APPENDIX D: RISK AND HAZARD CALCULATION WORKBOOKS

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: ET Catenary Car Crew (1)
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	28	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.46E-07	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	4.08E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: ET Catenary Car Crew (1)
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	28	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	3.44E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	9.63E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: ET Catenary Car Crew (1)
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	28	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	9.31E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	4.00E+02	--	--	--	--	6.00E-05	--	--
Arsenic	cR	2.96E+01	1.29E-07	1.50E+00	1.94E-07	3.61E-07	3.00E-04	3.00E-02	1.20E-03
Barium	nm	1.39E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	8.43E-01	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	2.59E+00	--	--	--	1.06E-09	2.50E-05	1.00E-03	4.22E-05
Chromium (Total)	nm	1.22E+02	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.14E+01	--	--	--	--	3.00E-04	--	--
Copper	n	2.86E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	4.96E+04	--	--	--	--	7.00E-01	--	--
Lead	L	2.00E+03	--	8.50E-03	--	--	--	--	--
Manganese	n	3.88E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	5.07E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	3.83E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	3.77E+00	--	--	--	--	5.00E-03	--	--
Silver	n	2.95E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	5.31E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	3.49E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	4.11E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	2.66E-01	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	9.28E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.63E+00	--	--	--	8.62E-08	6.00E-02	1.30E-01	1.44E-06
Acenaphthylene	--	5.67E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	1.28E+00	--	--	--	6.80E-08	3.00E-01	1.30E-01	2.27E-07
Benzo(a)pyrene	c	1.95E+00	3.70E-08	1.00E+00	3.70E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.79E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.28E+00	--	--	--	6.80E-08	1.00E-03	1.30E-01	6.80E-05
Fluoranthene	n	2.17E+00	--	--	--	1.15E-07	4.00E-02	1.30E-01	2.88E-06
Fluorene	n	2.68E+00	--	--	--	1.42E-07	4.00E-02	1.30E-01	3.55E-06
2-Methylnaphthalene	n	1.87E+01	--	--	--	9.90E-07	4.00E-03	1.30E-01	2.47E-04
Naphthalene	c*	3.65E+00	--	--	--	1.93E-07	2.00E-02	1.30E-01	9.67E-06
Phenanthrene	--	7.26E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	2.06E+00	--	--	--	1.09E-07	3.00E-02	1.30E-01	3.63E-06
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	1.24E+01	2.53E-07	2.00E+000	5.06E-07	7.09E-07	2.00E-05	1.40E-01	3.54E-02
Total					7.4E-07				3.7E-02

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	9.31E+03	--	--	--	8.97E-04	1.00E+00	8.97E-04
Antimony	n	4.00E+02	--	--	--	3.85E-05	4.00E-04	9.64E-02
Arsenic	cR	2.96E+01	6.10E-07	1.50E+00	9.15E-07	1.71E-06	3.00E-04	5.69E-03
Barium	nm	1.39E+02	--	--	--	1.33E-05	2.00E-01	6.67E-05
Beryllium	n	8.43E-01	--	--	--	8.12E-08	2.00E-03	4.06E-05
Cadmium (food, soil)	n	2.59E+00	--	--	--	2.50E-07	1.00E-03	2.50E-04
Chromium (Total)	nm	1.22E+02	--	--	--	1.18E-05	1.50E+00	7.84E-06
Cobalt	n	1.14E+01	--	--	--	1.10E-06	3.00E-04	3.67E-03
Copper	n	2.86E+02	--	--	--	2.75E-05	4.00E-02	6.88E-04
Iron	nm	4.96E+04	--	--	--	4.78E-03	7.00E-01	6.83E-03
Lead	L	2.00E+03	6.87E-05	8.50E-03	5.84E-07	--	--	--
Manganese	n	3.88E+02	--	--	--	3.74E-05	2.40E-02	1.56E-03
Mercury	ns	5.07E-01	--	--	--	4.88E-08	1.60E-04	3.05E-04
Nickel	n	3.83E+01	--	--	--	3.69E-06	2.00E-02	1.84E-04
Selenium	n	3.77E+00	--	--	--	3.63E-07	5.00E-03	7.25E-05
Silver	n	2.95E+00	--	--	--	2.85E-07	5.00E-03	5.69E-05
Thallium	n	5.31E+00	--	--	--	5.11E-07	1.00E-05	5.11E-02
Vanadium	n	3.49E+01	--	--	--	3.36E-06	5.00E-03	6.73E-04
Zinc	nm	4.11E+02	--	--	--	3.96E-05	3.00E-01	1.32E-04
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	2.66E-01	--	--	--	2.56E-08	8.00E-02	3.20E-07
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	9.28E-01	--	--	--	8.94E-08	2.00E-01	4.47E-07
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.63E+00	--	--	--	1.57E-07	6.00E-02	2.61E-06
Acenaphthylene	--	5.67E-01	--	--	--	--	--	--
Anthracene	nm	1.28E+00	--	--	--	1.24E-07	3.00E-01	4.12E-07
Benzo(a)pyrene	c	1.95E+00	6.72E-08	1.00E+00	6.72E-08	--	--	--
Benzo(g,h,i)perylene	--	8.79E-01	--	--	--	--	--	--
Dibenzofuran	n	1.28E+00	--	--	--	1.24E-07	1.00E-03	1.24E-04
Fluoranthene	n	2.17E+00	--	--	--	2.09E-07	4.00E-02	5.23E-06
Fluorene	n	2.68E+00	--	--	--	2.58E-07	4.00E-02	6.46E-06
2-Methylnaphthalene	n	1.87E+01	--	--	--	1.80E-06	4.00E-03	4.50E-04
Naphthalene	c*	3.65E+00	--	--	--	3.52E-07	2.00E-02	1.76E-05
Phenanthrene	--	7.26E+00	--	--	--	--	--	--
Pyrene	n	2.06E+00	--	--	--	1.98E-07	3.00E-02	6.60E-06
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	1.24E+01	4.27E-07	2.00E+00	8.54E-07	1.20E-06	2.00E-05	5.98E-02
Total					2.4E-06			2.3E-01

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	9.31E+03	2.88E-06	--	--	--	7.39E-08	5.00E-03	1.48E-05	3.24E+09	--	--	9.11E-04
Antimony	n	4.00E+02	1.24E-07	--	--	--	--	--	--	3.24E+09	--	--	9.64E-02
Arsenic	cR	2.96E+01	9.13E-09	8.37E-11	4.30E+00	3.60E-10	2.34E-10	1.50E-05	1.56E-05	3.24E+09	--	1.11E-06	6.91E-03
Barium	nm	1.39E+02	4.28E-08	--	--	--	1.10E-09	5.00E-04	2.20E-06	3.24E+09	--	--	6.89E-05
Beryllium	n	8.43E-01	2.60E-10	2.39E-12	2.40E+00	5.73E-12	6.69E-12	2.00E-05	3.34E-07	3.24E+09	--	5.73E-12	4.09E-05
Cadmium (food, soil)	n	2.59E+00	8.00E-10	7.34E-12	1.80E+00	1.32E-11	2.06E-11	1.00E-05	2.06E-06	3.24E+09	--	1.32E-11	2.94E-04
Chromium (Total)	nm	1.22E+02	3.77E-08	--	--	--	--	--	--	3.24E+09	--	--	7.84E-06
Cobalt	n	1.14E+01	3.53E-09	3.24E-11	9.00E+00	2.92E-10	9.08E-11	6.00E-06	1.51E-05	3.24E+09	--	2.92E-10	3.69E-03
Copper	n	2.86E+02	8.82E-08	--	--	--	--	--	--	3.24E+09	--	--	6.88E-04
Iron	nm	4.96E+04	1.53E-05	--	--	--	--	--	--	3.24E+09	--	--	6.83E-03
Lead	L	2.00E+03	6.17E-07	5.66E-09	1.20E-02	6.79E-11	--	--	--	3.24E+09	--	5.84E-07	--
Manganese	n	3.88E+02	1.20E-07	--	--	--	3.08E-09	5.00E-05	6.16E-05	3.24E+09	--	--	1.62E-03
Mercury	ns	5.07E-01	3.02E-05	--	--	--	7.75E-07	3.00E-04	2.58E-03	3.24E+09	1.68E+04	--	2.89E-03
Nickel	n	3.83E+01	1.18E-08	1.09E-10	2.60E-01	2.82E-11	3.04E-10	9.00E-05	3.38E-06	3.24E+09	--	2.82E-11	1.88E-04
Selenium	n	3.77E+00	1.16E-09	--	--	--	2.99E-11	2.00E-02	1.49E-09	3.24E+09	--	--	7.25E-05
Silver	n	2.95E+00	9.13E-10	--	--	--	--	--	--	3.24E+09	--	--	5.69E-05
Thallium	n	5.31E+00	1.64E-09	--	--	--	--	--	--	3.24E+09	--	--	5.11E-02
Vanadium	n	3.49E+01	1.08E-08	--	--	--	2.77E-10	1.00E-04	2.77E-06	3.24E+09	--	--	6.76E-04
Zinc	nm	4.11E+02	1.27E-07	--	--	--	--	--	--	3.24E+09	--	--	1.32E-04
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	2.66E-01	8.81E-05	--	--	--	2.26E-06	5.00E+00	4.52E-07	3.24E+09	3.02E+03	--	7.73E-07
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	9.28E-01	1.69E-04	--	--	--	4.34E-06	1.00E-01	4.34E-05	3.24E+09	5.49E+03	--	4.39E-05
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.63E+00	9.03E-06	--	--	--	--	--	--	3.24E+09	1.80E+05	--	4.05E-06
Acenaphthylene	--	5.67E-01	1.75E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	1.28E+00	1.91E-06	--	--	--	--	--	--	3.24E+09	6.71E+05	--	6.39E-07
Benzo(a)pyrene	c	1.95E+00	6.03E-10	5.53E-12	6.00E-01	3.32E-12	--	--	--	3.24E+09	--	1.04E-07	--
Benzo(g,h,i)perylene	--	8.79E-01	2.72E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.28E+00	3.96E-10	--	--	--	--	--	--	3.24E+09	--	--	1.92E-04
Fluoranthene	n	2.17E+00	6.71E-10	--	--	--	--	--	--	3.24E+09	--	--	8.11E-06
Fluorene	n	2.68E+00	7.45E-06	--	--	--	--	--	--	3.24E+09	3.60E+05	--	1.00E-05
2-Methylnaphthalene	n	1.87E+01	2.51E-04	--	--	--	--	--	--	3.24E+09	7.43E+04	--	6.97E-04
Naphthalene	c*	3.65E+00	6.14E-05	5.64E-07	3.40E-02	1.92E-08	1.58E-06	3.00E-03	5.26E-04	3.24E+09	5.94E+04	1.92E-08	5.53E-04
Phenanthrene	--	7.26E+00	2.24E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	2.06E+00	6.75E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	1.02E-05
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	1.24E+01	1.82E-05	1.67E-07	5.70E-01	9.54E-08	--	--	--	3.24E+09	6.81E+05	1.46E-06	9.53E-02
Total						1.2E-07			3.3E-03			3.3E-06	2.7E-01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Track Maintenance Worker (1)
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	5.18E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	1.45E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Track Maintenance Worker (1)
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	1.22E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	3.42E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Track Maintenance Worker (1)
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	10	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	9.31E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	4.00E+02	--	--	--	--	6.00E-05	--	--
Arsenic	cR	2.96E+01	4.59E-08	1.50E+00	6.88E-08	1.28E-07	3.00E-04	3.00E-02	4.28E-04
Barium	nm	1.39E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	8.43E-01	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	2.59E+00	--	--	--	3.76E-10	2.50E-05	1.00E-03	1.50E-05
Chromium (Total)	nm	1.22E+02	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.14E+01	--	--	--	--	3.00E-04	--	--
Copper	n	2.86E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	4.96E+04	--	--	--	--	7.00E-01	--	--
Lead	L	2.00E+03	--	8.50E-03	--	--	--	--	--
Manganese	n	3.88E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	5.07E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	3.83E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	3.77E+00	--	--	--	--	5.00E-03	--	--
Silver	n	2.95E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	5.31E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	3.49E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	4.11E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	2.66E-01	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	9.28E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.63E+00	--	--	--	3.06E-08	6.00E-02	1.30E-01	5.11E-07
Acenaphthylene	--	5.67E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	1.28E+00	--	--	--	2.42E-08	3.00E-01	1.30E-01	8.06E-08
Benzo(a)pyrene	c	1.95E+00	1.31E-08	1.00E+00	1.31E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.79E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.28E+00	--	--	--	2.42E-08	1.00E-03	1.30E-01	2.42E-05
Fluoranthene	n	2.17E+00	--	--	--	4.09E-08	4.00E-02	1.30E-01	1.02E-06
Fluorene	n	2.68E+00	--	--	--	5.06E-08	4.00E-02	1.30E-01	1.26E-06
2-Methylnaphthalene	n	1.87E+01	--	--	--	3.52E-07	4.00E-03	1.30E-01	8.80E-05
Naphthalene	c*	3.65E+00	--	--	--	6.88E-08	2.00E-02	1.30E-01	3.44E-06
Phenanthrene	--	7.26E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	2.06E+00	--	--	--	3.87E-08	3.00E-02	1.30E-01	1.29E-06
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	1.24E+01	9.00E-08	2.00E+00	1.80E-07	2.52E-07	2.00E-05	1.40E-01	1.26E-02
Total					2.6E-07				1.3E-02

