

Table 5-10A
Comparison of Remedial Action Guidelines to Soil COPCs
115kV Switchyard

Medium	CAS No.	Chemical	Min. Conc.	Max. Conc.	Units	Location of Maximum	Detection Frequency	EPC	RAG Value	RAG Ratio
Soils										
Metals	7429-90-5	ALUMINUM	9600	23900	mg/kg	MY05TP08(6.5-6.8)	3/3	23900		
	7440-38-2	ARSENIC	8.4	11.1	mg/kg	MY05TP06(6.5-6.8)	3/3	11.1	10	1.11
	7439-89-6	IRON	15500	33200	mg/kg	MY05TP08(6.5-6.8)	3/3	33200		
	7439-96-5	MANGANESE	304	660	mg/kg	MY05TP06(6.5-6.8)	3/3	660		
	7440-23-5	SODIUM	106	238	mg/kg	MY05TP08(6.5-6.8)	3/3	238		
	50-32-8	BENZO(A)PYRENE equivalent	NA	493	ug/kg	MY05TP07(5.5-5.8)	1/3	493	2000	0.25
	191-24-2	BENZO[G,H,I]PERYLENE	210	210	ug/kg	MY05TP07(5.5-5.8)	1/3	210		
	85-01-8	PHENANTHRENE	990	990	ug/kg	MY05TP07(5.5-5.8)	1/3	990		

Total RAG Ratio - Surface Soil 1.4

RAG Ratio without Arsenic 0.2

EPC - Exposure Point Concentration
RAG - Remedial Action Guideline
DRO - Diesel Range Organics
J - estimated concentration

Conc. - Concentration
Min. - Minimum
Max - Maximum

Table 5-10B
Comparison of Remedial Action Guidelines to Soil COPCs
Personnel Buildings and Parking Lot Areas

Medium	CAS No.	Chemical	Min. Conc.	Max. Conc.	Units	Location of Maximum	Detection Frequency	EPC	RAG Value	RAG Ratio
Surface Soils										
Metals	7429-90-5	ALUMINUM	9620	11400	mg/kg	MY05SB17(0-0.5)	3/3	11400		
	7440-38-2	ARSENIC	7.8	12	mg/kg	MY05SS67	3/3	12	10	1.2
	7439-89-6	IRON	15800	17000	mg/kg	MY05SS75(0-0.5)	3/3	17000		
	7439-92-1	LEAD	11.9	969	mg/kg	MY05SS75(0-0.5)	3/3	969	375	2.6
	7439-96-5	MANGANESE	301	362	mg/kg	MY05SS75(0-0.5)	3/3	362		
	7440-23-5	SODIUM	106 J	415 J	mg/kg	MY05SB17(0-0.5)	3/3	415 J		
									Total RAGs Ratio - Surface Soil 3.8	
									RAG Ratio w/out Arsenic and Lead 0.0	
Subsurface Soils										
Metals	7429-90-5	ALUMINUM	8330	30500	mg/kg	MY05SB19(10-12)	8/8	30500		
	7440-38-2	ARSENIC	7.4	12	mg/kg	MY05SS67	8/8	12	10	1.2
	7439-89-6	IRON	9750	39600	mg/kg	MY05SB19(10-12)	9/9	39600		
	7439-92-1	LEAD	5.9	969	mg/kg	MY05SS75(0-0.5)	8/8	969	375	2.6
	7439-96-5	MANGANESE	296	732	mg/kg	MY05SB19(10-12)	8/8	732		
	7440-23-5	SODIUM	106 J	452	mg/kg	MY05SB19(10-12)	6/8	452		
	7440-62-2	VANADIUM	19.8	61.1	mg/kg	MY05SB19(10-12)	8/8	61.1		
	50-32-8	BENZO(A)PYRENE equivalent	NA	394	ug/kg	MY05SB17(4-5)	1/7	394	2000	0.2
	191-24-2	BENZO[G,H,I]PERYLENE	200 J	200 J	ug/kg	MY05SB17(4-5)	1/7	200 J		
	85-01-8	PHENANTHRENE	520	520	ug/kg	MY05SB17(4-5)	1/7	520		
	79-01-6	TRICHLOROETHENE	58	58	ug/kg	MY05SB19(10-12)	1/9	58	19000	0.0031
									Total RAG Ratio - Subsurface Soil 4.0	
									RAG Ratio without Arsenic and Lead 0.2	

EPC - Exposure Point Concentration
RAG - Remedial Action Guideline
DRO - Diesel Range Organics
J - estimated concentration

Conc. - Concentration
Min. - Minimum
Max - Maximum

Table 5-10C
Calculation of Non Cancer Hazards
Exposure to Soils - Plant Area
Resident - CT

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	Resident
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	12170.00	mg/kg	NA	1.02E-02	mg/kg-day	1.00E+00	(mg/kg-d)	1.02E-02
	ARSENIC	9.84	mg/kg	NA	8.22E-06	mg/kg-day	3.00E-04	(mg/kg-d)	2.74E-02
	COPPER	197.00	mg/kg	NA	1.65E-04	mg/kg-day		(mg/kg-d)	
	IRON	17373.00	mg/kg	NA	1.45E-02	mg/kg-day	3.00E-01	(mg/kg-d)	4.84E-02
	LEAD	13.00	mg/kg	NA	1.09E-05	mg/kg-day			
	SODIUM	294.00	mg/kg	NA	2.46E-04	mg/kg-day			
	THALLIUM	0.42	mg/kg	NA	3.51E-07	mg/kg-day			
	VANADIUM	31.50	mg/kg	NA	2.63E-05	mg/kg-day	1.00E-03	(mg/kg-d)	2.63E-02
	Total PCBs	0.11	mg/kg	NA	9.44E-08	mg/kg-day	2.00E-05	(mg/kg-d)	4.72E-03
	ENDRIN ALDEHYDE	0.005	mg/kg	NA	3.76E-09	mg/kg-day			
	BENZO(A)PYRENE equivalent	5.340	mg/kg	NA	4.46E-06	mg/kg-day			
	BENZO(G,H,I)PERYLENE	2.010	mg/kg	NA	1.68E-06	mg/kg-day			
	CARBAZOLE	1.400	mg/kg	NA	1.17E-06	mg/kg-day			
	PHENANTHRENE	7.110	mg/kg	NA	5.94E-06	mg/kg-day			
	MANGANESE	835.000	mg/kg	NA	6.98E-04	mg/kg-day	1.40E-01	(mg/kg-d)	4.98E-03
2-METHYLNAPHTHALENE	1.700	mg/kg	NA	1.42E-06	mg/kg-day	9.00E-03	(mg/kg-d)	1.58E-04	
Dermal (2)	ALUMINUM	12170.00	mg/kg	NA			1.00E+00	(mg/kg-d)	
	ARSENIC	9.84	mg/kg	0.03	2.78E-07	mg/kg-day	3.00E-04	(mg/kg-d)	9.26E-04
	COPPER	197.00	mg/kg	NA				(mg/kg-d)	
	IRON	17373.00	mg/kg	NA			3.00E-01	(mg/kg-d)	
	LEAD	13.00	mg/kg	NA					
	SODIUM	294.00	mg/kg	NA					
	THALLIUM	0.42	mg/kg	NA					
	VANADIUM	31.50	mg/kg	NA			1.00E-03	(mg/kg-d)	
	Total PCBs	0.11	mg/kg	0.14	1.47E-08	mg/kg-day	2.00E-05	(mg/kg-d)	7.37E-04
	ENDRIN ALDEHYDE	0.005	mg/kg	NA					
	BENZO(A)PYRENE equivalent	5.340	mg/kg	0.13	6.53E-07	mg/kg-day			
	BENZO(G,H,I)PERYLENE	2.010	mg/kg	0.13	2.46E-07	mg/kg-day			
	CARBAZOLE	1.400	mg/kg	0.13	1.71E-07	mg/kg-day			
	PHENANTHRENE	7.110	mg/kg	0.13	8.69E-07	mg/kg-day			
	MANGANESE	835.000	mg/kg	NA			1.40E-01	(mg/kg-d)	
2-METHYLNAPHTHALENE	1.700	mg/kg	0.13	2.08E-07	mg/kg-day	9.00E-03	(mg/kg-d)	2.31E-05	
Total Hazard Index Across All Exposure Pathways									1.2E-01

(1) Intake Ingestion = $EPC * (IF * CF * RAF * EF) / (AT * 365 \text{ day/yr})$
= EPC * 8.36E-07

(2) Intake Dermal = $EPC * (SFSadj * CF * ABS * EF) / (AT * 365 \text{ day/yr})$
= EPC * ABS * 9.41E-07

EPC, mg/kg	Exposure Point Concentration	chem-specific
IF, mg-yr/kg-day	Ingestion Rate, age weighted	18.3
CF, kg/mg	Conversion Factor	0.000001
RAF, unitless	Relative Absorption Factor	1
EF, day/yr	Exposure Frequency	150
AT, yr	Averaging Time	9
SFSadj, mg-yr/kg-event	Age-weighted Dermal Factor	20.6
ABS, unitless	Dermal Absorption Factor	chem-specific

NA = Not Applicable
mg/kg - day = milligram/kilogram - day
mg/kg = milligram/kilogram
EPC = Exposure Point Concentration
CT - Central Tendency

Table 5-10C
Calculation of Non Cancer Hazards
Exposure to Soils - Plant Area
Resident - RME

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	Resident
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINIUM	12170.00	mg/kg	NA	1.90E-02	mg/kg-day	1.00E+00	(mg/kg-d)	1.90E-02
	ARSENIC	9.84	mg/kg	NA	1.54E-05	mg/kg-day	3.00E-04	(mg/kg-d)	5.12E-02
	COPPER	197.00	mg/kg	NA	3.08E-04	mg/kg-day		(mg/kg-d)	
	IRON	17373.00	mg/kg	NA	2.71E-02	mg/kg-day	3.00E-01	(mg/kg-d)	9.04E-02
	LEAD	13.00	mg/kg	NA	2.03E-05	mg/kg-day			
	SODIUM	294.00	mg/kg	NA	4.59E-04	mg/kg-day			
	THALLIUM	0.42	mg/kg	NA	6.56E-07	mg/kg-day			
	VANADIUM	31.50	mg/kg	NA	4.92E-05	mg/kg-day	1.00E-03	(mg/kg-d)	4.92E-02
	Total PCBs	0.11	mg/kg	NA	1.75E-07	mg/kg-day	2.00E-05	(mg/kg-d)	8.75E-03
	ENDRIN ALDEHYDE	0.005	mg/kg	NA	7.03E-09	mg/kg-day			
	BENZO(A)PYRENE equivalent	5.340	mg/kg	NA	8.34E-06	mg/kg-day			
	BENZO(G,H,I)PERYLENE	2.010	mg/kg	NA	3.14E-06	mg/kg-day			
	CARBAZOLE	1.400	mg/kg	NA	2.19E-06	mg/kg-day			
	PHENANTHRENE	7.110	mg/kg	NA	1.11E-05	mg/kg-day			
	MANGANESE	835.000	mg/kg	NA	1.30E-03	mg/kg-day	1.40E-01	(mg/kg-d)	9.31E-03
	2-METHYLNAPHTHALENE	1.700	mg/kg	NA	2.65E-06	mg/kg-day	9.00E-03	(mg/kg-d)	2.95E-04
	Dermal (2)	ALUMINIUM	12170.00	mg/kg	NA			1.00E+00	(mg/kg-d)
ARSENIC		9.84	mg/kg	0.03	1.46E-06	mg/kg-day	3.00E-04	(mg/kg-d)	4.85E-03
COPPER		197.00	mg/kg	NA				(mg/kg-d)	
IRON		17373.00	mg/kg	NA			3.00E-01	(mg/kg-d)	
LEAD		13.00	mg/kg	NA					
SODIUM		294.00	mg/kg	NA					
THALLIUM		0.42	mg/kg	NA					
VANADIUM		31.50	mg/kg	NA			1.00E-03	(mg/kg-d)	
Total PCBs		0.11	mg/kg	0.14	7.73E-08	mg/kg-day	2.00E-05	(mg/kg-d)	3.87E-03
ENDRIN ALDEHYDE		0.005	mg/kg	NA					
BENZO(A)PYRENE equivalent		5.340	mg/kg	0.13	3.42E-06	mg/kg-day			
BENZO(G,H,I)PERYLENE		2.010	mg/kg	0.13	1.29E-06	mg/kg-day			
CARBAZOLE		1.400	mg/kg	0.13	8.98E-07	mg/kg-day			
PHENANTHRENE		7.110	mg/kg	0.13	4.56E-06	mg/kg-day			
MANGANESE		835.000	mg/kg	NA			1.40E-01	(mg/kg-d)	
2-METHYLNAPHTHALENE		1.700	mg/kg	0.13	1.09E-06	mg/kg-day	9.00E-03	(mg/kg-d)	1.21E-04
Total Hazard Index Across All Exposure Pathways									2.4E-01

