters		Off-site 1	Off-site 2	Off-site 1	Off-site 2	(Units)
Lateral Groundwater Transport		Groundwater Ingestion		Soil Leaching to GW		
α_x	Longitudinal dispersivity	NA	NA	NA	NA	(m)
α_y	Transverse dispersivity	NA	NA	NA	NA	(m)
α_z	Vertical dispersivity	NA	NA	NA	NA	(m)
Lateral Outdoor Air Transport		Soil to Outdoor Air Inhal.		GW to Outdoor Air Inhal.		
σ_y	Transverse dispersion coefficient	NA	NA	NA	NA	(m)
σ_z	Vertical dispersion coefficient	NA	NA	NA	NA	(m)
ADF	Air dispersion factor	NA	NA	NA	NA	(-)

Surface Water Parameters		Off-site 2	(Units)
Q_{sw}	Surface water flowrate	NA	(m^3/s)
W_{pl}	Width of GW plume at SW discharge	NA	(m)
δ_{pl}	Thickness of GW plume at SW discharge	NA	(m)
DF_{sw}	Groundwater-to-surface water dilution factor	NA	(-)

RBCA SITE ASSESSMENT

Site Name: Stabilimento Edison - sorgente Terreni
Site Location: Taranto

Completed By: SCE
Date Completed: d-lug-yy

Job ID: 11048039

SOIL (0 - 6 m) SSTL VALUES

Target Risk (Class A & B) 1,0E-5
Target Risk (Class C) 1,0E-5
Target Hazard Quotient 1,0E+0

Groundwater DAF Option:

SSTL Results For Complete Exposure Pathways ("X" If Complete)

CONSTITUENTS OF CONCERN		Representative Concentration	Soil Leaching to Groundwater Ingestion / Discharge to Surface Water			X Soil Vol. to Indoor Air	X Soil Volatilization to Outdoor Air				Surface Soil Inhalation, Ingestion Dermal Contact		Applicable SSTL	SSTL Exceeded ?	Required CRF
			On-site (0 m)	Off-site 1 (0 m)	Off-site 2 (0 m)	On-site (0 m)	On-site (0 m)		Off-site 1 (0 m)	Off-site 2 (0 m)	On-site (0 m)				Only if "yes" left
CAS No.	Name	(mg/kg)	None	None	None	Commercial	Commercial	Construction Worker	None	None	None	Construction Worker	(mg/kg)	"☎" If yes	
0-00-0	TPH MADEP - Alph C9-C18*		NA	NA	NA	>34E+0	>34E+0	NA	NA	NA	NA	NA	>34E+0	☐	NA
0-00-0	TPH MADEP - Alph C19-C36		NA	NA	NA	NC	NC	NA	NA	NA	NA	NA	NC	☐	NA
0-00-0	TPH MADEP - Arom C11-C22		NA	NA	NA	NC	NC	NA	NA	NA	NA	NA	NC	☐	NA

* = Chemical with user-specified data

">" Indicates risk-based target concentration greater than constituent residual saturation value. NA = Not applicable. NC = Not calculated.

RBCA SITE ASSESSMENT | **User-Specified COC Data**

REPRESENTATIVE COC CONCENTRATIONS IN SOURCE MEDIA

CONSTITUENT	Representative COC Concentration			
	Groundwater		Soils (0 - 6 m)	
	value (mg/L)	note	value (mg/kg)	note
TPH MADEP - Aliph C9-C18*	0,0E+0		3,4E+1	Saturazione
TPH MADEP - Aliph C19-C36*	0,0E+0		0,0E+0	non contribuiscono
TPH MADEP - Arom C11-C22*	0,0E+0		0,0E+0	non contribuiscono

*** = Chemical with user-specified data**

Site Name: Stabilimento Edison - sorgente Terreni
Site Location: Taranto
Completed By: SCE

Date Completed: d-lug-yy
Job ID: 11048039

RBCA SITE ASSESSMENT | **Cumulative Risk Worksheet**

Site Name: Stabilimento Edison - sorgente Terreni | Completed By: SCE | Job ID: 11048039