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	9.31E+03	--	--	--	3.19E-04	1.00E+00	3.19E-04
Antimony	n	4.00E+02	--	4.00E-04	3.43E-02	1.37E-05	4.00E-04	3.43E-02
Arsenic	cR	2.96E+01	2.17E-07	1.50E+00	3.25E-07	6.07E-07	3.00E-04	2.02E-03
Barium	nm	1.39E+02	--	--	--	4.74E-06	2.00E-01	2.37E-05
Beryllium	n	8.43E-01	--	--	--	2.89E-08	2.00E-03	1.44E-05
Cadmium (food, soil)	n	2.59E+00	--	--	--	8.87E-08	1.00E-03	8.87E-05
Chromium (Total)	nm	1.22E+02	--	--	--	4.18E-06	1.50E+00	2.79E-06
Cobalt	n	1.14E+01	--	--	--	3.92E-07	3.00E-04	1.31E-03
Copper	n	2.86E+02	--	--	--	9.78E-06	4.00E-02	2.45E-04
Iron	nm	4.96E+04	--	--	--	1.70E-03	7.00E-01	2.43E-03
Lead	L	2.00E+03	2.44E-05	8.50E-03	2.08E-07	--	--	--
Manganese	n	3.88E+02	--	--	--	1.33E-05	2.40E-02	5.54E-04
Mercury	ns	5.07E-01	--	--	--	1.74E-08	1.60E-04	1.09E-04
Nickel	n	3.83E+01	--	--	--	1.31E-06	2.00E-02	6.56E-05
Selenium	n	3.77E+00	--	--	--	1.29E-07	5.00E-03	2.58E-05
Silver	n	2.95E+00	--	--	--	1.01E-07	5.00E-03	2.02E-05
Thallium	n	5.31E+00	--	--	--	1.82E-07	1.00E-05	1.82E-02
Vanadium	n	3.49E+01	--	--	--	1.20E-06	5.00E-03	2.39E-04
Zinc	nm	4.11E+02	--	--	--	1.41E-05	3.00E-01	4.70E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	2.66E-01	--	--	--	9.11E-09	8.00E-02	1.14E-07
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	9.28E-01	--	--	--	3.18E-08	2.00E-01	1.59E-07
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.63E+00	--	--	--	5.57E-08	6.00E-02	9.28E-07
Acenaphthylene	--	5.67E-01	--	--	--	--	--	--
Anthracene	nm	1.28E+00	--	--	--	4.40E-08	3.00E-01	1.47E-07
Benzo(a)pyrene	c	1.95E+00	2.39E-08	1.00E+00	2.39E-08	--	--	--
Benzo(g,h,i)perylene	--	8.79E-01	--	--	--	--	--	--
Dibenzofuran	n	1.28E+00	--	--	--	4.39E-08	1.00E-03	4.39E-05
Fluoranthene	n	2.17E+00	--	--	--	7.44E-08	4.00E-02	1.86E-06
Fluorene	n	2.68E+00	--	--	--	9.19E-08	4.00E-02	2.30E-06
2-Methylnaphthalene	n	1.87E+01	--	--	--	6.40E-07	4.00E-03	1.60E-04
Naphthalene	c*	3.65E+00	--	--	--	1.25E-07	2.00E-02	6.25E-06
Phenanthrene	--	7.26E+00	--	--	--	--	--	--
Pyrene	n	2.06E+00	--	--	--	7.04E-08	3.00E-02	2.35E-06
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	1.24E+01	1.52E-07	2.00E+00	3.04E-07	4.25E-07	2.00E-05	2.13E-02
Total					8.6E-07			8.1E-02

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	9.31E+03	2.88E-06	--	--	--	2.63E-08	5.00E-03	5.25E-06	3.24E+09	--	--	3.24E-04
Antimony	n	4.00E+02	1.24E-07	--	--	--	--	--	--	3.24E+09	--	--	3.43E-02
Arsenic	cR	2.96E+01	9.13E-09	2.98E-11	4.30E+00	1.28E-10	8.34E-11	1.50E-05	5.56E-06	3.24E+09	--	3.94E-07	2.46E-03
Barium	nm	1.39E+02	4.28E-08	--	--	--	3.91E-10	5.00E-04	7.82E-07	3.24E+09	--	--	2.45E-05
Beryllium	n	8.43E-01	2.60E-10	8.49E-13	2.40E+00	2.04E-12	2.38E-12	2.00E-05	1.19E-07	3.24E+09	--	2.04E-12	1.46E-05
Cadmium (food, soil)	n	2.59E+00	8.00E-10	2.61E-12	1.80E+00	4.70E-12	7.31E-12	1.00E-05	7.31E-07	3.24E+09	--	4.70E-12	1.04E-04
Chromium (Total)	nm	1.22E+02	3.77E-08	--	--	--	--	--	--	3.24E+09	--	--	2.79E-06
Cobalt	n	1.14E+01	3.53E-09	1.15E-11	9.00E+00	1.04E-10	3.23E-11	6.00E-06	5.38E-06	3.24E+09	--	1.04E-10	1.31E-03
Copper	n	2.86E+02	8.82E-08	--	--	--	--	--	--	3.24E+09	--	--	2.45E-04
Iron	nm	4.96E+04	1.53E-05	--	--	--	--	--	--	3.24E+09	--	--	2.43E-03
Lead	L	2.00E+03	6.17E-07	2.01E-09	1.20E-02	2.41E-11	--	--	--	3.24E+09	--	2.08E-07	--
Manganese	n	3.88E+02	1.20E-07	--	--	--	1.09E-09	5.00E-05	2.19E-05	3.24E+09	--	--	5.76E-04
Mercury	ns	5.07E-01	3.02E-05	--	--	--	2.76E-07	3.00E-04	9.18E-04	3.24E+09	1.68E+04	--	1.03E-03
Nickel	n	3.83E+01	1.18E-08	3.86E-11	2.60E-01	1.00E-11	1.08E-10	9.00E-05	1.20E-06	3.24E+09	--	1.00E-11	6.68E-05
Selenium	n	3.77E+00	1.16E-09	--	--	--	1.06E-11	2.00E-02	5.31E-10	3.24E+09	--	--	2.58E-05
Silver	n	2.95E+00	9.13E-10	--	--	--	--	--	--	3.24E+09	--	--	2.02E-05
Thallium	n	5.31E+00	1.64E-09	--	--	--	--	--	--	3.24E+09	--	--	1.82E-02
Vanadium	n	3.49E+01	1.08E-08	--	--	--	9.86E-11	1.00E-04	9.86E-07	3.24E+09	--	--	2.40E-04
Zinc	nm	4.11E+02	1.27E-07	--	--	--	--	--	--	3.24E+09	--	--	4.70E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	2.66E-01	8.81E-05	--	--	--	8.04E-07	5.00E+00	1.61E-07	3.24E+09	3.02E+03	--	2.75E-07
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	9.28E-01	1.69E-04	--	--	--	1.54E-06	1.00E-01	1.54E-05	3.24E+09	5.49E+03	--	1.56E-05
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.63E+00	9.03E-06	--	--	--	--	--	--	3.24E+09	1.80E+05	--	1.44E-06
Acenaphthylene	--	5.67E-01	1.75E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	1.28E+00	1.91E-06	--	--	--	--	--	--	3.24E+09	6.71E+05	--	2.27E-07
Benzo(a)pyrene	c	1.95E+00	6.03E-10	1.97E-12	6.00E-01	1.18E-12	--	--	--	3.24E+09	--	3.70E-08	--
Benzo(g,h,i)perylene	--	8.79E-01	2.72E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.28E+00	3.96E-10	--	--	--	--	--	--	3.24E+09	--	--	6.81E-05
Fluoranthene	n	2.17E+00	6.71E-10	--	--	--	--	--	--	3.24E+09	--	--	2.88E-06
Fluorene	n	2.68E+00	7.45E-06	--	--	--	--	--	--	3.24E+09	3.60E+05	--	3.56E-06
2-Methylnaphthalene	n	1.87E+01	2.51E-04	--	--	--	--	--	--	3.24E+09	7.43E+04	--	2.48E-04
Naphthalene	c*	3.65E+00	6.14E-05	2.00E-07	3.40E-02	6.81E-09	5.61E-07	3.00E-03	1.87E-04	3.24E+09	5.94E+04	6.81E-09	1.97E-04
Phenanthrene	--	7.26E+00	2.24E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	2.06E+00	6.75E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	3.64E-06
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	1.24E+01	1.82E-05	5.95E-08	5.70E-01	3.39E-08	--	--	--	3.24E+09	6.81E+05	5.18E-07	3.39E-02
Total						4.1E-08			1.2E-03			1.2E-06	9.6E-02

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Grounds Maintenance Worker (2)
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Exposure Route: Dermal

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	4	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	2.07E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	5.80E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Grounds Maintenance Worker (2)
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Exposure Route: Ingestion

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	4	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	4.89E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	1.37E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Grounds Maintenance Worker (2)
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Exposure Route: Inhalation

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	4	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	8.53E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	8.15E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	3.51E+01	2.18E-08	1.50E+00	3.27E-08	6.11E-08	3.00E-04	3.00E-02	2.04E-04
Barium	nm	1.85E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	9.46E-01	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	2.30E+00	--	--	--	1.33E-10	2.50E-05	1.00E-03	5.33E-06
Chromium (Total)	nm	5.19E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	9.35E+00	--	--	--	--	3.00E-04	--	--
Copper	n	2.33E+03	--	--	--	--	4.00E-02	--	--
Iron	nm	3.62E+04	--	--	--	--	7.00E-01	--	--
Lead	L	9.50E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.06E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	3.24E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	1.37E+02	--	--	--	--	8.00E-04	--	--
Selenium	n	1.19E+01	--	--	--	--	5.00E-03	--	--
Silver	n	3.67E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	--	--	--	--	--	1.00E-05	--	--
Vanadium	n	2.72E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.81E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	2.40E+00	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	1.20E+00	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	6.04E+00	--	--	--	4.55E-08	6.00E-02	1.30E-01	7.58E-07
Acenaphthylene	--	8.26E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.60E+01	--	--	--	2.71E-07	3.00E-01	1.30E-01	9.03E-07
Benzo(a)pyrene	c	5.07E+00	1.36E-08	1.00E+00	1.36E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	2.15E+00	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.04E+01	--	--	--	7.84E-08	1.00E-03	1.30E-01	7.84E-05
Fluoranthene	n	5.33E+01	--	--	--	4.02E-07	4.00E-02	1.30E-01	1.00E-05
Fluorene	n	2.43E+01	--	--	--	1.83E-07	4.00E-02	1.30E-01	4.58E-06
2-Methylnaphthalene	n	5.11E+00	--	--	--	3.85E-08	4.00E-03	1.30E-01	9.63E-06
Naphthalene	c*	3.80E+00	--	--	--	2.86E-08	2.00E-02	1.30E-01	1.43E-06
Phenanthrene	--	6.52E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	4.16E+01	--	--	--	3.14E-07	3.00E-02	1.30E-01	1.05E-05
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	2.01E+02	5.83E-07	2.00E+000	1.17E-06	1.63E-06	2.00E-05	1.40E-01	8.16E-02
Total					1.2E-06				8.2E-02