- (1) Intake Ingestion = $EPC * (IF * CF * RAF * EF) / (AT * 365 \text{ day/yr})$
= EPC * 1.56E-06
- (2) Intake Dermal = $EPC * (SFSadj * CF * ABS * EF) / (AT * 365 \text{ day/yr})$
= EPC * ABS * 4.93E-06

NA = Not Applicable
mg/kg - day = milligram/kilogram - day
mg/kg = milligram/kilogram
EPC = Exposure Point Concentration
RME - Realistic Maximum Exposure

EPC, mg/kg	Exposure Point Concentration	chem-specific
IF, mg-yr/kg-day	Ingestion Rate, age weighted	114
CF, kg/mg	Conversion Factor	0.000001
RAF, unitless	Relative Absorption Factor	1
EF, day/yr	Exposure Frequency	150
AT, yr	Averaging Time	30
SFSadj, mg-yr/kg-event	Age-weighted Dermal Factor	360
ABS, unitless	Dermal Absorption Factor	chem-specific

Table 5-10C
Calculation of Non Cancer Hazards
Exposure to Soil - Plant Area
Child - RME

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	Resident
Receptor Age:	Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	12170.00	mg/kg	NA	6.67E-02	mg/kg-day	1.00E+00	(mg/kg-d)	6.67E-02
	ARSENIC	9.84	mg/kg	NA	5.39E-05	mg/kg-day	3.00E-04	(mg/kg-d)	1.80E-01
	COPPER	197.00	mg/kg	NA	1.08E-03	mg/kg-day		(mg/kg-d)	
	IRON	17373.00	mg/kg	NA	9.52E-02	mg/kg-day	3.00E-01	(mg/kg-d)	3.17E-01
	LEAD	13.00	mg/kg	NA	7.12E-05	mg/kg-day		(mg/kg-d)	
	SODIUM	294.00	mg/kg	NA	1.61E-03	mg/kg-day		(mg/kg-d)	
	THALLIUM	0.42	mg/kg	NA	2.30E-06	mg/kg-day		(mg/kg-d)	
	VANADIUM	31.50	mg/kg	NA	1.73E-04	mg/kg-day	1.00E-03	(mg/kg-d)	1.73E-01
	Total PCBs	0.11	mg/kg	NA	6.14E-07	mg/kg-day	2.00E-05	(mg/kg-d)	3.07E-02
	ENDRIN ALDEHYDE	0.005	mg/kg	NA	2.47E-08	mg/kg-day		(mg/kg-d)	
	BENZO(A)PYRENE equivalent	5.340	mg/kg	NA	2.93E-05	mg/kg-day		(mg/kg-d)	
	BENZO(G,H,I)PERYLENE	2.010	mg/kg	NA	1.10E-05	mg/kg-day		(mg/kg-d)	
	CARBAZOLE	1.400	mg/kg	NA	7.67E-06	mg/kg-day		(mg/kg-d)	
	PHENANTHRENE	7.110	mg/kg	NA	3.90E-05	mg/kg-day		(mg/kg-d)	
	MANGANESE	835.000	mg/kg	NA	4.58E-03	mg/kg-day	1.40E-01	(mg/kg-d)	3.27E-02
	2-METHYLNAPHTHALENE	1.700	mg/kg	NA	9.32E-06	mg/kg-day	9.00E-03	(mg/kg-d)	1.04E-03
Dermal (2)	ALUMINUM	12170.00	mg/kg				1.00E+00	(mg/kg-d)	
	ARSENIC	9.84	mg/kg	0.03	4.53E-06	mg/kg-day	3.00E-04	(mg/kg-d)	1.51E-02
	COPPER	197.00	mg/kg					(mg/kg-d)	
	IRON	17373.00	mg/kg				3.00E-01	(mg/kg-d)	
	LEAD	13.00	mg/kg					(mg/kg-d)	
	SODIUM	294.00	mg/kg					(mg/kg-d)	
	THALLIUM	0.42	mg/kg					(mg/kg-d)	
	VANADIUM	31.50	mg/kg				1.00E-03	(mg/kg-d)	
	Total PCBs	0.11	mg/kg	0.14	2.41E-07	mg/kg-day	2.00E-05	(mg/kg-d)	1.20E-02
	ENDRIN ALDEHYDE	0.005	mg/kg					(mg/kg-d)	
	BENZO(A)PYRENE equivalent	5.340	mg/kg	0.13	1.07E-05	mg/kg-day		(mg/kg-d)	
	BENZO(G,H,I)PERYLENE	2.010	mg/kg	0.13	4.01E-06	mg/kg-day		(mg/kg-d)	
	CARBAZOLE	1.400	mg/kg	0.13	2.79E-06	mg/kg-day		(mg/kg-d)	
	PHENANTHRENE	7.110	mg/kg	0.13	1.42E-05	mg/kg-day		(mg/kg-d)	
	MANGANESE	835.000	mg/kg				1.40E-01	(mg/kg-d)	
	2-METHYLNAPHTHALENE	1.700	mg/kg	0.13	3.39E-06	mg/kg-day	9.00E-03	(mg/kg-d)	3.77E-04
Total Hazard Index Across All Exposure Pathways									8.3E-01

(1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * 5.48E-06
(2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF) / (BW * AT * 365 \text{ day/yr})$
= EPC * ABS * 1.53E-05

EPC, mg/kg	Exposure Point Concentration	chem-specific
IR, mg-day	Ingestion Rate	200
CF, kg/mg	Conversion Factor	0.000001
RAF, unitless	Relative Absorption Factor	1
EF, day/yr	Exposure Frequency	150
AT, yr	Averaging Time	6
SA cm2	Surface Area	2800
AF, mg/cm2	Adherence Factor	0.2
ED, years	Exposure Duration	6
BWchild, kg	Body Weight	15

NA = Not Applicable
mg/kg - day = milligram/kilogram - day
mg/kg = milligram/kilogram

EPC = Exposure Point Concentration
RME = Reasonable Maximum Exposure

Table 5-10C
Calculation of Non Cancer Hazards
Exposure to Soils - Plant Area
On-Site Worker - CT

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	On-Site Worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	12170.00	mg/kg	NA	3.57E-03	mg/kg-day	1.00E+00	(mg/kg-d)	3.57E-03
	ARSENIC	9.84	mg/kg	NA	2.89E-06	mg/kg-day	3.00E-04	(mg/kg-d)	9.63E-03
	COPPER	197.00	mg/kg	NA	5.78E-05	mg/kg-day		(mg/kg-d)	
	IRON	17373.00	mg/kg	NA	5.10E-03	mg/kg-day	3.00E-01	(mg/kg-d)	1.70E-02
	LEAD	13.00	mg/kg	NA	3.82E-06	mg/kg-day			
	SODIUM	294.00	mg/kg	NA	8.63E-05	mg/kg-day			
	THALLIUM	0.42	mg/kg	NA	1.23E-07	mg/kg-day			
	VANADIUM	31.50	mg/kg	NA	9.25E-06	mg/kg-day	1.00E-03	(mg/kg-d)	9.25E-03
	Total PCBs	0.11	mg/kg	NA	3.29E-08	mg/kg-day	2.00E-05	(mg/kg-d)	1.64E-03
	ENDRIN ALDEHYDE	0.005	mg/kg	NA	1.32E-09	mg/kg-day			
	BENZO(A)PYRENE equivalent	5.340	mg/kg	NA	1.57E-06	mg/kg-day			
	BENZO(G,H,I)PERYLENE	2.010	mg/kg	NA	5.90E-07	mg/kg-day			
	CARBAZOLE	1.400	mg/kg	NA	4.11E-07	mg/kg-day			
	PHENANTHRENE	7.110	mg/kg	NA	2.09E-06	mg/kg-day			
	MANGANESE	835.000	mg/kg	NA	2.45E-04	mg/kg-day	1.40E-01	(mg/kg-d)	1.75E-03
	2-METHYLNAPHTHALENE	1.700	mg/kg	NA	4.99E-07	mg/kg-day	9.00E-03	(mg/kg-d)	5.54E-05
Dermal (2)	ALUMINUM	12170.00	mg/kg				1.00E+00	(mg/kg-d)	
	ARSENIC	9.84	mg/kg	0.03	1.14E-07	mg/kg-day	3.00E-04	(mg/kg-d)	3.81E-04
	COPPER	197.00	mg/kg						
	IRON	17373.00	mg/kg				3.00E-01	(mg/kg-d)	
	LEAD	13.00	mg/kg						
	SODIUM	294.00	mg/kg						
	THALLIUM	0.42	mg/kg						
	VANADIUM	31.50	mg/kg				1.00E-03	(mg/kg-d)	
	Total PCBs	0.11	mg/kg	0.14	6.08E-09	mg/kg-day	2.00E-05	(mg/kg-d)	3.04E-04
	ENDRIN ALDEHYDE	0.005	mg/kg						
	BENZO(A)PYRENE equivalent	5.340	mg/kg	0.13	2.69E-07	mg/kg-day			
	BENZO(G,H,I)PERYLENE	2.010	mg/kg	0.13	1.01E-07	mg/kg-day			
	CARBAZOLE	1.400	mg/kg	0.13	7.05E-08	mg/kg-day			
	PHENANTHRENE	7.110	mg/kg	0.13	3.58E-07	mg/kg-day			
	MANGANESE	835.000	mg/kg				1.40E-01	(mg/kg-d)	
	2-METHYLNAPHTHALENE	1.700	mg/kg	0.13	8.56E-08	mg/kg-day	9.00E-03	(mg/kg-d)	9.51E-06

Total Hazard Index Across All Exposure Pathways **4.4E-02**

(1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr})$
 $= EPC * 2.94E-07$
(2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF * ED) / (BW * AT * 365 \text{ day/yr})$
 $= EPC * ABS * 3.87E-07$

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - day	IR, mg-day	Ingestion Rate	50
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
CT - Central Tendency	EF, day/yr	Exposure Frequency	150
	AT, yr	Averaging Time	6.6
	SA cm2	Surface Area	3300
	AF, mg/cm2	Adherence Factor	0.02
	ED, years	Exposure Duration	6.6
	BWadult, kg	Body Weight	70

Table 5-10C
Calculation of Non Cancer Hazards
Exposure to Soils - Plant Area
On-Site Worker - RME