Site Location: Taranto | Date Completed: d-lug-yy

CUMULATIVE RISK WORKSHEET

CONSTITUENTS OF CONCERN		Representative Concentration		Proposed CRF		Resultant Target Concentration	
CAS No.	Name	Soil (mg/kg)	Groundwater (mg/L)	Soil	GW	Soil (mg/kg)	Groundwater (mg/L)
0-00-0	TPH MADEP - Aliph C9-C18	3,4E+1		NA	NA	3,4E+1	
0-00-0	TPH MADEP - Aliph C19-C36	0,0E+0		NA	NA	0,0E+0	
0-00-0	TPH MADEP - Arom C11-C22	0,0E+0		NA	NA	0,0E+0	

Cumulative Values:

RBCA SITE ASSESSMENT | **Cumulative Risk Worksheet**

Site Name: Stabilimento Edison - sorgente Terreni Site Name: Stabilimento Edison - sorgente Terreni Completed By: SCE Job ID: 11048039

Site Location: Taranto Site Location: Taranto Date Completed: d-lug-yy *2 OF 3*

CUMULATIVE RISK WORKSHEET

Cumulative Target Risk: 1.000E-8 Target Hazard Index: 01E+0

ON-SITE RECEPTORS

CONSTITUENTS OF CONCERN		Outdoor Air Exposure: Commercial 1.000E-8 / 1.000E-8	Outdoor Air Exposure: Commercial Target HQ: 01E+0	Indoor Air Exposure: Commercial 1.000E-8 / 1.000E-8	Indoor Air Exposure: Commercial Target HQ: 01E+0	Soil Exposure: None 1.000E-8 / 1.000E-8	Soil Exposure: None Target HQ: 01E+0	Groundwater Exposure: None 1.000E-8 / 1.000E-8	Groundwater Exposure: None Target HQ: 01E+0
CAS No.	Name	Carcinogenic Risk	Hazard Quotient	Carcinogenic Risk	Hazard Quotient	Carcinogenic Risk	Hazard Quotient	Carcinogenic Risk	Hazard Quotient
0-00-0	TPH MADEP - Aliph C9-C18		5,7E-3		3,6E-2				
0-00-0	TPH MADEP - Aliph C19-C36								
0-00-0	TPH MADEP - Arom C11-C22								
	Cumulative Values:	**0,0E+0**	**5,7E-3**	**0,0E+0**	**3,6E-2**	**0,0E+0**	**0,0E+0**	**0,0E+0**	**0,0E+0**

■ indicates risk level exceeding target risk

RBCA SITE ASSESSMENT

Input Parameter Summary

Site Name: Stabilimento Edison - sorgente Terreni
Site Location: Taranto

Completed By: SCE
Date Completed: d-lug-yy

Job ID: 11048039

Exposure Parameters		Residential			Commercial/Industrial	
		Adult	(1-6yrs)	(1-16 yrs)	Chronic	Construc.
AT_c	Averaging time for carcinogens (yr)	70				
AT_n	Averaging time for non-carcinogens (yr)	30			25	1
BW	Body weight (kg)	70	15	35	70	
ED	Exposure duration (yr)	30	6	16	25	1
τ	Averaging time for vapor flux (yr)	30			25	1
EF	Exposure frequency (days/yr)	350			73,3	180
EF_D	Exposure frequency for dermal exposure	350			73,3	
IR_w	Ingestion rate of water (L/day)	2			1	
IR_s	Ingestion rate of soil (mg/day)	100	200		50	100
SA	Skin surface area (dermal) (cm^2)	5700		2800	3300	3300
M	Soil to skin adherence factor	1				
ET_{swim}	Swimming exposure time (hr/event)	3				
EV_{swim}	Swimming event frequency (events/yr)	12	12	12		
IR_{swim}	Water ingestion while swimming (L/hr)	0,05	0,5			
SA_{swim}	Skin surface area for swimming (cm^2)	23000		6100		
IR_{fish}	Ingestion rate of fish (kg/yr)	0,025				
FI_{fish}	Contaminated fish fraction (unitless)	1				