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	8.53E+03	--	--	--	1.17E-04	1.00E+00	1.17E-04
Antimony	n	8.15E+01	--	--	--	1.12E-06	4.00E-04	2.79E-03
Arsenic	cR	3.51E+01	1.03E-07	1.50E+00	1.55E-07	2.89E-07	3.00E-04	9.62E-04
Barium	nm	1.85E+02	--	--	--	2.54E-06	2.00E-01	1.27E-05
Beryllium	n	9.46E-01	--	--	--	1.30E-08	2.00E-03	6.48E-06
Cadmium (food, soil)	n	2.30E+00	--	--	--	3.15E-08	1.00E-03	3.15E-05
Chromium (Total)	nm	5.19E+01	--	--	--	7.12E-07	1.50E+00	4.74E-07
Cobalt	n	9.35E+00	--	--	--	1.28E-07	3.00E-04	4.27E-04
Copper	n	2.33E+03	--	--	--	3.20E-05	4.00E-02	7.99E-04
Iron	nm	3.62E+04	--	--	--	4.96E-04	7.00E-01	7.09E-04
Lead	L	9.50E+02	4.65E-06	8.50E-03	3.95E-08	--	--	--
Manganese	n	2.06E+02	--	--	--	2.82E-06	2.40E-02	1.18E-04
Mercury	ns	3.24E-01	--	--	--	4.44E-09	1.60E-04	2.77E-05
Nickel	n	1.37E+02	--	--	--	1.88E-06	2.00E-02	9.41E-05
Selenium	n	1.19E+01	--	--	--	1.63E-07	5.00E-03	3.26E-05
Silver	n	3.67E+00	--	--	--	5.03E-08	5.00E-03	1.01E-05
Thallium	n	--	--	--	--	--	1.00E-05	--
Vanadium	n	2.72E+01	--	--	--	3.73E-07	5.00E-03	7.46E-05
Zinc	nm	3.81E+02	--	--	--	5.22E-06	3.00E-01	1.74E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	2.40E+00	--	--	--	3.29E-08	8.00E-02	4.11E-07
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	1.20E+00	--	--	--	1.65E-08	2.00E-01	8.24E-08
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	6.04E+00	--	--	--	8.27E-08	6.00E-02	1.38E-06
Acenaphthylene	--	8.26E-01	--	--	--	--	--	--
Anthracene	nm	3.60E+01	--	--	--	4.93E-07	3.00E-01	1.64E-06
Benzo(a)pyrene	c	5.07E+00	2.48E-08	1.00E+00	2.48E-08	--	--	--
Benzo(g,h,i)perylene	--	2.15E+00	--	--	--	--	--	--
Dibenzofuran	n	1.04E+01	--	--	--	1.42E-07	1.00E-03	1.42E-04
Fluoranthene	n	5.33E+01	--	--	--	7.30E-07	4.00E-02	1.83E-05
Fluorene	n	2.43E+01	--	--	--	3.33E-07	4.00E-02	8.33E-06
2-Methylnaphthalene	n	5.11E+00	--	--	--	7.00E-08	4.00E-03	1.75E-05
Naphthalene	c*	3.80E+00	--	--	--	5.20E-08	2.00E-02	2.60E-06
Phenanthrene	--	6.52E+01	--	--	--	--	--	--
Pyrene	n	4.16E+01	--	--	--	5.70E-07	3.00E-02	1.90E-05
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	2.01E+02	9.84E-07	2.00E+00	1.97E-06	2.75E-06	2.00E-05	1.38E-01
Total					2.2E-06			1.4E-01

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	8.53E+03	2.64E-06	--	--	--	9.63E-09	5.00E-03	1.93E-06	3.24E+09	--	--	1.19E-04
Antimony	n	8.15E+01	2.52E-08	--	--	--	--	--	--	3.24E+09	--	--	2.79E-03
Arsenic	cR	3.51E+01	1.08E-08	1.42E-11	4.30E+00	6.09E-11	3.96E-11	1.50E-05	2.64E-06	3.24E+09	--	1.87E-07	1.17E-03
Barium	nm	1.85E+02	5.73E-08	--	--	--	2.09E-10	5.00E-04	4.18E-07	3.24E+09	--	--	1.31E-05
Beryllium	n	9.46E-01	2.92E-10	3.81E-13	2.40E+00	9.15E-13	1.07E-12	2.00E-05	5.34E-08	3.24E+09	--	9.15E-13	6.53E-06
Cadmium (food, soil)	n	2.30E+00	7.11E-10	9.27E-13	1.80E+00	1.67E-12	2.60E-12	1.00E-05	2.60E-07	3.24E+09	--	1.67E-12	3.71E-05
Chromium (Total)	nm	5.19E+01	1.60E-08	--	--	--	--	--	--	3.24E+09	--	--	4.74E-07
Cobalt	n	9.35E+00	2.89E-09	3.77E-12	9.00E+00	3.39E-11	1.06E-11	6.00E-06	1.76E-06	3.24E+09	--	3.39E-11	4.29E-04
Copper	n	2.33E+03	7.21E-07	--	--	--	--	--	--	3.24E+09	--	--	7.99E-04
Iron	nm	3.62E+04	1.12E-05	--	--	--	--	--	--	3.24E+09	--	--	7.09E-04
Lead	L	9.50E+02	2.94E-07	3.83E-10	1.20E-02	4.60E-12	--	--	--	3.24E+09	--	3.95E-08	--
Manganese	n	2.06E+02	6.37E-08	--	--	--	2.33E-10	5.00E-05	4.65E-06	3.24E+09	--	--	1.22E-04
Mercury	ns	3.24E-01	1.93E-05	--	--	--	7.04E-08	3.00E-04	2.35E-04	3.24E+09	1.68E+04	--	2.63E-04
Nickel	n	1.37E+02	4.24E-08	5.54E-11	2.60E-01	1.44E-11	1.55E-10	9.00E-05	1.72E-06	3.24E+09	--	1.44E-11	9.58E-05
Selenium	n	1.19E+01	3.68E-09	--	--	--	1.34E-11	2.00E-02	6.71E-10	3.24E+09	--	--	3.26E-05
Silver	n	3.67E+00	1.13E-09	--	--	--	--	--	--	3.24E+09	--	--	1.01E-05
Thallium	n	--	0.00E+00	--	--	--	--	--	--	3.24E+09	--	--	--
Vanadium	n	2.72E+01	8.41E-09	--	--	--	3.07E-11	1.00E-04	3.07E-07	3.24E+09	--	--	7.49E-05
Zinc	nm	3.81E+02	1.18E-07	--	--	--	--	--	--	3.24E+09	--	--	1.74E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	2.40E+00	7.95E-04	--	--	--	2.90E-06	5.00E+00	5.81E-07	3.24E+09	3.02E+03	--	9.92E-07
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	1.20E+00	2.19E-04	--	--	--	8.01E-07	1.00E-01	8.01E-06	3.24E+09	5.49E+03	--	8.09E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	6.04E+00	3.35E-05	--	--	--	--	--	--	3.24E+09	1.80E+05	--	2.14E-06
Acenaphthylene	--	8.26E-01	2.55E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.60E+01	5.36E-05	--	--	--	--	--	--	3.24E+09	6.71E+05	--	2.55E-06
Benzo(a)pyrene	c	5.07E+00	1.57E-09	2.04E-12	6.00E-01	1.23E-12	--	--	--	3.24E+09	--	3.84E-08	--
Benzo(g,h,i)perylene	--	2.15E+00	6.65E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.04E+01	3.21E-09	--	--	--	--	--	--	3.24E+09	--	--	2.21E-04
Fluoranthene	n	5.33E+01	1.65E-08	--	--	--	--	--	--	3.24E+09	--	--	2.83E-05
Fluorene	n	2.43E+01	6.76E-05	--	--	--	--	--	--	3.24E+09	3.60E+05	--	1.29E-05
2-Methylnaphthalene	n	5.11E+00	6.88E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	2.71E-05
Naphthalene	c*	3.80E+00	6.39E-05	8.34E-08	3.40E-02	2.83E-09	2.33E-07	3.00E-03	7.78E-05	3.24E+09	5.94E+04	2.83E-09	8.18E-05
Phenanthrene	--	6.52E+01	2.01E-08	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	4.16E+01	1.37E-05	--	--	--	--	--	--	3.24E+09	3.05E+06	--	2.95E-05
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	2.01E+02	2.95E-04	3.85E-07	5.70E-01	2.20E-07	--	--	--	3.24E+09	6.81E+05	3.35E-06	2.19E-01
Total						2.2E-07			3.3E-04			3.6E-06	2.3E-01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: No Receptors (3)
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	0	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	0.00E+00	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	0.00E+00	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: No Receptors (3)
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	0	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	0.00E+00	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	0.00E+00	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: No Receptors (3)
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	0	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	1.15E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	2.28E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.09E+02	0.00E+00	1.50E+00	--	0.00E+00	3.00E-04	3.00E-02	--
Barium	nm	4.61E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	8.53E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	7.69E+00	--	--	--	0.00E+00	2.50E-05	1.00E-03	--
Chromium (Total)	nm	1.93E+03	--	--	--	--	1.95E-02	--	--
Cobalt	n	6.87E+01	--	--	--	--	3.00E-04	--	--
Copper	n	5.56E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	8.77E+04	--	--	--	--	7.00E-01	--	--
Lead	L	3.88E+03	--	8.50E-03	--	--	--	--	--
Manganese	n	2.00E+03	--	--	--	--	9.60E-04	--	--
Mercury	ns	4.89E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	2.97E+02	--	--	--	--	8.00E-04	--	--
Selenium	n	5.52E+01	--	--	--	--	5.00E-03	--	--
Silver	n	9.40E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	6.74E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	4.26E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.11E+03	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	7.66E+00	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	--	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	3.48E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.66E+00	--	--	--	0.00E+00	6.00E-02	1.30E-01	--
Acenaphthylene	--	1.04E+00	--	--	--	--	--	1.30E-01	--
Anthracene	nm	1.45E+00	--	--	--	0.00E+00	3.00E-01	1.30E-01	--
Benzo(a)pyrene	c	2.88E+00	0.00E+00	1.00E+00	--	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.52E+00	--	--	--	0.00E+00	1.00E-03	1.30E-01	--
Fluoranthene	n	2.86E+00	--	--	--	0.00E+00	4.00E-02	1.30E-01	--
Fluorene	n	2.90E+00	--	--	--	0.00E+00	4.00E-02	1.30E-01	--
2-Methylnaphthalene	n	3.70E+00	--	--	--	0.00E+00	4.00E-03	1.30E-01	--
Naphthalene	c*	2.41E+00	--	--	--	0.00E+00	2.00E-02	1.30E-01	--
Phenanthrene	--	1.19E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	3.02E+00	--	--	--	0.00E+00	3.00E-02	1.30E-01	--
Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	3.54E+00	0.00E+00	2.00E+00	--	0.00E+00	2.00E-05	1.40E-01	--
Total					0.0E+00				0.0E+00

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	1.15E+04	--	--	--	0.00E+00	1.00E+00	--
Antimony	n	2.28E+01	--	--	--	0.00E+00	4.00E-04	--
Arsenic	cR	1.09E+02	0.00E+00	1.50E+00	--	0.00E+00	3.00E-04	--
Barium	nm	4.61E+02	--	--	--	0.00E+00	2.00E-01	--
Beryllium	n	8.53E+00	--	--	--	0.00E+00	2.00E-03	--
Cadmium (food, soil)	n	7.69E+00	--	--	--	0.00E+00	1.00E-03	--
Chromium (Total)	nm	1.93E+03	--	--	--	0.00E+00	1.50E+00	--
Cobalt	n	6.87E+01	--	--	--	0.00E+00	3.00E-04	--
Copper	n	5.56E+02	--	--	--	0.00E+00	4.00E-02	--
Iron	nm	8.77E+04	--	--	--	0.00E+00	7.00E-01	--
Lead	L	3.88E+03	0.00E+00	8.50E-03	--	--	--	--
Manganese	n	2.00E+03	--	--	--	0.00E+00	2.40E-02	--
Mercury	ns	4.89E-01	--	--	--	0.00E+00	1.60E-04	--
Nickel	n	2.97E+02	--	--	--	0.00E+00	2.00E-02	--
Selenium	n	5.52E+01	--	--	--	0.00E+00	5.00E-03	--
Silver	n	9.40E+00	--	--	--	0.00E+00	5.00E-03	--
Thallium	n	6.74E+00	--	--	--	0.00E+00	1.00E-05	--
Vanadium	n	4.26E+01	--	--	--	0.00E+00	5.00E-03	--
Zinc	nm	3.11E+03	--	--	--	0.00E+00	3.00E-01	--
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	7.66E+00	0.00E+00	1.60E+00	--	0.00E+00	8.00E-04	--
Toluene	ns	--	--	--	--	--	8.00E-02	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	3.48E-01	--	--	--	0.00E+00	2.00E-01	--
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.66E+00	--	--	--	0.00E+00	6.00E-02	--
Acenaphthylene	--	1.04E+00	--	--	--	--	--	--
Anthracene	nm	1.45E+00	--	--	--	0.00E+00	3.00E-01	--
Benzo(a)pyrene	c	2.88E+00	0.00E+00	1.00E+00	--	--	--	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	--
Dibenzofuran	n	1.52E+00	--	--	--	0.00E+00	1.00E-03	--
Fluoranthene	n	2.86E+00	--	--	--	0.00E+00	4.00E-02	--
Fluorene	n	2.90E+00	--	--	--	0.00E+00	4.00E-02	--
2-Methylnaphthalene	n	3.70E+00	--	--	--	0.00E+00	4.00E-03	--
Naphthalene	c*	2.41E+00	--	--	--	0.00E+00	2.00E-02	--
Phenanthrene	--	1.19E+01	--	--	--	--	--	--
Pyrene	n	3.02E+00	--	--	--	0.00E+00	3.00E-02	--
Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	3.54E+00	0.00E+00	2.00E+00	--	0.00E+00	2.00E-05	--
Total					0.0E+00			0.0E+00