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	On-Site Worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINIUM	12170.00	mg/kg	NA	7.14E-03	mg/kg-day	1.00E+00	(mg/kg-d)	7.14E-03
	ARSENIC	9.84	mg/kg	NA	5.78E-06	mg/kg-day	3.00E-04	(mg/kg-d)	1.93E-02
	COPPER	197.00	mg/kg	NA	1.16E-04	mg/kg-day		(mg/kg-d)	
	IRON	17373.00	mg/kg	NA	1.02E-02	mg/kg-day	3.00E-01	(mg/kg-d)	3.40E-02
	LEAD	13.00	mg/kg	NA	7.63E-04	mg/kg-day			
	SODIUM	294.00	mg/kg	NA	1.73E-04	mg/kg-day			
	THALLIUM	0.42	mg/kg	NA	2.47E-07	mg/kg-day			
	VANADIUM	31.50	mg/kg	NA	1.85E-05	mg/kg-day	1.00E-03	(mg/kg-d)	1.85E-02
	Total PCBs	0.11	mg/kg	NA	6.58E-08	mg/kg-day	2.00E-05	(mg/kg-d)	3.29E-03
	ENDRIN ALDEHYDE	0.005	mg/kg	NA	2.64E-09	mg/kg-day			
	BENZO(A)PYRENE equivalent	5.340	mg/kg	NA	3.14E-06	mg/kg-day			
	BENZO[G,H,I]PERYLENE	2.010	mg/kg	NA	1.18E-06	mg/kg-day			
	CARBAZOLE	1.400	mg/kg	NA	8.22E-07	mg/kg-day			
	PHENANTHRENE	7.110	mg/kg	NA	4.17E-06	mg/kg-day			
	MANGANESE	835.000	mg/kg	NA	4.90E-04	mg/kg-day	1.40E-01	(mg/kg-d)	3.50E-03
	2-METHYLNAPHTHALENE	1.700	mg/kg	NA	9.98E-07	mg/kg-day	9.00E-03	(mg/kg-d)	1.11E-04
	Dermal (2)	ALUMINIUM	12170.00	mg/kg				1.00E+00	(mg/kg-d)
ARSENIC		9.84	mg/kg	0.03	1.14E-06	mg/kg-day	3.00E-04	(mg/kg-d)	3.81E-03
COPPER		197.00	mg/kg					(mg/kg-d)	
IRON		17373.00	mg/kg				3.00E-01	(mg/kg-d)	
LEAD		13.00	mg/kg						
SODIUM		294.00	mg/kg						
THALLIUM		0.42	mg/kg						
VANADIUM		31.50	mg/kg				1.00E-03	(mg/kg-d)	
Total PCBs		0.11	mg/kg	0.14	6.08E-08	mg/kg-day	2.00E-05	(mg/kg-d)	3.04E-03
ENDRIN ALDEHYDE		0.005	mg/kg						
BENZO(A)PYRENE equivalent		5.340	mg/kg	0.13	2.69E-06	mg/kg-day			
BENZO[G,H,I]PERYLENE		2.010	mg/kg	0.13	1.01E-06	mg/kg-day			
CARBAZOLE		1.400	mg/kg	0.13	7.05E-07	mg/kg-day			
PHENANTHRENE		7.110	mg/kg	0.13	3.58E-06	mg/kg-day			
MANGANESE		835.000	mg/kg				1.40E-01	(mg/kg-d)	
2-METHYLNAPHTHALENE		1.700	mg/kg	0.13	8.56E-07	mg/kg-day	9.00E-03	(mg/kg-d)	9.51E-05
Total Hazard Index Across All Exposure Pathways									9.3E-02

(1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * 5.87E-07

(2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * ABS * 3.87E-06

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - day	IR, mg-day	Ingestion Rate	100
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
RME - Reasonable Maximum Exposure	EF, day/yr	Exposure Frequency	150
	AT, yr	Averaging Time	25
	SA cm ²	Surface Area	3300
	AF, mg/cm ²	Adherence Factor	0.2
	ED, years	Exposure Duration	25
	BWadult, kg	Body Weight	70

Table 5-10C
Calculation of Non Cancer Hazards
Exposure to Soils - Plant Area
Construction Worker - Surface Soils

Scenario Timeframe:	Subchronic Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	Construction Worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (subchronic)	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	12170.00	mg/kg	NA	2.72E-02	mg/kg-day	2.00E+00	(mg/kg-d)	1.36E-02
	ARSENIC	9.84	mg/kg	NA	2.20E-05	mg/kg-day	5.00E-03	(mg/kg-d)	4.40E-03
	COPPER	197.00	mg/kg	NA	4.40E-04	mg/kg-day	3.00E-02	(mg/kg-d)	1.47E-02
	IRON	17373.00	mg/kg	NA	3.88E-02	mg/kg-day			
	LEAD	13.00	mg/kg	NA	2.90E-05	mg/kg-day			
	SODIUM	294.00	mg/kg	NA	6.57E-04	mg/kg-day			
	THALLIUM	0.42	mg/kg	NA	9.38E-07	mg/kg-day			
	VANADIUM	31.50	mg/kg	NA	7.04E-05	mg/kg-day			
	Total PCBs	0.11	mg/kg	NA	2.50E-07	mg/kg-day	3.00E-05	(mg/kg-d)	8.34E-03
	ENDRIN ALDEHYDE	0.005	mg/kg	NA	1.01E-08	mg/kg-day	2.00E-03	(mg/kg-d)	5.03E-06
	BENZO(A)PYRENE equivalent	5.340	mg/kg	NA	1.19E-05	mg/kg-day			
	BENZO(G,H,I)PERYLENE	2.010	mg/kg	NA	4.49E-06	mg/kg-day			
	CARBAZOLE	1.400	mg/kg	NA	3.13E-06	mg/kg-day			
	PHENANTHRENE	7.110	mg/kg	NA	1.59E-05	mg/kg-day			
	MANGANESE	835.000	mg/kg	NA	1.87E-03	mg/kg-day	1.40E-01	(mg/kg-d)	1.33E-02
	2-METHYLNAPHTHALENE	1.700	mg/kg	NA	3.80E-06	mg/kg-day	9.00E-03	(mg/kg-d)	4.22E-04
Dermal (2)	ALUMINUM	12170.00	mg/kg				2.00E+00	(mg/kg-d)	
	ARSENIC	9.84	mg/kg	0.03	1.32E-06	mg/kg-day	5.00E-03	(mg/kg-d)	2.64E-04
	COPPER	197.00	mg/kg						
	IRON	17373.00	mg/kg						
	LEAD	13.00	mg/kg						
	SODIUM	294.00	mg/kg						
	THALLIUM	0.42	mg/kg						
	VANADIUM	31.50	mg/kg						
	Total PCBs	0.11	mg/kg	0.14	7.01E-08	mg/kg-day	3.00E-05	(mg/kg-d)	2.34E-03
	ENDRIN ALDEHYDE	0.005	mg/kg						
	BENZO(A)PYRENE equivalent	5.340	mg/kg	0.13	3.10E-06	mg/kg-day			
	BENZO(G,H,I)PERYLENE	2.010	mg/kg	0.13	1.17E-06	mg/kg-day			
	CARBAZOLE	1.400	mg/kg	0.13	8.13E-07	mg/kg-day			
	PHENANTHRENE	7.110	mg/kg	0.13	4.13E-06	mg/kg-day			
	MANGANESE	835.000	mg/kg				1.40E-01	(mg/kg-d)	
	2-METHYLNAPHTHALENE	1.700	mg/kg	0.13	9.88E-07	mg/kg-day	9.00E-03	(mg/kg-d)	1.10E-04

Total Hazard Index Across All Exposure Pathways **5.7E-02**

(1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr})$
 $= EPC * 2.23E-06$
(2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF * ED) / (BW * AT * 365 \text{ day/yr})$
 $= EPC * ABS * 4.47E-06$

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - day	IR, mg-day	Ingestion Rate	330
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
CT - Central Tendency	EF, day/yr	Exposure Frequency	173
	AT, yr	Averaging Time	1
	SA cm2	Surface Area	3300
	AF, mg/cm2	Adherence Factor	0.2
	ED, years	Exposure Duration	1
	BWadult, kg	Body Weight	70

Table 5-10C
Calculation of Non Cancer Hazards
Exposure to Soils - Plant Area
Construction Worker - Subsurface Soils

Scenario Timeframe:	Subchronic Future
Medium:	Soils
Exposure Medium:	Subsurface Soils
Receptor Population:	Construction Worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (subchronic)	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	11390.00	mg/kg	NA	2.55E-02	mg/kg-day	2.00E+00	(mg/kg-d)	1.27E-02
	ARSENIC	9.72	mg/kg	NA	2.17E-05	mg/kg-day	5.00E-03	(mg/kg-d)	4.34E-03
	COPPER	151.00	mg/kg	NA	3.37E-04	mg/kg-day	3.00E-02	(mg/kg-d)	1.12E-02
	IRON	18906.00	mg/kg	NA	4.22E-02	mg/kg-day			
	LEAD	13.07	mg/kg	NA	2.92E-05	mg/kg-day			
	SODIUM	353.00	mg/kg	NA	7.89E-04	mg/kg-day			
	THALLIUM	0.49	mg/kg	NA	1.09E-06	mg/kg-day			
	VANADIUM	28.59	mg/kg	NA	6.39E-05	mg/kg-day			
	Total PCBs	0.09	mg/kg	NA	2.10E-07	mg/kg-day	3.00E-05	(mg/kg-d)	7.00E-03
	ENDRIN ALDEHYDE	0.005	mg/kg	NA	1.12E-08	mg/kg-day	2.00E-03	(mg/kg-d)	5.59E-06
	BENZO(A)PYRENE equivalent	4.400	mg/kg	NA	9.83E-06	mg/kg-day			
	BENZO(G,H,I)PERYLENE	1.640	mg/kg	NA	3.66E-06	mg/kg-day			
	CARBAZOLE	1.400	mg/kg	NA	3.13E-06	mg/kg-day			
	PHENANTHRENE	5.790	mg/kg	NA	1.29E-05	mg/kg-day			
	MANGANESE	835.000	mg/kg	NA	1.87E-03	mg/kg-day	1.40E-01	(mg/kg-d)	1.33E-02
	2-METHYLNAPHTHALENE	1.700	mg/kg	NA	3.80E-06	mg/kg-day	9.00E-03	(mg/kg-d)	4.22E-04
Dermal (2)	ALUMINUM	11390.00	mg/kg				2.00E+00	(mg/kg-d)	
	ARSENIC	9.72	mg/kg	0.03	1.30E-06	mg/kg-day	5.00E-03	(mg/kg-d)	2.61E-04
	COPPER	151.00	mg/kg				3.00E-02	(mg/kg-d)	
	IRON	18906.00	mg/kg						
	LEAD	13.07	mg/kg						
	SODIUM	353.00	mg/kg						
	THALLIUM	0.49	mg/kg						
	VANADIUM	28.59	mg/kg						
	Total PCBs	0.09	mg/kg	0.14	5.82E-08	mg/kg-day	3.00E-05	(mg/kg-d)	1.94E-03
	ENDRIN ALDEHYDE	0.005	mg/kg						
	BENZO(A)PYRENE equivalent	4.400	mg/kg	0.13	2.56E-06	mg/kg-day			
	BENZO(G,H,I)PERYLENE	1.640	mg/kg	0.13	9.53E-07	mg/kg-day			
	CARBAZOLE	1.400	mg/kg	0.13	8.13E-07	mg/kg-day			
	PHENANTHRENE	5.790	mg/kg	0.13	3.36E-06	mg/kg-day			
	MANGANESE	835.000	mg/kg				1.40E-01	(mg/kg-d)	
	2-METHYLNAPHTHALENE	1.700	mg/kg	0.13	9.88E-07	mg/kg-day	9.00E-03	(mg/kg-d)	1.10E-04

Total Hazard Index Across All Exposure Pathways **5.1E-02**

(1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * 2.23E-06
(2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * ABS * 4.47E-06

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - day	IR, mg-day	Ingestion Rate	330
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
CT - Central Tendency	EF, day/yr	Exposure Frequency	173
	AT, yr	Averaging Time	1
	SA cm2	Surface Area	3300
	AF, mg/cm2	Adherence Factor	0.2
	ED, years	Exposure Duration	1
	BWadult, kg	Body Weight	70

Table 5-10D
Calculation of Non Cancer Hazards
Exposure to Soils - Warehouse 2/3
Resident - CT