Complete Exposure Pathways and Receptors	On-site	Off-site 1	Off-site 2
Groundwater:			
Groundwater Ingestion	None	None	None
Soil Leaching to Groundwater Ingestion	None	None	None
Applicable Surface Water Exposure Routes:			
Swimming			NA
Fish Consumption			NA
Aquatic Life Protection			NA
Soil:			
Direct Ingestion and Dermal Contact	None		
Outdoor Air:			
Particulates from Surface Soils	None	None	None
Volatilization from Soils	Commercial	None	None
Volatilization from Groundwater	None	None	None
Indoor Air:			
Volatilization from Subsurface Soils	Commercial	NA	NA
Volatilization from Groundwater	None	NA	NA

Receptor Distance from Source Media	On-site	Off-site 1	Off-site 2	(Units)
Groundwater receptor	NA	NA	NA	(m)
Soil leaching to groundwater receptor	NA	NA	NA	(m)
Outdoor air inhalation receptor	0	NA	NA	(m)

Target Health Risk Values		Individual	Cumulative
TR_{nb}	Target Risk (class A&B carcinogens)	1,0E-5	1,0E-5
TR_c	Target Risk (class C carcinogens)	1,0E-5	
THQ	Target Hazard Quotient (non-carcinogenic risk)	1,0E+0	1,0E+0

Modeling Options	
RBCA tier	Tier 2
Outdoor air volatilization model	Surface & subsurface models
Indoor air volatilization model	Johnson & Ettinger model
Soil leaching model	NA
Use soil attenuation model (SAM) for leachate?	NA
Air dilution factor	NA
Groundwater dilution-attenuation factor	NA

NOTE: NA = Not applicable

Surface Parameters		General	Construction	(Units)
A	Source zone area	2,5E+3	NA	(m^2)
W	Length of source-zone area parallel to wind	5,0E+1	NA	(m)
W_{gw}	Length of source-zone area parallel to GW flow	NA		(m)
U_{air}	Ambient air velocity in mixing zone	2,3E+0		(m/s)
δ_{air}	Air mixing zone height	2,0E+0		(m)
P_a	Areal particulate emission rate	NA		(g/cm^2/s)
L_{ss}	Thickness of affected surface soils	1,0E+0		(m)

Surface Soil Column Parameters		Value			(Units)
h_{cap}	Capillary zone thickness	NA			(m)
h_v	Vadose zone thickness	NA			(m)
ρ_s	Soil bulk density	1,7E+0			(g/cm^3)
f_{oc}	Fraction organic carbon	5,0E-3			(-)
θ_T	Soil total porosity	4,1E-1			(-)
K_{vs}	Vertical hydraulic conductivity	1,2E-3			(cm/s)
k_v	Vapor permeability	1,0E-12			(m^2)
L_{gw}	Depth to groundwater	NA			(m)
L_s	Depth to top of affected soils	0,0E+0			(m)
L_{base}	Depth to base of affected soils	6,0E+0			(m)
L_{subs}	Thickness of affected soils	6,0E+0			(m)
pH	Soil/groundwater pH	6,8E+0			(-)
		capillary	vadose	foundation	
θ_w	Volumetric water content	0,288	0,151	0,12	(-)
θ_a	Volumetric air content	0,122	0,259	0,26	(-)

Building Parameters		Residential	Commercial	(Units)
L_b	Building volume/area ratio	NA	3,00E+0	(m)
A_b	Foundation area	NA	7,00E+1	(m^2)
X_{crk}	Foundation perimeter	NA	3,40E+1	(m)
ER	Building air exchange rate	NA	2,30E-4	(1/s)
L_{crk}	Foundation thickness	NA	1,50E-1	(m)
Z_{crk}	Depth to bottom of foundation slab	NA	1,50E-1	(m)
η	Foundation crack fraction	NA	1,00E-2	(-)
dP	Indoor/outdoor differential pressure	NA	0,00E+0	(g/cm/s^2)
Q_s	Convective air flow through slab	NA	0,00E+0	(m^3/s)