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	1.15E+04	3.54E-06	--	--	--	0.00E+00	5.00E-03	0.00E+00	3.24E+09	--	--	0.00E+00
Antimony	n	2.28E+01	7.03E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Arsenic	cR	1.09E+02	3.36E-08	0.00E+00	4.30E+00	--	0.00E+00	1.50E-05	0.00E+00	3.24E+09	--	--	0.00E+00
Barium	nm	4.61E+02	1.42E-07	--	--	--	0.00E+00	5.00E-04	0.00E+00	3.24E+09	--	--	0.00E+00
Beryllium	n	8.53E+00	2.64E-09	0.00E+00	2.40E+00	--	0.00E+00	2.00E-05	0.00E+00	3.24E+09	--	--	0.00E+00
Cadmium (food, soil)	n	7.69E+00	2.38E-09	0.00E+00	1.80E+00	--	0.00E+00	1.00E-05	0.00E+00	3.24E+09	--	--	0.00E+00
Chromium (Total)	nm	1.93E+03	5.95E-07	--	--	--	--	--	--	3.24E+09	--	--	--
Cobalt	n	6.87E+01	2.12E-08	0.00E+00	9.00E+00	--	0.00E+00	6.00E-06	0.00E+00	3.24E+09	--	--	0.00E+00
Copper	n	5.56E+02	1.72E-07	--	--	--	--	--	--	3.24E+09	--	--	--
Iron	nm	8.77E+04	2.71E-05	--	--	--	--	--	--	3.24E+09	--	--	--
Lead	L	3.88E+03	1.20E-06	0.00E+00	1.20E-02	--	--	--	--	3.24E+09	--	--	--
Manganese	n	2.00E+03	6.18E-07	--	--	--	0.00E+00	5.00E-05	0.00E+00	3.24E+09	--	--	0.00E+00
Mercury	ns	4.89E-01	2.91E-05	--	--	--	0.00E+00	3.00E-04	0.00E+00	3.24E+09	1.68E+04	--	0.00E+00
Nickel	n	2.97E+02	9.17E-08	0.00E+00	2.60E-01	--	0.00E+00	9.00E-05	0.00E+00	3.24E+09	--	--	0.00E+00
Selenium	n	5.52E+01	1.70E-08	--	--	--	0.00E+00	2.00E-02	0.00E+00	3.24E+09	--	--	0.00E+00
Silver	n	9.40E+00	2.90E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Thallium	n	6.74E+00	2.08E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Vanadium	n	4.26E+01	1.32E-08	--	--	--	0.00E+00	1.00E-04	0.00E+00	3.24E+09	--	--	0.00E+00
Zinc	nm	3.11E+03	9.62E-07	--	--	--	--	--	--	3.24E+09	--	--	--
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	7.66E+00	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	3.48E-01	6.34E-05	--	--	--	0.00E+00	1.00E-01	0.00E+00	3.24E+09	5.49E+03	--	0.00E+00
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.66E+00	9.19E-06	--	--	--	--	--	--	3.24E+09	1.80E+05	--	--
Acenaphthylene	--	1.04E+00	3.20E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	1.45E+00	2.16E-06	--	--	--	--	--	--	3.24E+09	6.71E+05	--	--
Benzo(a)pyrene	c	2.88E+00	8.90E-10	0.00E+00	6.00E-01	--	--	--	--	3.24E+09	--	--	--
Benzo(g,h,i)perylene	--	1.78E+00	5.48E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.52E+00	4.69E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Fluoranthene	n	2.86E+00	8.84E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Fluorene	n	2.90E+00	8.06E-06	--	--	--	--	--	--	3.24E+09	3.60E+05	--	--
2-Methylnaphthalene	n	3.70E+00	4.97E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	--
Naphthalene	c*	2.41E+00	4.06E-05	0.00E+00	3.40E-02	--	0.00E+00	3.00E-03	0.00E+00	3.24E+09	5.94E+04	--	0.00E+00
Phenanthrene	--	1.19E+01	3.69E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	3.02E+00	9.92E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	--
Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	3.54E+00	5.19E-06	0.00E+00	5.70E-01	--	--	--	--	3.24E+09	6.81E+05	--	--
Total						0.0E+00			0.0E+00			0.0E+00	0.0E+00

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Mechanical Department Workers (4)
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	2	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.16E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	3.28E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Mechanical Department Workers (4)
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	2	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	2.75E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	7.71E-09	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Mechanical Department Workers (4)
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	2	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	8.25E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	4.16E+00	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.27E+01	4.43E-09	1.50E+00	6.65E-09	1.24E-08	3.00E-04	3.00E-02	4.14E-05
Barium	nm	1.03E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	2.73E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	8.84E-01	--	--	--	2.88E-11	2.50E-05	1.00E-03	1.15E-06
Chromium (Total)	nm	4.37E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.13E+01	--	--	--	--	3.00E-04	--	--
Copper	n	1.66E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	3.11E+04	--	--	--	--	7.00E-01	--	--
Lead	L	2.34E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	4.88E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	7.31E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	1.84E+02	--	--	--	--	8.00E-04	--	--
Selenium	n	3.61E+00	--	--	--	--	5.00E-03	--	--
Silver	n	1.89E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	5.00E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	2.81E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	2.12E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	2.00E+00	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	--	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	8.70E-01	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	3.40E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.47E+00	--	--	--	6.25E-09	6.00E-02	1.30E-01	1.04E-07
Acenaphthylene	--	4.54E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.18E+00	--	--	--	1.35E-08	3.00E-01	1.30E-01	4.50E-08
Benzo(a)pyrene	c	3.25E+00	4.92E-09	1.00E+00	4.92E-09	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.06E+00	--	--	--	4.49E-09	1.00E-03	1.30E-01	4.49E-06
Fluoranthene	n	1.29E+01	--	--	--	5.46E-08	4.00E-02	1.30E-01	1.36E-06
Fluorene	n	5.36E+00	--	--	--	2.27E-08	4.00E-02	1.30E-01	5.68E-07
2-Methylnaphthalene	n	2.04E+00	--	--	--	8.64E-09	4.00E-03	1.30E-01	2.16E-06
Naphthalene	c*	6.14E-01	--	--	--	2.60E-09	2.00E-02	1.30E-01	1.30E-07
Phenanthrene	--	1.10E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.02E+01	--	--	--	4.31E-08	3.00E-02	1.30E-01	1.44E-06
Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	4.20E+01	6.85E-08	2.00E+00	1.37E-07	1.92E-07	2.00E-05	1.40E-01	9.58E-03
Total					1.5E-07				9.6E-03

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	8.25E+03	--	--	--	6.36E-05	1.00E+00	6.36E-05
Antimony	n	4.16E+00	--	--	--	3.20E-08	4.00E-04	8.01E-05
Arsenic	cR	1.27E+01	2.09E-08	1.50E+00	3.14E-08	5.86E-08	3.00E-04	1.95E-04
Barium	nm	1.03E+02	--	--	--	7.90E-07	2.00E-01	3.95E-06
Beryllium	n	2.73E+00	--	--	--	2.10E-08	2.00E-03	1.05E-05
Cadmium (food, soil)	n	8.84E-01	--	--	--	6.81E-09	1.00E-03	6.81E-06
Chromium (Total)	nm	4.37E+01	--	--	--	3.37E-07	1.50E+00	2.25E-07
Cobalt	n	1.13E+01	--	--	--	8.73E-08	3.00E-04	2.91E-04
Copper	n	1.66E+02	--	--	--	1.28E-06	4.00E-02	3.20E-05
Iron	nm	3.11E+04	--	--	--	2.39E-04	7.00E-01	3.42E-04
Lead	L	2.34E+02	6.44E-07	8.50E-03	5.47E-09	--	--	--
Manganese	n	4.88E+02	--	--	--	3.76E-06	2.40E-02	1.57E-04
Mercury	ns	7.31E-01	--	--	--	5.63E-09	1.60E-04	3.52E-05
Nickel	n	1.84E+02	--	--	--	1.42E-06	2.00E-02	7.09E-05
Selenium	n	3.61E+00	--	--	--	2.78E-08	5.00E-03	5.56E-06
Silver	n	1.89E+00	--	--	--	1.45E-08	5.00E-03	2.91E-06
Thallium	n	5.00E+00	--	--	--	3.85E-08	1.00E-05	3.85E-03
Vanadium	n	2.81E+01	--	--	--	2.17E-07	5.00E-03	4.33E-05
Zinc	nm	2.12E+02	--	--	--	1.63E-06	3.00E-01	5.43E-06
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	2.00E+00	5.50E-09	5.40E-03	2.97E-11	1.54E-08	7.00E-02	2.20E-07
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	--	--	--	--	--	8.00E-02	--
Trichloroethene	c**	8.70E-01	2.39E-09	4.60E-02	1.10E-10	6.70E-09	5.00E-04	1.34E-05
Total Xylenes	ns	3.40E-01	--	--	--	2.62E-09	2.00E-01	1.31E-08
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.47E+00	--	--	--	1.14E-08	6.00E-02	1.89E-07
Acenaphthylene	--	4.54E-01	--	--	--	--	--	--
Anthracene	nm	3.18E+00	--	--	--	2.45E-08	3.00E-01	8.18E-08
Benzo(a)pyrene	c	3.25E+00	8.94E-09	1.00E+00	8.94E-09	--	--	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	--
Dibenzofuran	n	1.06E+00	--	--	--	8.16E-09	1.00E-03	8.16E-06
Fluoranthene	n	1.29E+01	--	--	--	9.92E-08	4.00E-02	2.48E-06
Fluorene	n	5.36E+00	--	--	--	4.13E-08	4.00E-02	1.03E-06
2-Methylnaphthalene	n	2.04E+00	--	--	--	1.57E-08	4.00E-03	3.92E-06
Naphthalene	c*	6.14E-01	--	--	--	4.73E-09	2.00E-02	2.37E-07
Phenanthrene	--	1.10E+01	--	--	--	--	--	--
Pyrene	n	1.02E+01	--	--	--	7.84E-08	3.00E-02	2.61E-06
Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	4.20E+01	1.16E-07	2.00E+00	2.31E-07	3.23E-07	2.00E-05	1.62E-02
Total					2.8E-07			2.1E-02