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	Resident
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	21087	mg/kg	NA	1.76E-02	mg/kg-day	1.00E+00	(mg/kg-d)	1.76E-02
	ARSENIC	13	mg/kg	NA	1.05E-05	mg/kg-day	3.00E-04	(mg/kg-d)	3.49E-02
	IRON	27471	mg/kg	NA	2.30E-02	mg/kg-day	3.00E-01	(mg/kg-d)	7.65E-02
	LEAD	243	mg/kg	NA	2.03E-04	mg/kg-day			
	SODIUM	167	mg/kg	NA	1.40E-04	mg/kg-day			
	MANGANESE	910	mg/kg	NA	7.60E-04	mg/kg-day	1.40E-01	(mg/kg-d)	5.43E-03
	Total PCBs	0.75	mg/kg	NA	6.25E-07	mg/kg-day	2.00E-05	(mg/kg-d)	3.13E-02
	BENZO(A)PYRENE equivalent	3.30	mg/kg	NA	2.76E-06	mg/kg-day			
	BENZO(G,H,I)PERYLENE	1.14	mg/kg	NA	9.53E-07	mg/kg-day			
	CARBAZOLE	0.27	mg/kg	NA	2.29E-07	mg/kg-day			
PHENANTHRENE	1.50	mg/kg	NA	1.25E-06	mg/kg-day				
Dermal (2)	ALUMINUM	21087	mg/kg				1.00E+00	(mg/kg-d)	
	ARSENIC	13	mg/kg	0.03	3.53E-07	mg/kg-day	3.00E-04	(mg/kg-d)	1.18E-03
	IRON	27471	mg/kg				3.00E-01	(mg/kg-d)	
	LEAD	243	mg/kg						
	SODIUM	167	mg/kg						
	MANGANESE	910	mg/kg				1.40E-01	(mg/kg-d)	
	Total PCBs	0.75	mg/kg	0.14	9.88E-08	mg/kg-day	2.00E-05	(mg/kg-d)	4.94E-03
	BENZO(A)PYRENE equivalent	3.30	mg/kg	0.13	4.04E-07	mg/kg-day			
	BENZO(G,H,I)PERYLENE	1.14	mg/kg	0.13	1.39E-07	mg/kg-day			
	CARBAZOLE	0.27	mg/kg	0.13	3.35E-08	mg/kg-day			
PHENANTHRENE	1.50	mg/kg	0.13	1.83E-07	mg/kg-day				
Total Hazard Index Across All Exposure Pathways									1.7E-01

(1) Intake Ingestion = $EPC * (IF * CF * RAF * EF * EV) / (AT * 365 \text{ day/yr})$
= EPC * 8.36E-07

(2) Intake Dermal = $EPC * (SFSadj * CF * ABS * EF * EV) / (AT * 365 \text{ day/yr})$
= EPC * ABS * 9.41E-07

NA = Not Applicable
mg/kg - day = milligram/kilogram - day
mg/kg = milligram/kilogram
EPC = Exposure Point Concentration
CT - Central Tendency

EPC, mg/kg
IF, mg-yr/kg-day
CF, kg/mg
RAF, unitless
EF, day/yr
AT, yr
SFSadj, mg-yr/kg-event
ABS, unitless
EV, event/day

Exposure Point Concentration chem-specific
Ingestion Rate, age weighted 18.3
Conversion Factor 0.000001
Relative Absorption Factor 1
Exposure Frequency 150
Averaging Time 9
Age-weighted Dermal Factor 20.6
Dermal Absorption Factor chem-specific
Event Frequency 1

Table 5-10D
Calculation of Non Cancer Hazards
Exposure to Soils - Warehouse 2/3
Resident - RME

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	Resident
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	21087	mg/kg	NA	3.29E-02	mg/kg-day	1.00E+00	(mg/kg-d)	3.29E-02
	ARSENIC	13	mg/kg	NA	1.96E-05	mg/kg-day	3.00E-04	(mg/kg-d)	6.52E-02
	IRON	27471	mg/kg	NA	4.29E-02	mg/kg-day	3.00E-01	(mg/kg-d)	1.43E-01
	LEAD	243	mg/kg	NA	3.79E-04	mg/kg-day			
	SODIUM	167	mg/kg	NA	2.61E-04	mg/kg-day			
	MANGANESE	910	mg/kg	NA	1.42E-03	mg/kg-day	1.40E-01	(mg/kg-d)	1.02E-02
	Total PCBs	0.75	mg/kg	NA	1.17E-06	mg/kg-day	2.00E-05	(mg/kg-d)	5.86E-02
	BENZO(A)PYRENE equivalent	3.30	mg/kg	NA	5.15E-06	mg/kg-day			
	BENZO(G,H,I)PERYLENE	1.14	mg/kg	NA	1.78E-06	mg/kg-day			
	CARBAZOLE	0.27	mg/kg	NA	4.28E-07	mg/kg-day			
	PHENANTHRENE	1.50	mg/kg	NA	2.34E-06	mg/kg-day			
	Dermal (2)	ALUMINUM	21087	mg/kg				1.00E+00	(mg/kg-d)
ARSENIC		13	mg/kg	0.03	1.85E-06	mg/kg-day	3.00E-04	(mg/kg-d)	6.17E-03
IRON		27471	mg/kg				3.00E-01	(mg/kg-d)	
LEAD		243	mg/kg						
SODIUM		167	mg/kg						
Total PCBs		0.75	mg/kg	0.14	5.18E-07	mg/kg-day	2.00E-05	(mg/kg-d)	2.59E-02
MANGANESE		910	mg/kg				1.40E-01	(mg/kg-d)	
BENZO(A)PYRENE equivalent		3.30	mg/kg	0.13	2.12E-06	mg/kg-day			
BENZO(G,H,I)PERYLENE		1.14	mg/kg	0.13	7.31E-07	mg/kg-day			
CARBAZOLE		0.27	mg/kg	0.13	1.76E-07	mg/kg-day			
PHENANTHRENE		1.50	mg/kg	0.13	9.62E-07	mg/kg-day			
Total Hazard Index Across All Exposure Pathways									3.4E-01

(1) Intake Ingestion = $EPC * (IF * CF * RAF * EF * EV) / (AT * 365 \text{ day/yr})$
= EPC * 1.56E-06

(2) Intake Dermal = $EPC * (SFSadj * CF * ABS * EF * EV) / (AT * 365 \text{ day/yr})$
= EPC * ABS * 4.93E-06

NA = Not Applicable
mg/kg - day = milligram/kilogram - day
mg/kg = milligram/kilogram
EPC = Exposure Point Concentration
RME - Realistic Maximum Exposure

EPC, mg/kg	Exposure Point Concentration	chem-specific
IF, mg-yr/kg-day	Ingestion Rate, age weighted	114
CF, kg/mg	Conversion Factor	0.000001
RAF, unitless	Relative Absorption Factor	1
EF, day/yr	Exposure Frequency	150
AT, yr	Averaging Time	30
SFSadj, mg-yr/kg-event	Age-weighted Dermal Factor	360
ABS, unitless	Dermal Absorption Factor	chem-specific
EV, event/day	Event Frequency	1

Table 5-10D
Calculation of Non Cancer Hazards
Exposure to Soil - Warehouse 2/3
Child - RME

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	Resident
Receptor Age:	Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	21087	mg/kg	NA	1.16E-01	mg/kg-day	1.00E+00	(mg/kg-d)	1.16E-01
	ARSENIC	13	mg/kg	NA	6.86E-05	mg/kg-day	3.00E-04	(mg/kg-d)	2.29E-01
	IRON	27471	mg/kg	NA	1.51E-01	mg/kg-day	3.00E-01	(mg/kg-d)	5.02E-01
	LEAD	243	mg/kg	NA	1.33E-03	mg/kg-day			
	SODIUM	167	mg/kg	NA	9.15E-04	mg/kg-day			
	MANGANESE	910	mg/kg	NA	4.99E-03	mg/kg-day	1.40E-01	(mg/kg-d)	3.56E-02
	Total PCBs	0.75	mg/kg	NA	4.11E-06	mg/kg-day	2.00E-05	(mg/kg-d)	2.05E-01
	BENZO(A)PYRENE equivalent	3.30	mg/kg	NA	1.81E-05	mg/kg-day			
	BENZO(G,H,I)PERYLENE	1.14	mg/kg	NA	6.25E-06	mg/kg-day			
	CARBAZOLE	0.27	mg/kg	NA	1.50E-06	mg/kg-day			
	PHENANTHRENE	1.50	mg/kg	NA	8.22E-06	mg/kg-day			
Dermal (2)	ALUMINUM	21087	mg/kg				1.00E+00	(mg/kg-d)	
	ARSENIC	13	mg/kg	0.03	5.76E-06	mg/kg-day	3.00E-04	(mg/kg-d)	1.92E-02
	IRON	27471	mg/kg				3.00E-01	(mg/kg-d)	
	LEAD	243	mg/kg						
	SODIUM	167	mg/kg						
	MANGANESE	910	mg/kg				1.40E-01	(mg/kg-d)	
	Total PCBs	0.75	mg/kg	0.14	1.61E-06	mg/kg-day	2.00E-05	(mg/kg-d)	8.05E-02
	BENZO(A)PYRENE equivalent	3.30	mg/kg	0.13	6.58E-06	mg/kg-day			
	BENZO(G,H,I)PERYLENE	1.14	mg/kg	0.13	2.27E-06	mg/kg-day			
	CARBAZOLE	0.27	mg/kg	0.13	5.46E-07	mg/kg-day			
	PHENANTHRENE	1.50	mg/kg	0.13	2.99E-06	mg/kg-day			
Total Hazard Index Across All Exposure Pathways									1.2E+00

(1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * $5.48E-06$
(2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF) / (AT * BW * 365 \text{ day/yr})$
= EPC * ABS * $1.53E-05$

EPC, mg/kg	Exposure Point Concentration	chem-specific
IR, mg-day	Ingestion Rate	200
CF, kg/mg	Conversion Factor	0.000001
RAF, unitless	Relative Absorption Factor	1
EF, day/yr	Exposure Frequency	150
AT, yr	Averaging Time	6
SA cm2	Surface Area	2800
AF, mg/cm2	Adherence Factor	0.2
ED, years	Exposure Duration	6
BWchild, kg	Body Weight	15

NA = Not Applicable
mg/kg - day = milligram/kilogram - day
mg/kg = milligram/kilogram
EPC = Exposure Point Concentration

Table 5-10D
Calculation of Non Cancer Hazards
Exposure to Soils - Warehouse 2/3
On-Site Worker - CT

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	On-Site Worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	21087	mg/kg	NA	6.19E-03	mg/kg-day	1.00E+00	(mg/kg-d)	6.19E-03
	ARSENIC	13	mg/kg	NA	3.68E-06	mg/kg-day	3.00E-04	(mg/kg-d)	1.23E-02
	IRON	27471	mg/kg	NA	8.06E-03	mg/kg-day	3.00E-01	(mg/kg-d)	2.69E-02
	LEAD	243	mg/kg	NA	7.13E-05	mg/kg-day			
	SODIUM	167	mg/kg	NA	4.90E-05	mg/kg-day			
	MANGANESE	910	mg/kg	NA	2.67E-04	mg/kg-day	1.40E-01	(mg/kg-d)	1.91E-03
	Total PCBs	0.75	mg/kg	NA	2.20E-07	mg/kg-day	2.00E-05	(mg/kg-d)	1.10E-02
	BENZO(A)PYRENE equivalent	3.30	mg/kg	NA	9.69E-07	mg/kg-day			
	BENZO(G,H,I)PERYLENE	1.14	mg/kg	NA	3.35E-07	mg/kg-day			
	CARBAZOLE	0.27	mg/kg	NA	8.04E-08	mg/kg-day			
PHENANTHRENE	1.50	mg/kg	NA	4.40E-07	mg/kg-day				
Dermal (2)	ALUMINUM	21087	mg/kg				1.00E+00	(mg/kg-d)	
	ARSENIC	13	mg/kg	0.03	1.46E-07	mg/kg-day	3.00E-04	(mg/kg-d)	4.85E-04
	IRON	27471	mg/kg				3.00E-01	(mg/kg-d)	
	LEAD	243	mg/kg						
	SODIUM	167	mg/kg						
	MANGANESE	910	mg/kg				1.40E-01	(mg/kg-d)	
	Total PCBs	0.75	mg/kg	0.14	4.07E-08	mg/kg-day	2.00E-05	(mg/kg-d)	2.03E-03
	BENZO(A)PYRENE equivalent	3.30	mg/kg	0.13	1.66E-07	mg/kg-day			
	BENZO(G,H,I)PERYLENE	1.14	mg/kg	0.13	5.74E-08	mg/kg-day			
	CARBAZOLE	0.27	mg/kg	0.13	1.38E-08	mg/kg-day			
PHENANTHRENE	1.50	mg/kg	0.13	7.56E-08	mg/kg-day				
Total Hazard Index Across All Exposure Pathways									6.1E-02