Groundwater Parameters		Value	(Units)
δ_{gw}	Groundwater mixing zone depth	NA	(m)
I_f	Net groundwater infiltration rate	NA	(cm/yr)
U_{gw}	Groundwater Darcy velocity	NA	(cm/s)
V_{gw}	Groundwater seepage velocity	NA	(cm/s)
K_s	Saturated hydraulic conductivity	NA	(cm/s)
i	Groundwater gradient	NA	(-)
S_w	Width of groundwater source zone	NA	(m)
S_d	Depth of groundwater source zone	NA	(m)
θ_{ef}	Effective porosity in water-bearing unit	NA	(-)
f_{oc-sat}	Fraction organic carbon in water-bearing unit	NA	(-)
pH_{sat}	Groundwater pH	NA	(-)
	Biodegradation considered?	NA	

Transport Parameters		Off-site 1	Off-site 2	Off-site 1	Off-site 2	(Units)
Lateral Groundwater Transport		Groundwater Ingestion		Soil Leaching to GW		
α_x	Longitudinal dispersivity	NA	NA	NA	NA	(m)
α_y	Transverse dispersivity	NA	NA	NA	NA	(m)
α_z	Vertical dispersivity	NA	NA	NA	NA	(m)
Lateral Outdoor Air Transport		Soil to Outdoor Air Inhal.		GW to Outdoor Air Inhal.		
σ_y	Transverse dispersion coefficient	NA	NA	NA	NA	(m)
σ_z	Vertical dispersion coefficient	NA	NA	NA	NA	(m)
ADF	Air dispersion factor	NA	NA	NA	NA	(-)

Surface Water Parameters		Off-site 2	(Units)
Q_{sw}	Surface water flowrate	NA	(m^3/s)
W_{pl}	Width of GW plume at SW discharge	NA	(m)
δ_{pl}	Thickness of GW plume at SW discharge	NA	(m)
DF_{sw}	Groundwater-to-surface water dilution factor	NA	(-)

RBCA SITE ASSESSMENT | User-Specified COC Data

REPRESENTATIVE COC CONCENTRATIONS IN SOURCE MEDIA

CONSTITUENT	Representative COC Concentration			
	Groundwater		Soils (0 - 6 m)	
	value (mg/L)	note	value (mg/kg)	note
TPH MADEP - Aliph C9-C18*	0,0E+0		5,4E+1	Max
TPH MADEP - Aliph C19-C36*	0,0E+0		1,1E+3	Max
TPH MADEP - Arom C11-C22*	0,0E+0		1,7E+2	Max

*** = Chemical with user-specified data**

Site Name: Stabilimento Edison - sorgente Terreni
Site Location: Taranto
Completed By: SCE

Date Completed: d-lug-yy
Job ID: 11048039

RBCA SITE ASSESSMENT | **Baseline Risk Summary-All Pathways**

Site Name: Stabilimento Edison - sorgente Terreni - Massimo
Site Location: Taranto

Completed By: SCE
Date Completed: d-lug-yy

TIER 2 BASELINE RISK SUMMARY TABLE

EXPOSURE PATHWAY	BASELINE CARCINOGENIC RISK					BASELINE TOXIC EFFECTS				
	Individual COC Risk		Cumulative COC Risk		Risk Limit(s) Exceeded?	Hazard Quotient		Hazard Index		Toxicity Limit(s) Exceeded?
	Maximum Value	Target Risk	Total Value	Target Risk		Maximum Value	Applicable Limit	Total Value	Applicable Limit	
OUTDOOR AIR EXPOSURE PATHWAYS										
Complete:	NC	1,0E-5	NC	1,0E-5	☐	9,1E-3	1,0E+0	9,1E-3	1,0E+0	☐
INDOOR AIR EXPOSURE PATHWAYS										
Complete:	NC	1,0E-5	NC	1,0E-5	☐	5,7E-2	1,0E+0	5,7E-2	1,0E+0	☐
SOIL EXPOSURE PATHWAYS										
Complete:	NA	NA	NA	NA	☐	NA	NA	NA	NA	☐
GROUNDWATER EXPOSURE PATHWAYS										
Complete:	NA	NA	NA	NA	☐	NA	NA	NA	NA	☐
SURFACE WATER EXPOSURE PATHWAYS										
Complete:	NA	NA	NA	NA	☐	NA	NA	NA	NA	☐
CRITICAL EXPOSURE PATHWAY (Maximum Values From Complete Pathways)										
	NC	*1,0E-5*	*NC*	*1,0E-5*	☐	*5,7E-2*	*1,0E+0*	*5,7E-2*	*1,0E+0*	☐
	Outdoor Air		*Outdoor Air*			*Indoor Air*		*Indoor Air*		