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	8.25E+03	2.55E-06	--	--	--	5.24E-09	5.00E-03	1.05E-06	3.24E+09	--	--	6.46E-05
Antimony	n	4.16E+00	1.28E-09	--	--	--	--	--	--	3.24E+09	--	--	8.01E-05
Arsenic	cR	1.27E+01	3.92E-09	2.87E-12	4.30E+00	1.24E-11	8.05E-12	1.50E-05	5.37E-07	3.24E+09	--	3.81E-08	2.37E-04
Barium	nm	1.03E+02	3.17E-08	--	--	--	6.51E-11	5.00E-04	1.30E-07	3.24E+09	--	--	4.08E-06
Beryllium	n	2.73E+00	8.43E-10	6.19E-13	2.40E+00	1.49E-12	1.73E-12	2.00E-05	8.67E-08	3.24E+09	--	1.49E-12	1.06E-05
Cadmium (food, soil)	n	8.84E-01	2.73E-10	2.00E-13	1.80E+00	3.61E-13	5.61E-13	1.00E-05	5.61E-08	3.24E+09	--	3.61E-13	8.02E-06
Chromium (Total)	nm	4.37E+01	1.35E-08	--	--	--	--	--	--	3.24E+09	--	--	2.25E-07
Cobalt	n	1.13E+01	3.50E-09	2.57E-12	9.00E+00	2.31E-11	7.19E-12	6.00E-06	1.20E-06	3.24E+09	--	2.31E-11	2.92E-04
Copper	n	1.66E+02	5.13E-08	--	--	--	--	--	--	3.24E+09	--	--	3.20E-05
Iron	nm	3.11E+04	9.60E-06	--	--	--	--	--	--	3.24E+09	--	--	3.42E-04
Lead	L	2.34E+02	7.23E-08	5.31E-11	1.20E-02	6.37E-13	--	--	--	3.24E+09	--	5.47E-09	--
Manganese	n	4.88E+02	1.51E-07	--	--	--	3.10E-10	5.00E-05	6.19E-06	3.24E+09	--	--	1.63E-04
Mercury	ns	7.31E-01	4.35E-05	--	--	--	8.94E-08	3.00E-04	2.98E-04	3.24E+09	1.68E+04	--	3.33E-04
Nickel	n	1.84E+02	5.69E-08	4.17E-11	2.60E-01	1.09E-11	1.17E-10	9.00E-05	1.30E-06	3.24E+09	--	1.09E-11	7.22E-05
Selenium	n	3.61E+00	1.11E-09	--	--	--	2.29E-12	2.00E-02	1.15E-10	3.24E+09	--	--	5.56E-06
Silver	n	1.89E+00	5.83E-10	--	--	--	--	--	--	3.24E+09	--	--	2.91E-06
Thallium	n	5.00E+00	1.54E-09	--	--	--	--	--	--	3.24E+09	--	--	3.85E-03
Vanadium	n	2.81E+01	8.69E-09	--	--	--	1.79E-11	1.00E-04	1.79E-07	3.24E+09	--	--	4.35E-05
Zinc	nm	2.12E+02	6.54E-08	--	--	--	--	--	--	3.24E+09	--	--	5.43E-06
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	2.00E+00	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	2.97E-11	2.20E-07
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	8.70E-01	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	1.10E-10	1.34E-05
Total Xylenes	ns	3.40E-01	6.20E-05	--	--	--	1.27E-07	1.00E-01	1.27E-06	3.24E+09	5.49E+03	--	1.29E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.47E+00	8.19E-06	--	--	--	--	--	--	3.24E+09	1.80E+05	--	2.93E-07
Acenaphthylene	--	4.54E-01	1.40E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.18E+00	4.75E-06	--	--	--	--	--	--	3.24E+09	6.71E+05	--	1.27E-07
Benzo(a)pyrene	c	3.25E+00	1.00E-09	7.37E-13	6.00E-01	4.42E-13	--	--	--	3.24E+09	--	1.39E-08	--
Benzo(g,h,i)perylene	--	1.78E+00	5.50E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.06E+00	3.27E-10	--	--	--	--	--	--	3.24E+09	--	--	1.26E-05
Fluoranthene	n	1.29E+01	3.98E-09	--	--	--	--	--	--	3.24E+09	--	--	3.84E-06
Fluorene	n	5.36E+00	1.49E-05	--	--	--	--	--	--	3.24E+09	3.60E+05	--	1.60E-06
2-Methylnaphthalene	n	2.04E+00	2.74E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	6.08E-06
Naphthalene	c*	6.14E-01	1.03E-05	7.59E-09	3.40E-02	2.58E-10	2.12E-08	3.00E-03	7.08E-06	3.24E+09	5.94E+04	2.58E-10	7.45E-06
Phenanthrene	--	1.10E+01	3.39E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.02E+01	3.34E-06	--	--	--	--	--	--	3.24E+09	3.05E+06	--	4.05E-06
Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	4.20E+01	6.17E-05	4.52E-08	5.70E-01	2.58E-08	--	--	--	3.24E+09	6.81E+05	3.94E-07	2.58E-02
Total						2.6E-08			3.2E-04			4.5E-07	3.1E-02

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Maintenance Worker (4)
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	6	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	2.91E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	8.15E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Maintenance Worker (4)
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	6	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	6.88E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	1.93E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Maintenance Worker (4)
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	6	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	8.25E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	4.16E+00	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.27E+01	1.11E-08	1.50E+00	1.66E-08	3.10E-08	3.00E-04	3.00E-02	1.03E-04
Barium	nm	1.03E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	2.73E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	8.84E-01	--	--	--	7.21E-11	2.50E-05	1.00E-03	2.88E-06
Chromium (Total)	nm	4.37E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.13E+01	--	--	--	--	3.00E-04	--	--
Copper	n	1.66E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	3.11E+04	--	--	--	--	7.00E-01	--	--
Lead	L	2.34E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	4.88E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	7.31E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	1.84E+02	--	--	--	--	8.00E-04	--	--
Selenium	n	3.61E+00	--	--	--	--	5.00E-03	--	--
Silver	n	1.89E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	5.00E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	2.81E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	2.12E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	2.00E+00	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	--	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	8.70E-01	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	3.40E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.47E+00	--	--	--	1.56E-08	6.00E-02	1.30E-01	2.60E-07
Acenaphthylene	--	4.54E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.18E+00	--	--	--	3.37E-08	3.00E-01	1.30E-01	1.12E-07
Benzo(a)pyrene	c	3.25E+00	1.23E-08	1.00E+00	1.23E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.06E+00	--	--	--	1.12E-08	1.00E-03	1.30E-01	1.12E-05
Fluoranthene	n	1.29E+01	--	--	--	1.36E-07	4.00E-02	1.30E-01	3.41E-06
Fluorene	n	5.36E+00	--	--	--	5.68E-08	4.00E-02	1.30E-01	1.42E-06
2-Methylnaphthalene	n	2.04E+00	--	--	--	2.16E-08	4.00E-03	1.30E-01	5.40E-06
Naphthalene	c*	6.14E-01	--	--	--	6.51E-09	2.00E-02	1.30E-01	3.25E-07
Phenanthrene	--	1.10E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.02E+01	--	--	--	1.08E-07	3.00E-02	1.30E-01	3.59E-06
Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	4.20E+01	1.71E-07	2.00E+00	3.42E-07	4.79E-07	2.00E-05	1.40E-01	2.40E-02
Total					3.7E-07				2.4E-02

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	8.25E+03	--	--	--	1.59E-04	1.00E+00	1.59E-04
Antimony	n	4.16E+00	--	--	--	8.01E-08	4.00E-04	2.00E-04
Arsenic	cR	1.27E+01	5.23E-08	1.50E+00	7.85E-08	1.47E-07	3.00E-04	4.89E-04
Barium	nm	1.03E+02	--	--	--	1.97E-06	2.00E-01	9.87E-06
Beryllium	n	2.73E+00	--	--	--	5.26E-08	2.00E-03	2.63E-05
Cadmium (food, soil)	n	8.84E-01	--	--	--	1.70E-08	1.00E-03	1.70E-05
Chromium (Total)	nm	4.37E+01	--	--	--	8.42E-07	1.50E+00	5.62E-07
Cobalt	n	1.13E+01	--	--	--	2.18E-07	3.00E-04	7.28E-04
Copper	n	1.66E+02	--	--	--	3.20E-06	4.00E-02	8.00E-05
Iron	nm	3.11E+04	--	--	--	5.99E-04	7.00E-01	8.55E-04
Lead	L	2.34E+02	1.61E-06	8.50E-03	1.37E-08	--	--	--
Manganese	n	4.88E+02	--	--	--	9.39E-06	2.40E-02	3.91E-04
Mercury	ns	7.31E-01	--	--	--	1.41E-08	1.60E-04	8.80E-05
Nickel	n	1.84E+02	--	--	--	3.55E-06	2.00E-02	1.77E-04
Selenium	n	3.61E+00	--	--	--	6.95E-08	5.00E-03	1.39E-05
Silver	n	1.89E+00	--	--	--	3.64E-08	5.00E-03	7.27E-06
Thallium	n	5.00E+00	--	--	--	9.62E-08	1.00E-05	9.62E-03
Vanadium	n	2.81E+01	--	--	--	5.42E-07	5.00E-03	1.08E-04
Zinc	nm	2.12E+02	--	--	--	4.08E-06	3.00E-01	1.36E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	2.00E+00	1.38E-08	5.40E-03	7.43E-11	3.85E-08	7.00E-02	5.50E-07
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	--	--	--	--	--	8.00E-02	--
Trichloroethene	c**	8.70E-01	5.99E-09	4.60E-02	2.75E-10	1.68E-08	5.00E-04	3.35E-05
Total Xylenes	ns	3.40E-01	--	--	--	6.55E-09	2.00E-01	3.27E-08
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.47E+00	--	--	--	2.84E-08	6.00E-02	4.73E-07
Acenaphthylene	--	4.54E-01	--	--	--	--	--	--
Anthracene	nm	3.18E+00	--	--	--	6.13E-08	3.00E-01	2.04E-07
Benzo(a)pyrene	c	3.25E+00	2.24E-08	1.00E+00	2.24E-08	--	--	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	--
Dibenzofuran	n	1.06E+00	--	--	--	2.04E-08	1.00E-03	2.04E-05
Fluoranthene	n	1.29E+01	--	--	--	2.48E-07	4.00E-02	6.20E-06
Fluorene	n	5.36E+00	--	--	--	1.03E-07	4.00E-02	2.58E-06
2-Methylnaphthalene	n	2.04E+00	--	--	--	3.92E-08	4.00E-03	9.81E-06
Naphthalene	c*	6.14E-01	--	--	--	1.18E-08	2.00E-02	5.91E-07
Phenanthrene	--	1.10E+01	--	--	--	--	--	--
Pyrene	n	1.02E+01	--	--	--	1.96E-07	3.00E-02	6.53E-06
Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	4.20E+01	2.89E-07	2.00E+00	5.78E-07	8.09E-07	2.00E-05	4.04E-02
Total					6.9E-07			5.4E-02

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	8.25E+03	2.55E-06	--	--	--	1.31E-08	5.00E-03	2.62E-06	3.24E+09	--	--	1.62E-04
Antimony	n	4.16E+00	1.28E-09	--	--	--	--	--	--	3.24E+09	--	--	2.00E-04
Arsenic	cR	1.27E+01	3.92E-09	7.19E-12	4.30E+00	3.09E-11	2.01E-11	1.50E-05	1.34E-06	3.24E+09	--	9.52E-08	5.93E-04
Barium	nm	1.03E+02	3.17E-08	--	--	--	1.63E-10	5.00E-04	3.25E-07	3.24E+09	--	--	1.02E-05
Beryllium	n	2.73E+00	8.43E-10	1.55E-12	2.40E+00	3.71E-12	4.33E-12	2.00E-05	2.17E-07	3.24E+09	--	3.71E-12	2.65E-05
Cadmium (food, soil)	n	8.84E-01	2.73E-10	5.01E-13	1.80E+00	9.02E-13	1.40E-12	1.00E-05	1.40E-07	3.24E+09	--	9.02E-13	2.01E-05
Chromium (Total)	nm	4.37E+01	1.35E-08	--	--	--	--	--	--	3.24E+09	--	--	5.62E-07
Cobalt	n	1.13E+01	3.50E-09	6.42E-12	9.00E+00	5.78E-11	1.80E-11	6.00E-06	3.00E-06	3.24E+09	--	5.78E-11	7.31E-04
Copper	n	1.66E+02	5.13E-08	--	--	--	--	--	--	3.24E+09	--	--	8.00E-05
Iron	nm	3.11E+04	9.60E-06	--	--	--	--	--	--	3.24E+09	--	--	8.55E-04
Lead	L	2.34E+02	7.23E-08	1.33E-10	1.20E-02	1.59E-12	--	--	--	3.24E+09	--	1.37E-08	--
Manganese	n	4.88E+02	1.51E-07	--	--	--	7.74E-10	5.00E-05	1.55E-05	3.24E+09	--	--	4.07E-04
Mercury	ns	7.31E-01	4.35E-05	--	--	--	2.23E-07	3.00E-04	7.45E-04	3.24E+09	1.68E+04	--	8.33E-04
Nickel	n	1.84E+02	5.69E-08	1.04E-10	2.60E-01	2.71E-11	2.92E-10	9.00E-05	3.25E-06	3.24E+09	--	2.71E-11	1.81E-04
Selenium	n	3.61E+00	1.11E-09	--	--	--	5.73E-12	2.00E-02	2.86E-10	3.24E+09	--	--	1.39E-05
Silver	n	1.89E+00	5.83E-10	--	--	--	--	--	--	3.24E+09	--	--	7.27E-06
Thallium	n	5.00E+00	1.54E-09	--	--	--	--	--	--	3.24E+09	--	--	9.62E-03
Vanadium	n	2.81E+01	8.69E-09	--	--	--	4.46E-11	1.00E-04	4.46E-07	3.24E+09	--	--	1.09E-04
Zinc	nm	2.12E+02	6.54E-08	--	--	--	--	--	--	3.24E+09	--	--	1.36E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	2.00E+00	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	7.43E-11	5.50E-07
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	8.70E-01	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	2.75E-10	3.35E-05
Total Xylenes	ns	3.40E-01	6.20E-05	--	--	--	3.18E-07	1.00E-01	3.18E-06	3.24E+09	5.49E+03	--	3.22E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.47E+00	8.19E-06	--	--	--	--	--	--	3.24E+09	1.80E+05	--	7.34E-07
Acenaphthylene	--	4.54E-01	1.40E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.18E+00	4.75E-06	--	--	--	--	--	--	3.24E+09	6.71E+05	--	3.17E-07
Benzo(a)pyrene	c	3.25E+00	1.00E-09	1.84E-12	6.00E-01	1.11E-12	--	--	--	3.24E+09	--	3.47E-08	--
Benzo(g,h,i)perylene	--	1.78E+00	5.50E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.06E+00	3.27E-10	--	--	--	--	--	--	3.24E+09	--	--	3.16E-05
Fluoranthene	n	1.29E+01	3.98E-09	--	--	--	--	--	--	3.24E+09	--	--	9.61E-06
Fluorene	n	5.36E+00	1.49E-05	--	--	--	--	--	--	3.24E+09	3.60E+05	--	4.00E-08
2-Methylnaphthalene	n	2.04E+00	2.74E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	1.52E-05
Naphthalene	c*	6.14E-01	1.03E-05	1.90E-08	3.40E-02	6.45E-10	5.31E-08	3.00E-03	1.77E-05	3.24E+09	5.94E+04	6.45E-10	1.86E-05
Phenanthrene	--	1.10E+01	3.39E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.02E+01	3.34E-06	--	--	--	--	--	--	3.24E+09	3.05E+06	--	1.01E-05
Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	4.20E+01	6.17E-05	1.13E-07	5.70E-01	6.45E-08	--	--	--	3.24E+09	6.81E+05	9.84E-07	6.44E-02
Total						6.5E-08			7.9E-04			1.1E-06	7.8E-02