(1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * 2.94E-07

(2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * ABS * 3.87E-07

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - day	IR, mg-day	Ingestion Rate	50
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
CT -Central Tendency	EF, day/yr	Exposure Frequency	150
	AT, yr	Averaging Time	6.6
	SA cm2	Surface Area	3300
	AF, mg/cm2	Adherence Factor	0.02
	ED, years	Exposure Duration	6.6
	BWadult, kg	Body Weight	70

Table 5-10D
Calculation of Non Cancer Hazards
Exposure to Soils - Warehouse 2/3
On-Site Worker - RME

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	On-Site Worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	21087	mg/kg	NA	1.24E-02	mg/kg-day	1.00E+00	(mg/kg-d)	1.24E-02
	ARSENIC	13	mg/kg	NA	7.35E-06	mg/kg-day	3.00E-04	(mg/kg-d)	2.45E-02
	IRON	27471	mg/kg	NA	1.61E-02	mg/kg-day	3.00E-01	(mg/kg-d)	5.38E-02
	LEAD	243	mg/kg	NA	1.43E-04	mg/kg-day			
	SODIUM	167	mg/kg	NA	9.80E-05	mg/kg-day			
	MANGANESE	910	mg/kg	NA	5.34E-04	mg/kg-day	1.40E-01	(mg/kg-d)	3.82E-03
	Total PCBs	0.75	mg/kg	NA	4.40E-07	mg/kg-day	2.00E-05	(mg/kg-d)	2.20E-02
	BENZO(A)PYRENE equivalent	3.30	mg/kg	NA	1.94E-06	mg/kg-day			
	BENZO(G,H,I)PERYLENE	1.14	mg/kg	NA	6.69E-07	mg/kg-day			
	CARBAZOLE	0.27	mg/kg	NA	1.61E-07	mg/kg-day			
PHENANTHRENE	1.50	mg/kg	NA	8.81E-07	mg/kg-day				
Dermal (2)	ALUMINUM	21087	mg/kg			mg/kg-day	1.00E+00	(mg/kg-d)	
	ARSENIC	13	mg/kg	0.03	1.46E-06	mg/kg-day	3.00E-04	(mg/kg-d)	4.85E-03
	IRON	27471	mg/kg			mg/kg-day	3.00E-01	(mg/kg-d)	
	LEAD	243	mg/kg						
	SODIUM	167	mg/kg						
	MANGANESE	910	mg/kg				1.40E-01	(mg/kg-d)	
	Total PCBs	0.75	mg/kg	0.14	4.07E-07	mg/kg-day	2.00E-05	(mg/kg-d)	2.03E-02
	BENZO(A)PYRENE equivalent	3.30	mg/kg	0.13	1.66E-06	mg/kg-day			
	BENZO(G,H,I)PERYLENE	1.14	mg/kg	0.13	5.74E-07	mg/kg-day			
	CARBAZOLE	0.27	mg/kg	0.13	1.38E-07	mg/kg-day			
PHENANTHRENE	1.50	mg/kg	0.13	7.56E-07	mg/kg-day				
Total Hazard Index Across All Exposure Pathways									1.4E-01

(1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * 5.87E-07

(2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * ABS * 3.87E-06

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - day	IR, mg-day	Ingestion Rate	100
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
RME - Reasonable Maximum Exposure	EF, day/yr	Exposure Frequency	150
	AT, yr	Averaging Time	25
	SA, cm ²	Surface Area	3300
	AF, mg/cm ²	Adherence Factor	0.2
	ED, years	Exposure Duration	25
	BWadult, kg	Body Weight	70

Table 5-10D
Calculation of Non Cancer Hazards
Exposure to Soils - Warehouse 2/3
Construction Worker - Surface Soils

Scenario Timeframe:	Subchronic Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	Construction Worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (subchronic)	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	21087	mg/kg	NA	4.71E-02	mg/kg-day	2.00E+00	(mg/kg-d)	2.36E-02
	ARSENIC	13	mg/kg	NA	2.80E-05	mg/kg-day	5.00E-03	(mg/kg-d)	5.60E-03
	IRON	27471	mg/kg	NA	6.14E-02	mg/kg-day			
	LEAD	243	mg/kg	NA	5.43E-04	mg/kg-day			
	SODIUM	167	mg/kg	NA	3.73E-04	mg/kg-day			
	MANGANESE	910	mg/kg	NA	2.03E-03	mg/kg-day	1.40E-01	(mg/kg-d)	1.45E-02
	Total PCBs	0.75	mg/kg	NA	1.68E-06	mg/kg-day	3.00E-05	(mg/kg-d)	5.59E-02
	BENZO(A)PYRENE equivalent	3.30	mg/kg	NA	7.37E-06	mg/kg-day			
	BENZO(G,H,I)PERYLENE	1.14	mg/kg	NA	2.55E-06	mg/kg-day			
	CARBAZOLE	0.27	mg/kg	NA	6.03E-07	mg/kg-day			
PHENANTHRENE	1.500	mg/kg	NA	3.35E-06	mg/kg-day				
Dermal (2)	ALUMINUM	21087	mg/kg				2.00E+00	(mg/kg-d)	
	ARSENIC	13	mg/kg	0.03	1.68E-06	mg/kg-day	5.00E-03	(mg/kg-d)	3.36E-04
	IRON	27471	mg/kg						
	LEAD	243	mg/kg						
	SODIUM	167	mg/kg						
	MANGANESE	910	mg/kg				1.40E-01	(mg/kg-d)	
	Total PCBs	0.75	mg/kg	0.14	4.69E-07	mg/kg-day	3.00E-05	(mg/kg-d)	1.56E-02
	BENZO(A)PYRENE equivalent	3.30	mg/kg	0.13	1.92E-06	mg/kg-day			
	BENZO(G,H,I)PERYLENE	1.14	mg/kg	0.13	6.62E-07	mg/kg-day			
	CARBAZOLE	0.27	mg/kg	0.13	1.59E-07	mg/kg-day			
PHENANTHRENE	1.50	mg/kg	0.13	8.71E-07	mg/kg-day				
Total Hazard Index Across All Exposure Pathways									1.2E-01

- (1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * 2.23E-06
(2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * ABS * 4.47E-06

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - day	IR, mg-day	Ingestion Rate	330
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
CT - Central Tendency	EF, day/yr	Exposure Frequency	173
	AT, yr	Averaging Time	1
	SA cm ²	Surface Area	3300
	AF, mg/cm ²	Adherence Factor	0.2
	ED, years	Exposure Duration	1
	BWadult, kg	Body Weight	70

Table 5-10D
Calculation of Non Cancer Hazards
Exposure to Soils - Warehouse 2/3
Construction Worker - Subsurface Soils

Scenario Timeframe:	Subchronic Future
Medium:	Soils
Exposure Medium:	Subsurface Soils
Receptor Population:	Construction Worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (subchronic)	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	22019	mg/kg	NA	4.92E-02	mg/kg-day	2.00E+00	(mg/kg-d)	2.46E-02
	ARSENIC	10	mg/kg	NA	2.31E-05	mg/kg-day	5.00E-03	(mg/kg-d)	4.61E-03
	IRON	31500	mg/kg	NA	7.04E-02	mg/kg-day			
	LEAD	120	mg/kg	NA	2.68E-04	mg/kg-day			
	SODIUM	188	mg/kg	NA	4.20E-04	mg/kg-day			
	VANADIUM	44	mg/kg	NA	9.83E-05	mg/kg-day			
	MANGANESE	910	mg/kg	NA	2.03E-03	mg/kg-day	1.40E-01	(mg/kg-d)	1.45E-02
	2-METHYLNAPHTHALENE	3	mg/kg	NA	6.26E-06	mg/kg-day	9.00E-03	(mg/kg-d)	6.95E-04
	ETHYLBENZENE	61	mg/kg	NA	1.36E-04	mg/kg-day	1.00E+00	(mg/kg-d)	1.36E-04
	XYLENE	279	mg/kg	NA	6.23E-04	mg/kg-day	2.00E-01	(mg/kg-d)	3.12E-03
	Total PCBs	0.38	mg/kg	NA	8.49E-07	mg/kg-day	3.00E-05	(mg/kg-d)	2.83E-02
	BENZO(A)PYRENE equivalent	1.36	mg/kg	NA	3.04E-06	mg/kg-day			
	BENZO(G,H,I)PERYLENE	0.50	mg/kg	NA	1.12E-06	mg/kg-day			
	CARBAZOLE	0.22	mg/kg	NA	4.92E-07	mg/kg-day			
	PHENANTHRENE	0.61	mg/kg	NA	1.36E-06	mg/kg-day			
Dermal (2)	ALUMINUM	22019	mg/kg				2.00E+00	(mg/kg-d)	
	ARSENIC	10	mg/kg	0.03	1.38E-06	mg/kg-day	5.00E-03	(mg/kg-d)	2.77E-04
	IRON	31500	mg/kg						
	LEAD	120	mg/kg						
	SODIUM	188	mg/kg						
	VANADIUM	44	mg/kg						
	MANGANESE	910	mg/kg				1.40E-01	(mg/kg-d)	
	2-METHYLNAPHTHALENE	3	mg/kg	0.13	1.63E-06	mg/kg-day	9.00E-03	(mg/kg-d)	1.81E-04
	ETHYLBENZENE	61	mg/kg				1.00E+00	(mg/kg-d)	
	XYLENE	279	mg/kg	0.1	1.25E-04	mg/kg-day	2.00E-01	(mg/kg-d)	6.23E-04
	Total PCBs	0.38	mg/kg	0.14	2.38E-07	mg/kg-day	3.00E-05	(mg/kg-d)	7.92E-03
	BENZO(A)PYRENE equivalent	1.36	mg/kg	0.13	7.90E-07	mg/kg-day			
	BENZO(G,H,I)PERYLENE	0.50	mg/kg	0.13	2.90E-07	mg/kg-day			
	CARBAZOLE	0.22	mg/kg	0.13	1.28E-07	mg/kg-day			
	PHENANTHRENE	0.61	mg/kg	0.13	3.54E-07	mg/kg-day			
Total Hazard Index Across All Exposure Pathways									8.5E-02

(1) Intake Ingestion = $\frac{EPC * (IR * CF * RAF * EF * ED)}{(BW * AT * 365 \text{ day/yr})}$
= EPC * 2.23E-06

(2) Intake Dermal = $\frac{EPC * (SA * AF * CF * ABS * EF * ED)}{(BW * AT * 365 \text{ day/yr})}$
= EPC * ABS * 4.47E-06

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - day	IR, mg-day	Ingestion Rate	330
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
CT -Central Tendency	EF, day/yr	Exposure Frequency	173
	AT, yr	Averaging Time	1
	SA cm2	Surface Area	3300
	AF, mg/cm2	Adherence Factor	0.2
	ED, years	Exposure Duration	1
	BWadult, kg	Body Weight	70

Table 5-10E
Calculation of Non Cancer Hazards
Exposure to Soils - 345 kV Transmission Line Area
Resident - CT

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	Resident
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINIUM	17697	mg/kg	NA	1.48E-02	mg/kg-day	1.00E+00	(mg/kg-d)	1.48E-02
	ARSENIC	11	mg/kg	NA	9.42E-06	mg/kg-day	3.00E-04	(mg/kg-d)	3.14E-02
	IRON	27458	mg/kg	NA	2.29E-02	mg/kg-day	3.00E-01	(mg/kg-d)	7.65E-02
	SODIUM	218	mg/kg	NA	1.82E-04	mg/kg-day			
	THALLIUM	0.69	mg/kg	NA	5.77E-07	mg/kg-day			
	VANADIUM	41	mg/kg	NA	3.40E-05	mg/kg-day	1.00E-03	(mg/kg-d)	3.40E-02
	MANGANESE	1300	mg/kg	NA	1.09E-03	mg/kg-day	1.40E-01	(mg/kg-d)	7.76E-03
	BENZO(A)PYRENE equivalent	0.42	mg/kg	NA	3.54E-07	mg/kg-day			
	BENZO[G,H,I]PERYLENE	0.24	mg/kg	NA	1.98E-07	mg/kg-day			
	CARBAZOLE	0.24	mg/kg	NA	1.96E-07	mg/kg-day			
	PHENANTHRENE	0.53	mg/kg	NA	4.42E-07	mg/kg-day			
Dermal (2)	ALUMINIUM	17697	mg/kg				1.00E+00	(mg/kg-d)	
	ARSENIC	11	mg/kg	0.03	3.18E-07	mg/kg-day	3.00E-04	(mg/kg-d)	1.06E-03
	IRON	27458	mg/kg				3.00E-01	(mg/kg-d)	
	SODIUM	218	mg/kg						
	THALLIUM	0.69	mg/kg						
	VANADIUM	41	mg/kg				1.00E-03	(mg/kg-d)	
	MANGANESE	1300	mg/kg				1.40E-01	(mg/kg-d)	
	BENZO(A)PYRENE equivalent	0.42	mg/kg	0.13	5.18E-08	mg/kg-day			
	BENZO[G,H,I]PERYLENE	0.24	mg/kg	0.13	2.90E-08	mg/kg-day			
	CARBAZOLE	0.24	mg/kg	0.13	2.87E-08	mg/kg-day			
	PHENANTHRENE	0.53	mg/kg	0.13	6.47E-08	mg/kg-day			
Total Hazard Index Across All Exposure Pathways									1.7E-01