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SURFACE SOILS (0 - 1 m):
VAPOR INHALATION

Constituents of Concern	1) Source Medium: Soil Conc. (mg/kg)	2) NAF Value (m^3/kg) Receptor: On-site (0 m) Commercial	On-site (0 m) Construction Worker	Off-site 1 (0 m) None	Off-site 2 (0 m) None	3) Exposure Medium Outdoor Air: POE Conc. (mg/m^3) (1) / (2): On-site (0 m) Commercial	On-site (0 m) Construction Worker	Off-site 1 (0 m) None	Off-site 2 (0 m) None
TPH MADEP - Aliph C9-C18*	5,4E+1	4,2E+4				1,3E-3			
TPH MADEP - Aliph C19-C36*	1,1E+3	NA							
TPH MADEP - Arom C11-C22*	1,7E+2	7,9E+4				2,2E-3			

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Stabilimento Edison - sorgente Terreni - Massimo
Site Location: Taranto
Completed By: SCE

Date Completed: d-lug-yy
Job ID: 11048039

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS

SURFACE SOILS (0 - 1 m):

VAPOR INHALATION (cont'd)

Constituents of Concern	4) Exposure Multiplier (EFxED)/(ATx365) (unitless)				5) Average Inhalation Exposure Concentration (mg/m^3) (3) X (4)			
	On-site (0 m)		Off-site 1 (0 m)	Off-site 2 (0 m)	On-site (0 m)		Off-site 1 (0 m)	Off-site 2 (0 m)
	Commercial	Construction Worker	None	None	Commercial	Construction Worker	None	None
TPH MADEP - Aliph C9-C18*	2,0E-1				2,6E-4			
TPH MADEP - Aliph C19-C36*	2,0E-1							
TPH MADEP - Arom C11-C22*	2,0E-1				4,3E-4			

* = Chemical with user-specified data

NOTE: AT = Averaging time (days) EF = Exposure frequency (days/yr) ED = Exposure duration (yr)

Site Name: Stabilimento Edison - sorgente Terreni - Massimo
Site Location: Taranto
Completed By: SCE

Date Completed: d-lug-yy
Job ID: 11048039

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

SUBSURFACE SOILS (1 - 6 m):

VAPOR INHALATION

Constituents of Concern	1) Source Medium: Soil Conc. (mg/kg)	2) NAF Value (m^3/kg) Receptor: On-site (0 m) Commercial	Off-site 1 (0 m) None	Off-site 2 (0 m) None	3) Exposure Medium Outdoor Air: POE Conc. (mg/m^3) (1) / (2): On-site (0 m) Commercial	Off-site 1 (0 m) None	Off-site 2 (0 m) None
TPH MADEP - Aliph C9-C18*	5,4E+1	7,0E+3			7,8E-3		
TPH MADEP - Aliph C19-C36*	1,1E+3	NA					
TPH MADEP - Arom C11-C22*	1,7E+2	7,0E+3			2,4E-2		

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Stabilimento Edison - sorgente Terreni - Massimo
Site Location: Taranto
Completed By: SCE