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Track Maintenance Worker (4)

Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527	EPA, 2011		
EF	Exposure Frequency	days/years	(2) 15	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	7.76E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	2.17E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Track Maintenance Worker (4)

Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	15	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	1.83E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	5.14E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Track Maintenance Worker (4)

Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	15	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	8.25E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	4.16E+00	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.27E+01	2.95E-08	1.50E+00	4.43E-08	8.27E-08	3.00E-04	3.00E-02	2.76E-04
Barium	nm	1.03E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	2.73E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	8.84E-01	--	--	--	1.92E-10	2.50E-05	1.00E-03	7.69E-06
Chromium (Total)	nm	4.37E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.13E+01	--	--	--	--	3.00E-04	--	--
Copper	n	1.66E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	3.11E+04	--	--	--	--	7.00E-01	--	--
Lead	L	2.34E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	4.88E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	7.31E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	1.84E+02	--	--	--	--	8.00E-04	--	--
Selenium	n	3.61E+00	--	--	--	--	5.00E-03	--	--
Silver	n	1.89E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	5.00E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	2.81E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	2.12E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	2.00E+00	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	--	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	8.70E-01	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	3.40E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.47E+00	--	--	--	4.17E-08	6.00E-02	1.30E-01	6.94E-07
Acenaphthylene	--	4.54E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.18E+00	--	--	--	9.00E-08	3.00E-01	1.30E-01	3.00E-07
Benzo(a)pyrene	c	3.25E+00	3.28E-08	1.00E+00	3.28E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.06E+00	--	--	--	2.99E-08	1.00E-03	1.30E-01	2.99E-05
Fluoranthene	n	1.29E+01	--	--	--	3.64E-07	4.00E-02	1.30E-01	9.09E-06
Fluorene	n	5.36E+00	--	--	--	1.52E-07	4.00E-02	1.30E-01	3.79E-06
2-Methylnaphthalene	n	2.04E+00	--	--	--	5.76E-08	4.00E-03	1.30E-01	1.44E-05
Naphthalene	c*	6.14E-01	--	--	--	1.74E-08	2.00E-02	1.30E-01	8.68E-07
Phenanthrene	--	1.10E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.02E+01	--	--	--	2.87E-07	3.00E-02	1.30E-01	9.58E-06
Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	4.20E+01	4.56E-07	2.00E+00	9.13E-07	1.28E-06	2.00E-05	1.40E-01	6.39E-02
Total					9.9E-07				6.4E-02

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	8.25E+03	--	--	--	4.24E-04	1.00E+00	4.24E-04
Antimony	n	4.16E+00	--	--	--	2.14E-07	4.00E-04	5.34E-04
Arsenic	cR	1.27E+01	1.40E-07	1.50E+00	2.09E-07	3.91E-07	3.00E-04	1.30E-03
Barium	nm	1.03E+02	--	--	--	5.27E-06	2.00E-01	2.63E-05
Beryllium	n	2.73E+00	--	--	--	1.40E-07	2.00E-03	7.01E-05
Cadmium (food, soil)	n	8.84E-01	--	--	--	4.54E-08	1.00E-03	4.54E-05
Chromium (Total)	nm	4.37E+01	--	--	--	2.25E-06	1.50E+00	1.50E-06
Cobalt	n	1.13E+01	--	--	--	5.82E-07	3.00E-04	1.94E-03
Copper	n	1.66E+02	--	--	--	8.54E-06	4.00E-02	2.13E-04
Iron	nm	3.11E+04	--	--	--	1.60E-03	7.00E-01	2.28E-03
Lead	L	2.34E+02	4.29E-06	8.50E-03	3.65E-08	--	--	--
Manganese	n	4.88E+02	--	--	--	2.50E-05	2.40E-02	1.04E-03
Mercury	ns	7.31E-01	--	--	--	3.76E-08	1.60E-04	2.35E-04
Nickel	n	1.84E+02	--	--	--	9.46E-06	2.00E-02	4.73E-04
Selenium	n	3.61E+00	--	--	--	1.85E-07	5.00E-03	3.71E-05
Silver	n	1.89E+00	--	--	--	9.70E-08	5.00E-03	1.94E-05
Thallium	n	5.00E+00	--	--	--	2.57E-07	1.00E-05	2.57E-02
Vanadium	n	2.81E+01	--	--	--	1.44E-06	5.00E-03	2.89E-04
Zinc	nm	2.12E+02	--	--	--	1.09E-05	3.00E-01	3.62E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	2.00E+00	3.67E-08	5.40E-03	1.98E-10	1.03E-07	7.00E-02	1.47E-06
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	--	--	--	--	--	8.00E-02	--
Trichloroethene	c**	8.70E-01	1.60E-08	4.60E-02	7.34E-10	4.47E-08	5.00E-04	8.94E-05
Total Xylenes	ns	3.40E-01	--	--	--	1.75E-08	2.00E-01	8.73E-08
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.47E+00	--	--	--	7.57E-08	6.00E-02	1.26E-06
Acenaphthylene	--	4.54E-01	--	--	--	--	--	--
Anthracene	nm	3.18E+00	--	--	--	1.64E-07	3.00E-01	5.45E-07
Benzo(a)pyrene	c	3.25E+00	5.96E-08	1.00E+00	5.96E-08	--	--	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	--
Dibenzofuran	n	1.06E+00	--	--	--	5.44E-08	1.00E-03	5.44E-05
Fluoranthene	n	1.29E+01	--	--	--	6.61E-07	4.00E-02	1.65E-05
Fluorene	n	5.36E+00	--	--	--	2.75E-07	4.00E-02	6.89E-06
2-Methylnaphthalene	n	2.04E+00	--	--	--	1.05E-07	4.00E-03	2.62E-05
Naphthalene	c*	6.14E-01	--	--	--	3.15E-08	2.00E-02	1.58E-06
Phenanthrene	--	1.10E+01	--	--	--	--	--	--
Pyrene	n	1.02E+01	--	--	--	5.22E-07	3.00E-02	1.74E-05
Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	4.20E+01	7.70E-07	2.00E+00	1.54E-06	2.16E-06	2.00E-05	1.08E-01
Total					1.8E-06			1.4E-01

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	8.25E+03	2.55E-06	--	--	--	3.49E-08	5.00E-03	6.99E-06	3.24E+09	--	--	4.31E-04
Antimony	n	4.16E+00	1.28E-09	--	--	--	--	--	--	3.24E+09	--	--	5.34E-04
Arsenic	cR	1.27E+01	3.92E-09	1.92E-11	4.30E+00	8.24E-11	5.37E-11	1.50E-05	3.58E-06	3.24E+09	--	2.54E-07	1.58E-03
Barium	nm	1.03E+02	3.17E-08	--	--	--	4.34E-10	5.00E-04	8.68E-07	3.24E+09	--	--	2.72E-05
Beryllium	n	2.73E+00	8.43E-10	4.13E-12	2.40E+00	9.90E-12	1.16E-11	2.00E-05	5.78E-07	3.24E+09	--	9.90E-12	7.07E-05
Cadmium (food, soil)	n	8.84E-01	2.73E-10	1.34E-12	1.80E+00	2.41E-12	3.74E-12	1.00E-05	3.74E-07	3.24E+09	--	2.41E-12	5.35E-05
Chromium (Total)	nm	4.37E+01	1.35E-08	--	--	--	--	--	--	3.24E+09	--	--	1.50E-06
Cobalt	n	1.13E+01	3.50E-09	1.71E-11	9.00E+00	1.54E-10	4.79E-11	6.00E-06	7.99E-06	3.24E+09	--	1.54E-10	1.95E-03
Copper	n	1.66E+02	5.13E-08	--	--	--	--	--	--	3.24E+09	--	--	2.13E-04
Iron	nm	3.11E+04	9.60E-06	--	--	--	--	--	--	3.24E+09	--	--	2.28E-03
Lead	L	2.34E+02	7.23E-08	3.54E-10	1.20E-02	4.24E-12	--	--	--	3.24E+09	--	3.65E-08	--
Manganese	n	4.88E+02	1.51E-07	--	--	--	2.06E-09	5.00E-05	4.13E-05	3.24E+09	--	--	1.08E-03
Mercury	ns	7.31E-01	4.35E-05	--	--	--	5.96E-07	3.00E-04	1.99E-03	3.24E+09	1.68E+04	--	2.22E-03
Nickel	n	1.84E+02	5.69E-08	2.78E-10	2.60E-01	7.23E-11	7.79E-10	9.00E-05	8.66E-06	3.24E+09	--	7.23E-11	4.82E-04
Selenium	n	3.61E+00	1.11E-09	--	--	--	1.53E-11	2.00E-02	7.63E-10	3.24E+09	--	--	3.71E-05
Silver	n	1.89E+00	5.83E-10	--	--	--	--	--	--	3.24E+09	--	--	1.94E-05
Thallium	n	5.00E+00	1.54E-09	--	--	--	--	--	--	3.24E+09	--	--	2.57E-02
Vanadium	n	2.81E+01	8.69E-09	--	--	--	1.19E-10	1.00E-04	1.19E-06	3.24E+09	--	--	2.90E-04
Zinc	nm	2.12E+02	6.54E-08	--	--	--	--	--	--	3.24E+09	--	--	3.62E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	2.00E+00	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	1.98E-10	1.47E-06
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	8.70E-01	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	7.34E-10	8.94E-05
Total Xylenes	ns	3.40E-01	6.20E-05	--	--	--	8.49E-07	1.00E-01	8.49E-06	3.24E+09	5.49E+03	--	8.58E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.47E+00	8.19E-06	--	--	--	--	--	--	3.24E+09	1.80E+05	--	1.96E-06
Acenaphthylene	--	4.54E-01	1.40E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.18E+00	4.75E-06	--	--	--	--	--	--	3.24E+09	6.71E+05	--	8.45E-07
Benzo(a)pyrene	c	3.25E+00	1.00E-09	4.91E-12	6.00E-01	2.95E-12	--	--	--	3.24E+09	--	9.24E-08	--
Benzo(g,h,i)perylene	--	1.78E+00	5.50E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.06E+00	3.27E-10	--	--	--	--	--	--	3.24E+09	--	--	8.43E-05
Fluoranthene	n	1.29E+01	3.98E-09	--	--	--	--	--	--	3.24E+09	--	--	2.56E-05
Fluorene	n	5.36E+00	1.49E-05	--	--	--	--	--	--	3.24E+09	3.60E+05	--	1.07E-05
2-Methylnaphthalene	n	2.04E+00	2.74E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	4.06E-05
Naphthalene	c*	6.14E-01	1.03E-05	5.06E-08	3.40E-02	1.72E-09	1.42E-07	3.00E-03	4.72E-05	3.24E+09	5.94E+04	1.72E-09	4.96E-05
Phenanthrene	--	1.10E+01	3.39E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.02E+01	3.34E-06	--	--	--	--	--	--	3.24E+09	3.05E+06	--	2.70E-05
Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	4.20E+01	6.17E-05	3.02E-07	5.70E-01	1.72E-07	--	--	--	3.24E+09	6.81E+05	2.63E-06	1.72E-01
Total						1.7E-07			2.1E-03			3.0E-06	2.1E-01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Engineering/Maint of Way - Admin (5)

Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	0.563	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	2.91E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	8.15E-09	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Engineering/Maint of Way - Admin (5)

Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	0.563	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	6.88E-10	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	1.93E-09	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Engineering/Maint of Way - Admin (5)

Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	0.563	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	9.68E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	2.32E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.87E+01	1.64E-09	1.50E+00	2.45E-09	4.58E-09	3.00E-04	3.00E-02	1.53E-05
Barium	nm	2.10E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	7.24E-01	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	2.43E+00	--	--	--	1.98E-11	2.50E-05	1.00E-03	7.92E-07
Chromium (Total)	nm	3.12E+02	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.77E+01	--	--	--	--	3.00E-04	--	--
Copper	n	4.26E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	5.22E+04	--	--	--	--	7.00E-01	--	--
Lead	L	7.42E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.11E+03	--	--	--	--	9.60E-04	--	--
Mercury	ns	6.66E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	6.00E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	5.31E+00	--	--	--	--	5.00E-03	--	--
Silver	n	1.81E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	7.53E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	5.54E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.84E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	1.90E+00	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	4.33E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	4.71E-02	--	--	--	4.99E-11	6.00E-02	1.30E-01	8.32E-10
Acenaphthylene	--	1.68E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.06E-01	--	--	--	3.24E-10	3.00E-01	1.30E-01	1.08E-09
Benzo(a)pyrene	c	1.98E+00	7.51E-10	1.00E+00	7.51E-10	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.25E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.17E-01	--	--	--	1.24E-10	1.00E-03	1.30E-01	1.24E-07
Fluoranthene	n	1.93E+00	--	--	--	2.05E-09	4.00E-02	1.30E-01	5.12E-08
Fluorene	n	6.32E-02	--	--	--	6.70E-11	4.00E-02	1.30E-01	1.67E-09
2-Methylnaphthalene	n	4.67E-01	--	--	--	4.95E-10	4.00E-03	1.30E-01	1.24E-07
Naphthalene	c*	3.18E-01	--	--	--	3.37E-10	2.00E-02	1.30E-01	1.69E-08
Phenanthrene	--	1.43E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.94E+00	--	--	--	2.06E-09	3.00E-02	1.30E-01	6.86E-08
Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	2.39E+01	9.74E-09	2.00E+00	1.95E-08	2.73E-08	2.00E-05	1.40E-01	1.36E-03
Total					2.3E-08				1.4E-03

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	9.68E+03	--	--	--	1.87E-05	1.00E+00	1.87E-05
Antimony	n	2.32E+01	--	--	--	4.47E-08	4.00E-04	1.12E-04
Arsenic	cR	1.87E+01	7.73E-09	1.50E+00	1.16E-08	2.16E-08	3.00E-04	7.22E-05
Barium	nm	2.10E+02	--	--	--	4.04E-07	2.00E-01	2.02E-06
Beryllium	n	7.24E-01	--	--	--	1.39E-09	2.00E-03	6.97E-07
Cadmium (food, soil)	n	2.43E+00	--	--	--	4.68E-09	1.00E-03	4.68E-06
Chromium (Total)	nm	3.12E+02	--	--	--	6.01E-07	1.50E+00	4.00E-07
Cobalt	n	1.77E+01	--	--	--	3.41E-08	3.00E-04	1.14E-04
Copper	n	4.26E+02	--	--	--	8.21E-07	4.00E-02	2.05E-05
Iron	nm	5.22E+04	--	--	--	1.01E-04	7.00E-01	1.44E-04
Lead	L	7.42E+02	5.11E-07	8.50E-03	4.34E-09	--	--	--
Manganese	n	2.11E+03	--	--	--	4.06E-06	2.40E-02	1.69E-04
Mercury	ns	6.66E-01	--	--	--	1.28E-09	1.60E-04	8.02E-06
Nickel	n	6.00E+01	--	--	--	1.16E-07	2.00E-02	5.78E-06
Selenium	n	5.31E+00	--	--	--	1.02E-08	5.00E-03	2.05E-06
Silver	n	1.81E+00	--	--	--	3.49E-09	5.00E-03	6.99E-07
Thallium	n	7.53E+00	--	--	--	1.45E-08	1.00E-05	1.45E-03
Vanadium	n	5.54E+01	--	--	--	1.07E-07	5.00E-03	2.14E-05
Zinc	nm	3.84E+02	--	--	--	7.39E-07	3.00E-01	2.46E-06
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	1.90E+00	--	--	--	3.66E-09	8.00E-02	4.58E-08
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	4.33E-01	--	--	--	8.34E-10	2.00E-01	4.17E-09
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	4.71E-02	--	--	--	9.07E-11	6.00E-02	1.51E-09
Acenaphthylene	--	1.68E-01	--	--	--	--	--	--
Anthracene	nm	3.06E-01	--	--	--	5.89E-10	3.00E-01	1.96E-09
Benzo(a)pyrene	c	1.98E+00	1.36E-09	1.00E+00	1.36E-09	--	--	--
Benzo(g,h,i)perylene	--	8.25E-01	--	--	--	--	--	--
Dibenzofuran	n	1.17E-01	--	--	--	2.25E-10	1.00E-03	2.25E-07
Fluoranthene	n	1.93E+00	--	--	--	3.72E-09	4.00E-02	9.30E-08
Fluorene	n	6.32E-02	--	--	--	1.22E-10	4.00E-02	3.04E-09
2-Methylnaphthalene	n	4.67E-01	--	--	--	9.00E-10	4.00E-03	2.25E-07
Naphthalene	c*	3.18E-01	--	--	--	6.13E-10	2.00E-02	3.06E-08
Phenanthrene	--	1.43E+00	--	--	--	--	--	--
Pyrene	n	1.94E+00	--	--	--	3.74E-09	3.00E-02	1.25E-07
Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	2.39E+01	1.64E-08	2.00E+00	3.29E-08	4.60E-08	2.00E-05	2.30E-03
Total					5.0E-08			4.5E-03

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	9.68E+03	2.99E-06	--	--	--	1.54E-09	5.00E-03	3.07E-07	3.24E+09	--	--	1.90E-05
Antimony	n	2.32E+01	7.17E-09	--	--	--	--	--	--	3.24E+09	--	--	1.12E-04
Arsenic	cR	1.87E+01	5.79E-09	1.06E-12	4.30E+00	4.56E-12	2.97E-12	1.50E-05	1.98E-07	3.24E+09	--	1.41E-08	8.76E-05
Barium	nm	2.10E+02	6.48E-08	--	--	--	3.33E-11	5.00E-04	6.66E-08	3.24E+09	--	--	2.09E-06
Beryllium	n	7.24E-01	2.24E-10	4.10E-14	2.40E+00	9.85E-14	1.15E-13	2.00E-05	5.74E-09	3.24E+09	--	9.85E-14	7.03E-07
Cadmium (food, soil)	n	2.43E+00	7.51E-10	1.38E-13	1.80E+00	2.48E-13	3.86E-13	1.00E-05	3.86E-08	3.24E+09	--	2.48E-13	5.51E-06
Chromium (Total)	nm	3.12E+02	9.63E-08	--	--	--	--	--	--	3.24E+09	--	--	4.00E-07
Cobalt	n	1.77E+01	5.47E-09	1.00E-12	9.00E+00	9.03E-12	2.81E-12	6.00E-06	4.68E-07	3.24E+09	--	9.03E-12	1.14E-04
Copper	n	4.26E+02	1.32E-07	--	--	--	--	--	--	3.24E+09	--	--	2.05E-05
Iron	nm	5.22E+04	1.61E-05	--	--	--	--	--	--	3.24E+09	--	--	1.44E-04
Lead	L	7.42E+02	2.29E-07	4.21E-11	1.20E-02	5.05E-13	--	--	--	3.24E+09	--	4.34E-09	--
Manganese	n	2.11E+03	6.52E-07	--	--	--	3.35E-10	5.00E-05	6.69E-06	3.24E+09	--	--	1.76E-04
Mercury	ns	6.66E-01	3.96E-05	--	--	--	2.04E-08	3.00E-04	6.79E-05	3.24E+09	1.68E+04	--	7.59E-05
Nickel	n	6.00E+01	1.85E-08	3.40E-12	2.60E-01	8.84E-13	9.53E-12	9.00E-05	1.06E-07	3.24E+09	--	8.84E-13	5.89E-06
Selenium	n	5.31E+00	1.64E-09	--	--	--	8.42E-13	2.00E-02	4.21E-11	3.24E+09	--	--	2.05E-06
Silver	n	1.81E+00	5.60E-10	--	--	--	--	--	--	3.24E+09	--	--	6.99E-07
Thallium	n	7.53E+00	2.33E-09	--	--	--	--	--	--	3.24E+09	--	--	1.45E-03
Vanadium	n	5.54E+01	1.71E-08	--	--	--	8.80E-12	1.00E-04	8.80E-08	3.24E+09	--	--	2.14E-05
Zinc	nm	3.84E+02	1.19E-07	--	--	--	--	--	--	3.24E+09	--	--	2.46E-06
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	1.90E+00	6.29E-04	--	--	--	3.23E-07	5.00E+00	6.46E-08	3.24E+09	3.02E+03	--	1.10E-07
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	4.33E-01	7.89E-05	--	--	--	4.05E-08	1.00E-01	4.05E-07	3.24E+09	5.49E+03	--	4.10E-07
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	4.71E-02	2.62E-07	--	--	--	--	--	--	3.24E+09	1.80E+05	--	2.34E-09
Acenaphthylene	--	1.68E-01	5.19E-11	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.06E-01	4.56E-07	--	--	--	--	--	--	3.24E+09	6.71E+05	--	3.05E-09
Benzo(a)pyrene	c	1.98E+00	6.13E-10	1.12E-13	6.00E-01	6.75E-14	--	--	--	3.24E+09	--	2.12E-09	--
Benzo(g,h,i)perylene	--	8.25E-01	2.55E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.17E-01	3.61E-11	--	--	--	--	--	--	3.24E+09	--	--	3.49E-07
Fluoranthene	n	1.93E+00	5.97E-10	--	--	--	--	--	--	3.24E+09	--	--	1.44E-07
Fluorene	n	6.32E-02	1.76E-07	--	--	--	--	--	--	3.24E+09	3.60E+05	--	4.72E-09
2-Methylnaphthalene	n	4.67E-01	6.29E-06	--	--	--	--	--	--	3.24E+09	7.43E+04	--	3.49E-07
Naphthalene	c*	3.18E-01	5.35E-06	9.82E-10	3.40E-02	3.34E-11	2.75E-09	3.00E-03	9.17E-07	3.24E+09	5.94E+04	3.34E-11	9.64E-07
Phenanthrene	--	1.43E+00	4.42E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.94E+00	6.37E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	1.93E-07
Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	2.39E+01	3.51E-05	6.44E-09	5.70E-01	3.67E-09	--	--	--	3.24E+09	6.81E+05	5.60E-08	3.66E-03
Total						3.7E-09			7.7E-05			7.7E-08	5.9E-03

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Engineering/Maint of Way Employees (5)

Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	0.14	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	7.28E-10	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	2.04E-09	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Engineering/Maint of Way Employees (5)

Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	0.14	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	1.72E-10	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	4.82E-10	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Engineering/Maint of Way Employees (5)

Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	0.14	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	9.68E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	2.32E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.87E+01	4.09E-10	1.50E+00	6.14E-10	1.15E-09	3.00E-04	3.00E-02	3.82E-06
Barium	nm	2.10E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	7.24E-01	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	2.43E+00	--	--	--	4.95E-12	2.50E-05	1.00E-03	1.98E-07
Chromium (Total)	nm	3.12E+02	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.77E+01	--	--	--	--	3.00E-04	--	--
Copper	n	4.26E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	5.22E+04	--	--	--	--	7.00E-01	--	--
Lead	L	7.42E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.11E+03	--	--	--	--	9.60E-04	--	--
Mercury	ns	6.66E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	6.00E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	5.31E+00	--	--	--	--	5.00E-03	--	--
Silver	n	1.81E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	7.53E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	5.54E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.84E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	1.90E+00	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	4.33E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	4.71E-02	--	--	--	1.25E-11	6.00E-02	1.30E-01	2.08E-10
Acenaphthylene	--	1.68E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.06E-01	--	--	--	8.11E-11	3.00E-01	1.30E-01	2.70E-10
Benzo(a)pyrene	c	1.98E+00	1.88E-10	1.00E+00	1.88E-10	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.25E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.17E-01	--	--	--	3.10E-11	1.00E-03	1.30E-01	3.10E-08
Fluoranthene	n	1.93E+00	--	--	--	5.12E-10	4.00E-02	1.30E-01	1.28E-08
Fluorene	n	6.32E-02	--	--	--	1.67E-11	4.00E-02	1.30E-01	4.19E-10
2-Methylnaphthalene	n	4.67E-01	--	--	--	1.24E-10	4.00E-03	1.30E-01	3.09E-08
Naphthalene	c*	3.18E-01	--	--	--	8.43E-11	2.00E-02	1.30E-01	4.21E-09
Phenanthrene	--	1.43E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.94E+00	--	--	--	5.15E-10	3.00E-02	1.30E-01	1.72E-08
Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	2.39E+01	2.43E-09	2.00E+00	4.87E-09	6.82E-09	2.00E-05	1.40E-01	3.41E-04
Total					5.7E-09				3.4E-04