(1) Intake Ingestion = $EPC * (IF * CF * RAF * EF * EV) / (AT * 365 \text{ day/yr})$
= EPC * 8.36E-07

(2) Intake Dermal = $EPC * (SFSadj * CF * ABS * EF * EV) / (AT * 365 \text{ day/yr})$
= EPC * ABS * 9.41E-07

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - day	IF, mg-yr/kg-day	Ingestion Rate, age weighted	18.3
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
CT - Central Tendency	EF, day/yr	Exposure Frequency	150
	AT, yr	Averaging Time	9
	SFSadj, mg-yr/kg-event	Age-weighted Dermal Factor	20.6
	ABS, unitless	Dermal Absorption Factor	chem-specific
	EV, event/day	Event Frequency	1

Table 5-10E
Calculation of Non Cancer Hazards
Exposure to Soils - 345 kV Transmission Line Area
Resident - RME

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	Resident
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINIUM	17697	mg/kg	NA	2.76E-02	mg/kg-day	1.00E+00	(mg/kg-d)	2.76E-02
	ARSENIC	11	mg/kg	NA	1.76E-05	mg/kg-day	3.00E-04	(mg/kg-d)	5.87E-02
	IRON	27458	mg/kg	NA	4.29E-02	mg/kg-day	3.00E-01	(mg/kg-d)	1.43E-01
	SODIUM	218	mg/kg	NA	3.40E-04	mg/kg-day			
	THALLIUM	0.69	mg/kg	NA	1.08E-06	mg/kg-day			
	VANADIUM	41	mg/kg	NA	6.36E-05	mg/kg-day	1.00E-03	(mg/kg-d)	6.36E-02
	MANGANESE	1300	mg/kg	NA	2.03E-03	mg/kg-day	1.40E-01	(mg/kg-d)	1.45E-02
	BENZO(A)PYRENE equivalent	0.42	mg/kg	NA	6.56E-07	mg/kg-day			
	BENZO(G,H,I)PERYLENE	0.24	mg/kg	NA	3.70E-07	mg/kg-day			
	CARBAZOLE	0.24	mg/kg	NA	3.67E-07	mg/kg-day			
PHENANTHRENE	0.53	mg/kg	NA	8.26E-07	mg/kg-day				
Dermal (2)	ALUMINIUM	17697	mg/kg				1.00E+00	(mg/kg-d)	
	ARSENIC	11	mg/kg	0.03	1.67E-06	mg/kg-day	3.00E-04	(mg/kg-d)	5.56E-03
	IRON	27458	mg/kg				3.00E-01	(mg/kg-d)	
	SODIUM	218	mg/kg						
	THALLIUM	0.69	mg/kg						
	VANADIUM	41	mg/kg				1.00E-03	(mg/kg-d)	
	MANGANESE	1300	mg/kg				1.40E-01	(mg/kg-d)	
	BENZO(A)PYRENE equivalent	0.42	mg/kg	0.13	2.69E-07	mg/kg-day			
	BENZO(G,H,I)PERYLENE	0.24	mg/kg	0.13	1.52E-07	mg/kg-day			
	CARBAZOLE	0.24	mg/kg	0.13	1.51E-07	mg/kg-day			
PHENANTHRENE	0.53	mg/kg	0.13	3.39E-07	mg/kg-day				
Total Hazard Index Across All Exposure Pathways									3.1E-01

(1) Intake Ingestion = $EPC * (IF * CF * RAF * EF * EV) / (AT * 365 \text{ day/yr})$
= EPC * 1.56E-06

(2) Intake Dermal = $EPC * (SFSadj * CF * ABS * EF * EV) / (AT * 365 \text{ day/yr})$
= EPC * ABS * 4.93E-06

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - day	IF, mg-yr/kg-day	Ingestion Rate, age weighted	114
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
RME - Realistic Maximum Exposure	EF, day/yr	Exposure Frequency	150
	AT, yr	Averaging Time	30
	SFSadj, mg-yr/kg-event	Age-weighted Dermal Factor	360
	ABS, unitless	Dermal Absorption Factor	chem-specific
	EV, event/day	Event Frequency	1

Table 5-10E
Calculation of Non Cancer Hazards
Exposure to Soil - 345 kV Transmission Line Area
Child - RME

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	Resident
Receptor Age:	Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	17697	mg/kg	NA	9.70E-02	mg/kg-day	1.00E+00	(mg/kg-d)	9.70E-02
	ARSENIC	11	mg/kg	NA	6.18E-05	mg/kg-day	3.00E-04	(mg/kg-d)	2.06E-01
	IRON	27458	mg/kg	NA	1.50E-01	mg/kg-day	3.00E-01	(mg/kg-d)	5.02E-01
	SODIUM	218	mg/kg	NA	1.19E-03	mg/kg-day			
	THALLIUM	0.69	mg/kg	NA	3.78E-06	mg/kg-day			
	VANADIUM	41	mg/kg	NA	2.23E-04	mg/kg-day	1.00E-03	(mg/kg-d)	2.23E-01
	MANGANESE	1300	mg/kg	NA	7.12E-03	mg/kg-day	1.40E-01	(mg/kg-d)	5.09E-02
	BENZO(A)PYRENE equivalent	0.42	mg/kg	NA	2.30E-06	mg/kg-day			
	BENZO(G,H,I)PERYLENE	0.24	mg/kg	NA	1.30E-06	mg/kg-day			
	CARBAZOLE	0.24	mg/kg	NA	1.29E-06	mg/kg-day			
PHENANTHRENE	0.53	mg/kg	NA	2.90E-06	mg/kg-day				
Dermal (2)	ALUMINUM	17697	mg/kg				1.00E+00	(mg/kg-d)	
	ARSENIC	11	mg/kg	0.03	5.19E-06	mg/kg-day	3.00E-04	(mg/kg-d)	1.73E-02
	IRON	27458	mg/kg				3.00E-01	(mg/kg-d)	
	SODIUM	218	mg/kg						
	THALLIUM	0.69	mg/kg						
	VANADIUM	41	mg/kg				1.00E-03	(mg/kg-d)	
	MANGANESE	1300	mg/kg				1.40E-01	(mg/kg-d)	
	BENZO(A)PYRENE equivalent	0.42	mg/kg	0.13	8.38E-07	mg/kg-day			
	BENZO(G,H,I)PERYLENE	0.24	mg/kg	0.13	4.73E-07	mg/kg-day			
	CARBAZOLE	0.24	mg/kg	0.13	4.69E-07	mg/kg-day			
PHENANTHRENE	0.53	mg/kg	0.13	1.06E-06	mg/kg-day				
Total Hazard Index Across All Exposure Pathways									1.1E+00

(1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * 5.48E-06

(2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF) / (AT * BW * 365 \text{ day/yr})$
= EPC * ABS * 1.53E-05

NA = Not Applicable
mg/kg - day = milligram/kilogram - day
mg/kg = milligram/kilogram
EPC = Exposure Point Concentration
RME - Reasonable Maximum Exposure

EPC, mg/kg	Exposure Point Concentration	chem-specific
IR, mg-day	Ingestion Rate	200
CF, kg/mg	Conversion Factor	0.000001
RAF, unitless	Relative Absorption Factor	1
EF, day/yr	Exposure Frequency	150
AT, yr	Averaging Time	6
SA cm2	Surface Area	2800
AF, mg/cm2	Adherence Factor	0.2
ED, years	Exposure Duration	6
BWchild, kg	Body Weight	15

Table 5-10E
Calculation of Non Cancer Hazards
Exposure to Soils - 345 kV Transmission Line Area
On-Site Worker - CT

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	On-Site Worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINIUM	17697	mg/kg	NA	5.19E-03	mg/kg-day	1.00E+00	(mg/kg-d)	5.19E-03
	ARSENIC	11	mg/kg	NA	3.31E-06	mg/kg-day	3.00E-04	(mg/kg-d)	1.10E-02
	IRON	27458	mg/kg	NA	8.06E-03	mg/kg-day	3.00E-01	(mg/kg-d)	2.69E-02
	SODIUM	218	mg/kg	NA	6.40E-05	mg/kg-day			
	THALLIUM	0.69	mg/kg	NA	2.03E-07	mg/kg-day			
	VANADIUM	41	mg/kg	NA	1.20E-05	mg/kg-day	1.00E-03	(mg/kg-d)	1.20E-02
	MANGANESE	1300	mg/kg	NA	3.82E-04	mg/kg-day	1.40E-01	(mg/kg-d)	2.73E-03
	BENZO(A)PYRENE equivalent	0.42	mg/kg	NA	1.23E-07	mg/kg-day			
	BENZO(G,H,I)PERYLENE	0.24	mg/kg	NA	6.96E-08	mg/kg-day			
	CARBAZOLE	0.24	mg/kg	NA	6.90E-08	mg/kg-day			
	PHENANTHRENE	0.53	mg/kg	NA	1.55E-07	mg/kg-day			
Dermal (2)	ALUMINIUM	17697	mg/kg				1.00E+00	(mg/kg-d)	
	ARSENIC	11	mg/kg	0.03	1.31E-07	mg/kg-day	3.00E-04	(mg/kg-d)	4.37E-04
	IRON	27458	mg/kg				3.00E-01	(mg/kg-d)	
	SODIUM	218	mg/kg						
	THALLIUM	0.69	mg/kg						
	VANADIUM	41	mg/kg				1.00E-03	(mg/kg-d)	
	MANGANESE	1300	mg/kg				1.40E-01	(mg/kg-d)	
	BENZO(A)PYRENE equivalent	0.42	mg/kg	0.13	2.12E-08	mg/kg-day			
	BENZO(G,H,I)PERYLENE	0.24	mg/kg	0.13	1.19E-08	mg/kg-day			
	CARBAZOLE	0.24	mg/kg	0.13	1.18E-08	mg/kg-day			
	PHENANTHRENE	0.53	mg/kg	0.13	2.66E-08	mg/kg-day			
Total Hazard Index Across All Exposure Pathways									5.8E-02

(1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * 2.94E-07

(2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * ABS * 3.87E-07

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - day	IR, mg-day	Ingestion Rate	50
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
CT -Central Tendency	EF, day/yr	Exposure Frequency	150
	AT, yr	Averaging Time	6.6
	SA cm ²	Surface Area	3300
	AF, mg/cm ²	Adherence Factor	0.02
	ED, years	Exposure Duration	6.6
	BWadult, kg	Body Weight	70

Table 5-10E
Calculation of Non Cancer Hazards
Exposure to Soils - 345 kV Transmission Line Area
On-Site Worker - RME