Date Completed: d-lug-yy
Job ID: 11048039

RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAYS ARE ACTIVE)**

CARCINOGENIC RISK

Constituents of Concern	(1) EPA Carcinogenic Classification	(2) Total Carcinogenic Exposure (mg/m^3)				(3) Inhalation Unit Risk Factor (µg/m^3)^-1	(4) Individual COC Risk (2) x (3) x 1000			
		On-site (0 m)		Off-site 1 (0 m)	Off-site 2 (0 m)		On-site (0 m)		Off-site 1 (0 m)	Off-site 2 (0 m)
		Commercial	Construction Worker	None	None		Commercial	Construction Worker	None	None
TPH MADEP - Aliph C9-C18*	-									
TPH MADEP - Aliph C19-C36*	-									
TPH MADEP - Arom C11-C22*	D									
Total Pathway Carcinogenic Risk =										

Site Name: Stabilimento Edison - sorgente Terreni - Massimo
Site Location: Taranto

Completed By: SCE
Date Completed: d-lug-yy

Job ID: 11048039

RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAYS ARE ACTIVE)**

TOXIC EFFECTS

Constituents of Concern	(5) Total Toxicant Exposure (mg/m^3)				(6) Inhalation Reference Conc. (mg/m^3)	(7) Individual COC Hazard Quotient (5) / (6)			
	On-site (0 m)		Off-site 1 (0 m)	Off-site 2 (0 m)		On-site (0 m)		Off-site 1 (0 m)	Off-site 2 (0 m)
	Commercial	Construction Worker	None	None		Commercial	Construction Worker	None	None
TPH MADEP - Aliph C9-C18*	1,8E-3				2,0E-1	9,1E-3			
TPH MADEP - Aliph C19-C36*									
TPH MADEP - Arom C11-C22*									
Total Pathway Hazard Index =						**9,1E-3**			

Site Name: Stabilimento Edison - sorgente Terreni - Massimo
Site Location: Taranto

Completed By: SCE
Date Completed: d-lug-yy

Job ID: 11048039

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

INDOOR AIR EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SOILS (0 - 6 m): VAPOR INTRUSION INTO ON-SITE BUILDINGS

Constituents of Concern	1) Source Medium Soil Conc. (mg/kg)	2) NAF Value (m^3/kg) Receptor Commercial	3) Exposure Medium Indoor Air: POE Conc. (mg/m^3) (1) / (2) Commercial	4) Exposure Multiplier (EFxED)/(ATx365) (unitless) Commercial	5) Average Inhalation Exposure Concentration (mg/m^3) (3) X (4) Commercial
TPH MADEP - Aliph C9-C18*	5,4E+1	9,5E+2	5,7E-2	2,0E-1	1,1E-2
TPH MADEP - Aliph C19-C36*	1,1E+3	NA		2,0E-1	
TPH MADEP - Arom C11-C22*	1,7E+2	1,9E+4	9,1E-3	2,0E-1	1,8E-3

* = Chemical with user-specified data

NOTE: AT = Averaging time (days) EF = Exposure frequency (days/yr) ED = Exposure duration (yr) NAF = Natural attenuation factor POE = Point of exposure

Site Name: Stabilimento Edison - sorgente Terreni - Massimo
Site Location: Taranto
Completed By: SCE

Date Completed: d-lug-yy
Job ID: 11048039

RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

INDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAYS ARE ACTIVE)**

CARCINOGENIC RISK

Constituents of Concern	(1) EPA Carcinogenic Classification	(2) Total Carcinogenic Exposure (mg/m^3) Commercial	(3) Inhalation Unit Risk Factor (µg/m^3)^-1	(4) Individual COC Risk (2) x (3) x 1000 Commercial
TPH MADEP - Aliph C9-C18*	-			
TPH MADEP - Aliph C19-C36*	-			
TPH MADEP - Arom C11-C22*	D			

Total Pathway Carcinogenic Risk =

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RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

INDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAYS ARE ACTIVE)**

Constituents of Concern	TOXIC EFFECTS (5) Total Toxicant Exposure (mg/m^3) Commercial	(6) Inhalation Reference Concentration (mg/m^3)	(7) Individual COC Hazard Quotient (5) / (6) Commercial
TPH MADEP - Aliph C9-C18*	1,1E-2	2,0E-1	5,7E-2
TPH MADEP - Aliph C19-C36*			
TPH MADEP - Arom C11-C22*			

Total Pathway Hazard Index = **5,7E-2**

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