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	On-Site Worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	17697	mg/kg	NA	1.04E-02	mg/kg-day	1.00E+00	(mg/kg-d)	1.04E-02
	ARSENIC	11	mg/kg	NA	6.62E-06	mg/kg-day	3.00E-04	(mg/kg-d)	2.21E-02
	IRON	27458	mg/kg	NA	1.61E-02	mg/kg-day	3.00E-01	(mg/kg-d)	5.37E-02
	SODIUM	218	mg/kg	NA	1.28E-04	mg/kg-day			
	THALLIUM	0.69	mg/kg	NA	4.05E-07	mg/kg-day			
	VANADIUM	41	mg/kg	NA	2.39E-05	mg/kg-day	1.00E-03	(mg/kg-d)	2.39E-02
	MANGANESE	1300	mg/kg	NA	7.63E-04	mg/kg-day	1.40E-01	(mg/kg-d)	5.45E-03
	BENZO(A)PYRENE equivalent	0.42	mg/kg	NA	2.47E-07	mg/kg-day			
	BENZO(G,H,I)PERYLENE	0.24	mg/kg	NA	1.39E-07	mg/kg-day			
	CARBAZOLE	0.24	mg/kg	NA	1.38E-07	mg/kg-day			
	PHENANTHRENE	0.53	mg/kg	NA	3.11E-07	mg/kg-day			
	Dermal (2)	ALUMINUM	17697	mg/kg				1.00E+00	(mg/kg-d)
ARSENIC		11	mg/kg	0.03	1.31E-06	mg/kg-day	3.00E-04	(mg/kg-d)	4.37E-03
IRON		27458	mg/kg				3.00E-01	(mg/kg-d)	
SODIUM		218	mg/kg						
THALLIUM		0.69	mg/kg						
VANADIUM		41	mg/kg				1.00E-03	(mg/kg-d)	
MANGANESE		1300	mg/kg				1.40E-01	(mg/kg-d)	
BENZO(A)PYRENE equivalent		0.42	mg/kg	0.13	2.12E-07	mg/kg-day			
BENZO(G,H,I)PERYLENE		0.24	mg/kg	0.13	1.19E-07	mg/kg-day			
CARBAZOLE		0.24	mg/kg	0.13	1.18E-07	mg/kg-day			
PHENANTHRENE		0.53	mg/kg	0.13	2.66E-07	mg/kg-day			
Total Hazard Index Across All Exposure Pathways									1.2E-01

(1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * 5.87E-07
(2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * ABS * 3.87E-06

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - day	IR, mg-day	Ingestion Rate	100
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
RME = Reasonable Maximum Exposure	EF, day/yr	Exposure Frequency	150
	AT, yr	Averaging Time	25
	SA cm ²	Surface Area	3300
	AF, mg/cm ²	Adherence Factor	0.2
	ED, years	Exposure Duration	25
	BWadult, kg	Body Weight	70

Table 5-10E
Calculation of Non Cancer Hazards
Exposure to Soils - 345 kV Transmission Line Area
Construction Worker - Surface Soils

Scenario Timeframe:	Subchronic Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	Construction Worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (subchronic)	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	17697	mg/kg	NA	3.95E-02	mg/kg-day	2.00E+00	(mg/kg-d)	1.98E-02
	ARSENIC	11	mg/kg	NA	2.52E-05	mg/kg-day	5.00E-03	(mg/kg-d)	5.04E-03
	IRON	27458	mg/kg	NA	6.14E-02	mg/kg-day			
	SODIUM	218	mg/kg	NA	4.87E-04	mg/kg-day			
	THALLIUM	0.69	mg/kg	NA	1.54E-06	mg/kg-day			
	VANADIUM	41	mg/kg	NA	9.10E-05	mg/kg-day			
	MANGANESE	1300	mg/kg	NA	2.90E-03	mg/kg-day	1.40E-01	(mg/kg-d)	2.07E-02
	BENZO(A)PYRENE equivalent	0.42	mg/kg	NA	9.38E-07	mg/kg-day			
	BENZO(G,H,I)PERYLENE	0.24	mg/kg	NA	5.30E-07	mg/kg-day			
	CARBAZOLE	0.24	mg/kg	NA	5.25E-07	mg/kg-day			
PHENANTHRENE	0.53	mg/kg	NA	1.18E-06	mg/kg-day				
Dermal (2)	ALUMINUM	17697	mg/kg				2.00E+00	(mg/kg-d)	
	ARSENIC	11	mg/kg	0.03	1.51E-06	mg/kg-day	5.00E-03	(mg/kg-d)	3.02E-04
	IRON	27458	mg/kg						
	SODIUM	218	mg/kg						
	THALLIUM	0.69	mg/kg						
	VANADIUM	41	mg/kg						
	MANGANESE	1300	mg/kg				1.40E-01	(mg/kg-d)	
	BENZO(A)PYRENE equivalent	0.42	mg/kg	0.13	2.44E-07	mg/kg-day			
	BENZO(G,H,I)PERYLENE	0.24	mg/kg	0.13	1.38E-07	mg/kg-day			
	CARBAZOLE	0.24	mg/kg	0.13	1.37E-07	mg/kg-day			
PHENANTHRENE	0.53	mg/kg	0.13	3.07E-07	mg/kg-day				
Total Hazard Index Across All Exposure Pathways									4.6E-02

- (1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * 2.23E-06
- (2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * ABS * 4.47E-06

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - day	IR, mg-day	Ingestion Rate	330
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
CT - Central Tendency	EF, day/yr	Exposure Frequency	173
	AT, yr	Averaging Time	1
	SA cm ²	Surface Area	3300
	AF, mg/cm ²	Adherence Factor	0.2
	ED, years	Exposure Duration	1
	BWadult, kg	Body Weight	70

Table 5-10E
Calculation of Non Cancer Hazards
Exposure to Soils - 345 kV Transmission Line Area
Construction Worker - Subsurface Soils

Scenario Timeframe:	Subchronic Future
Medium:	Soils
Exposure Medium:	Subsurface Soils
Receptor Population:	Construction Worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (subchronic)	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINIUM	19700	mg/kg	NA	4.40E-02	mg/kg-day	2.00E+00	(mg/kg-d)	2.20E-02
	ARSENIC	12	mg/kg	NA	2.61E-05	mg/kg-day	5.00E-03	(mg/kg-d)	5.23E-03
	IRON	30600	mg/kg	NA	6.84E-02	mg/kg-day			
	SODIUM	367	mg/kg	NA	8.20E-04	mg/kg-day			
	THALLIUM	0.53	mg/kg	NA	1.18E-06	mg/kg-day			
	VANADIUM	44	mg/kg	NA	9.83E-05	mg/kg-day			
	MANGANESE	1300	mg/kg	NA	2.90E-03	mg/kg-day	1.40E-01	(mg/kg-d)	2.07E-02
	Total PCBs	0.305	mg/kg	NA	6.82E-07	mg/kg-day	3.00E-05	(mg/kg-d)	2.27E-02
	BENZO(A)PYRENE equivalent	0.63	mg/kg	NA	1.41E-06	mg/kg-day			
	BENZO(G,H,I)PERYLENE	0.25	mg/kg	NA	5.56E-07	mg/kg-day			
	CARBAZOLE	0.22	mg/kg	NA	4.92E-07	mg/kg-day			
	PHENANTHRENE	0.39	mg/kg	NA	8.69E-07	mg/kg-day			
	Dermal (2)	ALUMINIUM	19700	mg/kg				2.00E+00	(mg/kg-d)
ARSENIC		12	mg/kg	0.03	1.57E-06	mg/kg-day	5.00E-03	(mg/kg-d)	3.14E-04
IRON		30600	mg/kg						
SODIUM		367	mg/kg						
THALLIUM		0.53	mg/kg						
VANADIUM		44	mg/kg						
MANGANESE		1300	mg/kg				1.40E-01	(mg/kg-d)	
Total PCBs		0.305	mg/kg	0.14	1.91E-07	mg/kg-day	3.00E-05	(mg/kg-d)	6.36E-03
BENZO(A)PYRENE equivalent		0.63	mg/kg	0.13	3.66E-07	mg/kg-day			
BENZO(G,H,I)PERYLENE		0.25	mg/kg	0.13	1.45E-07	mg/kg-day			
CARBAZOLE		0.22	mg/kg	0.13	1.28E-07	mg/kg-day			
PHENANTHRENE		0.39	mg/kg	0.13	2.26E-07	mg/kg-day			
Total Hazard Index Across All Exposure Pathways									7.7E-02

(1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * 2.23E-06

(2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * ABS * 4.47E-06

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - day	IR, mg-day	Ingestion Rate	330
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
CT - Central Tendency	EF, day/yr	Exposure Frequency	173
	AT, yr	Averaging Time	1
	SA cm2	Surface Area	3300
	AF, mg/cm2	Adherence Factor	0.2
	ED, years	Exposure Duration	1
	BWadult, kg	Body Weight	70

Table 5-10F
Calculation of Non Cancer Hazards
Exposure to Soils - Bailey Farmhouse
Resident - CT

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	Resident
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	23200	mg/kg	NA	1.94E-02	mg/kg-day	1.00E+00	(mg/kg-d)	1.94E-02
	ARSENIC	7.2	mg/kg	NA	6.02E-06	mg/kg-day	3.00E-04	(mg/kg-d)	2.01E-02
	IRON	24300	mg/kg	NA	2.03E-02	mg/kg-day	3.00E-01	(mg/kg-d)	6.77E-02
	LEAD	62.2	mg/kg	NA	5.20E-05	mg/kg-day			
	MANGANESE	522	mg/kg	NA	4.36E-04	mg/kg-day	1.40E-01	(mg/kg-d)	3.12E-03
	SODIUM	141	mg/kg	NA	1.18E-04	mg/kg-day			
Dermal (2)	ALUMINUM	23200	mg/kg	0.03	2.03E-07	mg/kg-day	1.00E+00	(mg/kg-d)	6.77E-04
	ARSENIC	7.2	mg/kg				3.00E-04	(mg/kg-d)	
	IRON	24300	mg/kg				3.00E-01	(mg/kg-d)	
	LEAD	62.2	mg/kg						
	MANGANESE	522	mg/kg				1.40E-01	(mg/kg-d)	
	SODIUM	141	mg/kg						
Total Hazard Index Across All Exposure Pathways									1.1E-01

(1) Intake Ingestion = $EPC * (IF * CF * RAF * EF * EV) / (AT * 365 \text{ day/yr})$
= EPC * 8.36E-07

(2) Intake Dermal = $EPC * (SFSadj * CF * ABS * EF * EV) / (AT * 365 \text{ day/yr})$
= EPC * ABS * 9.41E-07

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - da	IF, mg-yr/kg-day	Ingestion Rate, age weightec	18.3
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
CT - Central Tendency	EF, day/yr	Exposure Frequency	150
	AT, yr	Averaging Tim	9
	SFSadj, mg-yr/kg-even	Age-weighted Dermal Facto	20.6
	ABS, unitless	Dermal Absorption Factor	chem-specific
	EV, event/day	Event Frequency	1

Table 5-10F
Calculation of Non Cancer Hazards
Exposure to Soils - Bailey Farmhouse
Resident - RME

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	Resident
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	23200	mg/kg	NA	3.62E-02	mg/kg-day	1.00E+00	(mg/kg-d)	3.62E-02
	ARSENIC	7.2	mg/kg	NA	1.12E-05	mg/kg-day	3.00E-04	(mg/kg-d)	3.75E-02
	IRON	24300	mg/kg	NA	3.79E-02	mg/kg-day	3.00E-01	(mg/kg-d)	1.26E-01
	LEAD	62.2	mg/kg	NA	9.71E-05	mg/kg-day			
	MANGANESE	522	mg/kg	NA	8.15E-04	mg/kg-day	1.40E-01	(mg/kg-d)	5.82E-03
	SODIUM	141	mg/kg	NA	2.20E-04	mg/kg-day			
Dermal (2)	ALUMINUM	23200	mg/kg				1.00E+00	(mg/kg-d)	
	ARSENIC	7.2	mg/kg	0.03	1.07E-06	mg/kg-day	3.00E-04	(mg/kg-d)	3.55E-03
	IRON	24300	mg/kg				3.00E-01	(mg/kg-d)	
	LEAD	62.2	mg/kg						
	MANGANESE	522	mg/kg				1.40E-01	(mg/kg-d)	
	SODIUM	141	mg/kg						
Total Hazard Index Across All Exposure Pathways									2.1E-01

(1) Intake Ingestion = $EPC * (IF * CF * RAF * EF * EV) / (AT * 365 \text{ day/yr})$
= EPC * 1.56E-06

(2) Intake Dermal = $EPC * (SFSadj * CF * ABS * EF * EV) / (AT * 365 \text{ day/yr})$
= EPC * ABS * 4.93E-06

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - da	IF, mg-yr/kg-day	Ingestion Rate, age weightec	114
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
RME - Realistic Maximum Exposure	EF, day/yr	Exposure Frequency	150
	AT, yr	Averaging Time	30
	SFSadj, mg-yr/kg-even	Age-weighted Dermal Facto	360
	ABS, unitless	Dermal Absorption Factor	chem-specific
	EV, event/day	Event Frequency	1

Table 5-10F
Calculation of Non Cancer Hazards
Exposure to Soil - Bailey Farmhouse
Child - RME

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	Resident
Receptor Age:	Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	23200	mg/kg	NA	1.27E-01	mg/kg-day	1.00E+00	(mg/kg-d)	1.27E-01
	ARSENIC	7.2	mg/kg	NA	3.95E-05	mg/kg-day	3.00E-04	(mg/kg-d)	1.32E-01
	IRON	24300	mg/kg	NA	1.33E-01	mg/kg-day	3.00E-01	(mg/kg-d)	4.44E-01
	LEAD	62.2	mg/kg	NA	3.41E-04	mg/kg-day			
	MANGANESE	522	mg/kg	NA	2.86E-03	mg/kg-day	1.40E-01	(mg/kg-d)	2.04E-02
	SODIUM	141	mg/kg	NA	7.73E-04	mg/kg-day			
Dermal (2)	ALUMINUM	23200	mg/kg				1.00E+00		
	ARSENIC	7.2	mg/kg	0.03	3.31E-06	mg/kg-day	3.00E-04	(mg/kg-d)	1.10E-02
	IRON	24300	mg/kg				3.00E-01	(mg/kg-d)	
	LEAD	62.2	mg/kg						
	MANGANESE	522	mg/kg				1.40E-01	(mg/kg-d)	
	SODIUM	141	mg/kg						
Total Hazard Index Across All Exposure Pathways									7.3E-01

(1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr.})$
= EPC * 5.48E-06

(2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF) / (AT * BW * 365 \text{ day/yr.})$
= EPC * ABS * 1.53E-05

NA = Not Applicable
mg/kg - day = milligram/kilogram - da
mg/kg = milligram/kilogram
EPC = Exposure Point Concentration
RME - Reasonable Maximum Exposure

EPC, mg/kg	Exposure Point Concentration	chem-specific
IR, mg-day	Ingestion Rate	200
CF, kg/mg	Conversion Factor	0.000001
RAF, unitless	Relative Absorption Factor	1
EF, day/yr	Exposure Frequency	150
AT, yr	Averaging Time	6
SA cm ²	Surface Area	2800
AF, mg/cm ²	Adherence Factor	0.2
ED, years	Exposure Duration	6
BWchild, kg	Body Weight	15

Table 5-10F
Calculation of Non Cancer Hazards
Exposure to Soils - Bailey Farmhouse
On-Site Worker - CT

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	On-Site Worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	23200	mg/kg	NA	6.81E-03	mg/kg-day	1.00E+00	(mg/kg-d)	6.81E-03
	ARSENIC	7.2	mg/kg	NA	2.11E-06	mg/kg-day	3.00E-04	(mg/kg-d)	7.05E-03
	IRON	24300	mg/kg	NA	7.13E-03	mg/kg-day	3.00E-01	(mg/kg-d)	2.38E-02
	LEAD	62.2	mg/kg	NA	1.83E-05	mg/kg-day			
	MANGANESE	522	mg/kg	NA	1.53E-04	mg/kg-day	1.40E-01	(mg/kg-d)	1.09E-03
	SODIUM	141	mg/kg	NA	4.14E-05	mg/kg-day			
Dermal (2)	ALUMINUM	23200	mg/kg	0.03	8.37E-08	mg/kg-day	1.00E+00	(mg/kg-d)	2.79E-04
	ARSENIC	7.2	mg/kg				3.00E-04	(mg/kg-d)	
	IRON	24300	mg/kg				3.00E-01	(mg/kg-d)	
	LEAD	62.2	mg/kg						
	MANGANESE	522	mg/kg				1.40E-01	(mg/kg-d)	
	SODIUM	141	mg/kg						
Total Hazard Index Across All Exposure Pathways									3.9E-02

(1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * 2.94E-07

(2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * ABS * 3.87E-07

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - day	IR, mg-day	Ingestion Rate	50
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
CT -Central Tendency	EF, day/yr	Exposure Frequency	150
	AT, yr	Averaging Time	6.6
	SA cm ²	Surface Area	3300
	AF, mg/cm ²	Adherence Factor	0.02
	ED, years	Exposure Duration	6.6
	BWadult, kg	Body Weight	70

Table 5-10F
Calculation of Non Cancer Hazards
Exposure to Soils - Bailey Farmhouse
On-Site Worker - RME

Scenario Timeframe:	Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	On-Site Worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	23200	mg/kg	NA	1.36E-02	mg/kg-day	1.00E+00	(mg/kg-d)	1.36E-02
	ARSENIC	7.2	mg/kg	NA	4.23E-06	mg/kg-day	3.00E-04	(mg/kg-d)	1.41E-02
	IRON	24300	mg/kg	NA	1.43E-02	mg/kg-day	3.00E-01	(mg/kg-d)	4.76E-02
	LEAD	62.2	mg/kg	NA	3.65E-05	mg/kg-day			
	MANGANESE	522	mg/kg	NA	3.06E-04	mg/kg-day	1.40E-01	(mg/kg-d)	2.19E-03
	SODIUM	141	mg/kg	NA	8.28E-05	mg/kg-day			
Dermal (2)	ALUMINUM	23200	mg/kg				1.00E+00	(mg/kg-d)	
	ARSENIC	7.2	mg/kg	0.03	8.37E-07	mg/kg-day	3.00E-04	(mg/kg-d)	2.79E-03
	IRON	24300	mg/kg				3.00E-01	(mg/kg-d)	
	LEAD	62.2	mg/kg						
	MANGANESE	522	mg/kg				1.40E-01	(mg/kg-d)	
	SODIUM	141	mg/kg					(mg/kg-d)	
Total Hazard Index Across All Exposure Pathways									8.0E-02

(1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr.})$
= EPC * 5.87E-07

(2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF * ED) / (BW * AT * 365 \text{ day/yr.})$
= EPC * ABS * 3.87E-06

EPC, mg/kg	Exposure Point Concentration	chem-specific
IR, mg-day	Ingestion Rate	100
CF, kg/mg	Conversion Factor	0.000001
RAF, unitless	Relative Absorption Factor	1
EF, day/yr	Exposure Frequency	150
AT, yr	Averaging Time	25
SA, cm ²	Surface Area	3300
AF, mg/cm ²	Adherence Factor	0.2
ED, years	Exposure Duration	25
BWadult, kg	Body Weight	70

NA = Not Applicable
mg/kg - day = milligram/kilogram - da
mg/kg = milligram/kilogram
EPC = Exposure Point Concentration
RME - Reasonable Maximum Exposure

Table 5-10F

Calculation of Non Cancer Hazards Exposure to Soils - Bailey Farmhouse Construction Worker - Surface Soils

Scenario Timeframe:	Subchronic Future
Medium:	Soils
Exposure Medium:	Surface Soils
Receptor Population:	Construction Worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (subchronic)	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	23200	mg/kg	NA	5.18E-02	mg/kg-day	2.00E+00	(mg/kg-d)	2.59E-02
	ARSENIC	7.2	mg/kg	NA	1.61E-05	mg/kg-day	5.00E-03	(mg/kg-d)	3.22E-03
	IRON	24300	mg/kg	NA	5.43E-02	mg/kg-day			
	LEAD	62.2	mg/kg	NA	1.39E-04	mg/kg-day			
	MANGANESE	522	mg/kg	NA	1.17E-03	mg/kg-day	1.40E-01	(mg/kg-d)	8.33E-03
	SODIUM	141	mg/kg	NA	3.15E-04	mg/kg-day			
Dermal (2)	ALUMINUM	23200	mg/kg				2.00E+00	(mg/kg-d)	
	ARSENIC	7.2	mg/kg	0.03	9.65E-07	mg/kg-day	5.00E-03	(mg/kg-d)	1.93E-04
	IRON	24300	mg/kg						
	LEAD	62.2	mg/kg						
	MANGANESE	522	mg/kg				1.40E-01	(mg/kg-d)	
	SODIUM	141	mg/kg						
Total Hazard Index Across All Exposure Pathways									3.8E-02

(1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * 2.23E-06

(2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * ABS * 4.47E-06

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - day	IR, mg-day	Ingestion Rate	330
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
CT - Central Tendency	EF, day/yr	Exposure Frequency	173
	AT, yr	Averaging Time	1
	SA cm ²	Surface Area	3300
	AF, mg/cm ²	Adherence Factor	0.2
	ED, years	Exposure Duration	1
	BWadult, kg	Body Weight	70

Table 5-10F
Calculation of Non Cancer Hazards
Exposure to Soils - Bailey Farmhouse
Construction Worker - Subsurface Soils

Scenario Timeframe:	Subchronic Future
Medium:	Soils
Exposure Medium:	Subsurface Soils
Receptor Population:	Construction Worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Dermal Absorption Factor	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (subchronic)	Reference Dose Units	Hazard Quotient
Ingestion (1)	ALUMINUM	23200	mg/kg	NA	5.18E-02	mg/kg-day	2.00E+00	(mg/kg-d)	2.59E-02
	ARSENIC	8.20	mg/kg	NA	1.83E-05	mg/kg-day	5.00E-03	(mg/kg-d)	3.66E-03
	IRON	24300	mg/kg	NA	5.43E-02	mg/kg-day			
	LEAD	62.20	mg/kg	NA	1.39E-04	mg/kg-day			
	MANGANESE	522	mg/kg	NA	1.17E-03	mg/kg-day	1.40E-01	(mg/kg-d)	8.33E-03
	SODIUM	141	mg/kg	NA	3.15E-04	mg/kg-day			
Dermal (2)	ALUMINUM	23200	mg/kg				2.00E+00	(mg/kg-d)	
	ARSENIC	8.20	mg/kg	0.03	1.10E-06	mg/kg-day	5.00E-03	(mg/kg-d)	2.20E-04
	IRON	24300	mg/kg						
	LEAD	62.20	mg/kg						
	MANGANESE	522	mg/kg				1.40E-01	(mg/kg-d)	
	SODIUM	141	mg/kg						
Total Hazard Index Across All Exposure Pathways									3.8E-02

(1) Intake Ingestion = $EPC * (IR * CF * RAF * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * 2.23E-06

(2) Intake Dermal = $EPC * (SA * AF * CF * ABS * EF * ED) / (BW * AT * 365 \text{ day/yr})$
= EPC * ABS * 4.47E-06

NA = Not Applicable	EPC, mg/kg	Exposure Point Concentration	chem-specific
mg/kg - day = milligram/kilogram - day	IR, mg-day	Ingestion Rate	330
mg/kg = milligram/kilogram	CF, kg/mg	Conversion Factor	0.000001
EPC = Exposure Point Concentration	RAF, unitless	Relative Absorption Factor	1
CT -Central Tendency	EF, day/yr	Exposure Frequency	173
	AT, yr	Averaging Time	1
	SA cm2	Surface Area	3300
	AF, mg/cm2	Adherence Factor	0.2
	ED, years	Exposure Duration	1
	BWadult, kg	Body Weight	70

Table 5-10G
Comparison of Remedial Action Guidelines to Soil COPCs
ISFSI

Medium	CAS No.	Chemical	Min. Conc.	Max. Conc.	Units	Location of Maximum	Detection Frequency	EPC	RAG Value	RAG Ratio
Soils										
Metals	7440-38-2	ARSENIC	7.9	8.1	mg/kg	Trench Sample	2/2	8.1	10	0.81
	192-24-2	BENZO[G,H,I]PERYLENE	0.14	0.14	ug/kg	MY04SS01	1/2	0.14		

Total RAG Ratio - Surface Soil	0.8
RAG Ratio without Arsenic	0

EPC - Exposure Point Concentration
RAG - Remedial Action Guideline
DRO - Diesel Range Organics
J - estimated concentration

Conc. - Concentration
Min. - Minimum
Max - Maximum