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	9.68E+03	--	--	--	4.66E-06	1.00E+00	4.66E-06
Antimony	n	2.32E+01	--	--	--	1.12E-08	4.00E-04	2.79E-05
Arsenic	cR	1.87E+01	1.93E-09	1.50E+00	2.90E-09	5.41E-09	3.00E-04	1.80E-05
Barium	nm	2.10E+02	--	--	--	1.01E-07	2.00E-01	5.05E-07
Beryllium	n	7.24E-01	--	--	--	3.49E-10	2.00E-03	1.74E-07
Cadmium (food, soil)	n	2.43E+00	--	--	--	1.17E-09	1.00E-03	1.17E-06
Chromium (Total)	nm	3.12E+02	--	--	--	1.50E-07	1.50E+00	1.00E-07
Cobalt	n	1.77E+01	--	--	--	8.52E-09	3.00E-04	2.84E-05
Copper	n	4.26E+02	--	--	--	2.05E-07	4.00E-02	5.13E-06
Iron	nm	5.22E+04	--	--	--	2.52E-05	7.00E-01	3.59E-05
Lead	L	7.42E+02	1.28E-07	8.50E-03	1.09E-09	--	--	--
Manganese	n	2.11E+03	--	--	--	1.02E-06	2.40E-02	4.23E-05
Mercury	ns	6.66E-01	--	--	--	3.21E-10	1.60E-04	2.00E-06
Nickel	n	6.00E+01	--	--	--	2.89E-08	2.00E-02	1.45E-06
Selenium	n	5.31E+00	--	--	--	2.56E-09	5.00E-03	5.11E-07
Silver	n	1.81E+00	--	--	--	8.73E-10	5.00E-03	1.75E-07
Thallium	n	7.53E+00	--	--	--	3.63E-09	1.00E-05	3.63E-04
Vanadium	n	5.54E+01	--	--	--	2.67E-08	5.00E-03	5.34E-06
Zinc	nm	3.84E+02	--	--	--	1.85E-07	3.00E-01	6.16E-07
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	1.90E+00	--	--	--	9.15E-10	8.00E-02	1.14E-08
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	4.33E-01	--	--	--	2.09E-10	2.00E-01	1.04E-09
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	4.71E-02	--	--	--	2.27E-11	6.00E-02	3.78E-10
Acenaphthylene	--	1.68E-01	--	--	--	--	--	--
Anthracene	nm	3.06E-01	--	--	--	1.47E-10	3.00E-01	4.91E-10
Benzo(a)pyrene	c	1.98E+00	3.41E-10	1.00E+00	3.41E-10	--	--	--
Benzo(g,h,i)perylene	--	8.25E-01	--	--	--	--	--	--
Dibenzofuran	n	1.17E-01	--	--	--	5.63E-11	1.00E-03	5.63E-08
Fluoranthene	n	1.93E+00	--	--	--	9.30E-10	4.00E-02	2.33E-08
Fluorene	n	6.32E-02	--	--	--	3.04E-11	4.00E-02	7.61E-10
2-Methylnaphthalene	n	4.67E-01	--	--	--	2.25E-10	4.00E-03	5.62E-08
Naphthalene	c*	3.18E-01	--	--	--	1.53E-10	2.00E-02	7.66E-09
Phenanthrene	--	1.43E+00	--	--	--	--	--	--
Pyrene	n	1.94E+00	--	--	--	9.35E-10	3.00E-02	3.12E-08
Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	2.39E+01	4.11E-09	2.00E+00	8.22E-09	1.15E-08	2.00E-05	5.75E-04
Total					1.3E-08			1.1E-03

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	9.68E+03	2.99E-06	--	--	--	3.84E-10	5.00E-03	7.68E-08	3.24E+09	--	--	4.74E-06
Antimony	n	2.32E+01	7.17E-09	--	--	--	--	--	--	3.24E+09	--	--	2.79E-05
Arsenic	cR	1.87E+01	5.79E-09	2.65E-13	4.30E+00	1.14E-12	7.43E-13	1.50E-05	4.95E-08	3.24E+09	--	3.51E-09	2.19E-05
Barium	nm	2.10E+02	6.48E-08	--	--	--	8.32E-12	5.00E-04	1.66E-08	3.24E+09	--	--	5.22E-07
Beryllium	n	7.24E-01	2.24E-10	1.03E-14	2.40E+00	2.46E-14	2.87E-14	2.00E-05	1.44E-09	3.24E+09	--	2.46E-14	1.76E-07
Cadmium (food, soil)	n	2.43E+00	7.51E-10	3.44E-14	1.80E+00	6.20E-14	9.64E-14	1.00E-05	9.64E-09	3.24E+09	--	6.20E-14	1.38E-06
Chromium (Total)	nm	3.12E+02	9.63E-08	--	--	--	--	--	--	3.24E+09	--	--	1.00E-07
Cobalt	n	1.77E+01	5.47E-09	2.51E-13	9.00E+00	2.26E-12	7.02E-13	6.00E-06	1.17E-07	3.24E+09	--	2.26E-12	2.85E-05
Copper	n	4.26E+02	1.32E-07	--	--	--	--	--	--	3.24E+09	--	--	5.13E-06
Iron	nm	5.22E+04	1.61E-05	--	--	--	--	--	--	3.24E+09	--	--	3.59E-05
Lead	L	7.42E+02	2.29E-07	1.05E-11	1.20E-02	1.26E-13	--	--	--	3.24E+09	--	1.09E-09	--
Manganese	n	2.11E+03	6.52E-07	--	--	--	8.37E-11	5.00E-05	1.67E-06	3.24E+09	--	--	4.40E-05
Mercury	ns	6.66E-01	3.96E-05	--	--	--	5.09E-09	3.00E-04	1.70E-05	3.24E+09	1.68E+04	--	1.90E-05
Nickel	n	6.00E+01	1.85E-08	8.50E-13	2.60E-01	2.21E-13	2.38E-12	9.00E-05	2.65E-08	3.24E+09	--	2.21E-13	1.47E-06
Selenium	n	5.31E+00	1.64E-09	--	--	--	2.11E-13	2.00E-02	1.05E-11	3.24E+09	--	--	5.11E-07
Silver	n	1.81E+00	5.60E-10	--	--	--	--	--	--	3.24E+09	--	--	1.75E-07
Thallium	n	7.53E+00	2.33E-09	--	--	--	--	--	--	3.24E+09	--	--	3.63E-04
Vanadium	n	5.54E+01	1.71E-08	--	--	--	2.20E-12	1.00E-04	2.20E-08	3.24E+09	--	--	5.36E-06
Zinc	nm	3.84E+02	1.19E-07	--	--	--	--	--	--	3.24E+09	--	--	6.16E-07
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	1.90E+00	6.29E-04	--	--	--	8.08E-08	5.00E+00	1.62E-08	3.24E+09	3.02E+03	--	2.76E-08
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	4.33E-01	7.89E-05	--	--	--	1.01E-08	1.00E-01	1.01E-07	3.24E+09	5.49E+03	--	1.02E-07
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	4.71E-02	2.62E-07	--	--	--	--	--	--	3.24E+09	1.80E+05	--	5.86E-10
Acenaphthylene	--	1.68E-01	5.19E-11	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.06E-01	4.56E-07	--	--	--	--	--	--	3.24E+09	6.71E+05	--	7.62E-10
Benzo(a)pyrene	c	1.98E+00	6.13E-10	2.81E-14	6.00E-01	1.69E-14	--	--	--	3.24E+09	--	5.29E-10	--
Benzo(g,h,i)perylene	--	8.25E-01	2.55E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.17E-01	3.61E-11	--	--	--	--	--	--	3.24E+09	--	--	8.73E-08
Fluoranthene	n	1.93E+00	5.97E-10	--	--	--	--	--	--	3.24E+09	--	--	3.61E-08
Fluorene	n	6.32E-02	1.76E-07	--	--	--	--	--	--	3.24E+09	3.60E+05	--	1.18E-09
2-Methylnaphthalene	n	4.67E-01	6.29E-06	--	--	--	--	--	--	3.24E+09	7.43E+04	--	8.72E-08
Naphthalene	c*	3.18E-01	5.35E-06	2.46E-10	3.40E-02	8.35E-12	6.88E-10	3.00E-03	2.29E-07	3.24E+09	5.94E+04	8.35E-12	2.41E-07
Phenanthrene	--	1.43E+00	4.42E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.94E+00	6.37E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	4.83E-08
Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	2.39E+01	3.51E-05	1.61E-09	5.70E-01	9.17E-10	--	--	--	3.24E+09	6.81E+05	1.40E-08	9.16E-04
Total						9.3E-10			1.9E-05			1.9E-08	1.5E-03

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Roadway Equipment Workers (5)
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	0.56	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	2.91E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	8.15E-09	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Roadway Equipment Workers (5)
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	0.56	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	6.88E-10	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	1.93E-09	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Roadway Equipment Workers (5)
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	0.56	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	9.68E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	2.32E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.87E+01	1.64E-09	1.50E+00	2.45E-09	4.58E-09	3.00E-04	3.00E-02	1.53E-05
Barium	nm	2.10E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	7.24E-01	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	2.43E+00	--	--	--	1.98E-11	2.50E-05	1.00E-03	7.92E-07
Chromium (Total)	nm	3.12E+02	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.77E+01	--	--	--	--	3.00E-04	--	--
Copper	n	4.26E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	5.22E+04	--	--	--	--	7.00E-01	--	--
Lead	L	7.42E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.11E+03	--	--	--	--	9.60E-04	--	--
Mercury	ns	6.66E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	6.00E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	5.31E+00	--	--	--	--	5.00E-03	--	--
Silver	n	1.81E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	7.53E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	5.54E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.84E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	1.90E+00	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	4.33E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	4.71E-02	--	--	--	4.99E-11	6.00E-02	1.30E-01	8.32E-10
Acenaphthylene	--	1.68E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.06E-01	--	--	--	3.24E-10	3.00E-01	1.30E-01	1.08E-09
Benzo(a)pyrene	c	1.98E+00	7.51E-10	1.00E+00	7.51E-10	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.25E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.17E-01	--	--	--	1.24E-10	1.00E-03	1.30E-01	1.24E-07
Fluoranthene	n	1.93E+00	--	--	--	2.05E-09	4.00E-02	1.30E-01	5.12E-08
Fluorene	n	6.32E-02	--	--	--	6.70E-11	4.00E-02	1.30E-01	1.67E-09
2-Methylnaphthalene	n	4.67E-01	--	--	--	4.95E-10	4.00E-03	1.30E-01	1.24E-07
Naphthalene	c*	3.18E-01	--	--	--	3.37E-10	2.00E-02	1.30E-01	1.69E-08
Phenanthrene	--	1.43E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.94E+00	--	--	--	2.06E-09	3.00E-02	1.30E-01	6.86E-08
Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	2.39E+01	9.74E-09	2.00E+00	1.95E-08	2.73E-08	2.00E-05	1.40E-01	1.36E-03
Total					2.3E-08				1.4E-03

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	9.68E+03	--	--	--	1.87E-05	1.00E+00	1.87E-05
Antimony	n	2.32E+01	--	--	--	4.47E-08	4.00E-04	1.12E-04
Arsenic	cR	1.87E+01	7.73E-09	1.50E+00	1.16E-08	2.16E-08	3.00E-04	7.22E-05
Barium	nm	2.10E+02	--	--	--	4.04E-07	2.00E-01	2.02E-06
Beryllium	n	7.24E-01	--	--	--	1.39E-09	2.00E-03	6.97E-07
Cadmium (food, soil)	n	2.43E+00	--	--	--	4.68E-09	1.00E-03	4.68E-06
Chromium (Total)	nm	3.12E+02	--	--	--	6.01E-07	1.50E+00	4.00E-07
Cobalt	n	1.77E+01	--	--	--	3.41E-08	3.00E-04	1.14E-04
Copper	n	4.26E+02	--	--	--	8.21E-07	4.00E-02	2.05E-05
Iron	nm	5.22E+04	--	--	--	1.01E-04	7.00E-01	1.44E-04
Lead	L	7.42E+02	5.11E-07	8.50E-03	4.34E-09	--	--	--
Manganese	n	2.11E+03	--	--	--	4.06E-06	2.40E-02	1.69E-04
Mercury	ns	6.66E-01	--	--	--	1.28E-09	1.60E-04	8.02E-06
Nickel	n	6.00E+01	--	--	--	1.16E-07	2.00E-02	5.78E-06
Selenium	n	5.31E+00	--	--	--	1.02E-08	5.00E-03	2.05E-06
Silver	n	1.81E+00	--	--	--	3.49E-09	5.00E-03	6.99E-07
Thallium	n	7.53E+00	--	--	--	1.45E-08	1.00E-05	1.45E-03
Vanadium	n	5.54E+01	--	--	--	1.07E-07	5.00E-03	2.14E-05
Zinc	nm	3.84E+02	--	--	--	7.39E-07	3.00E-01	2.46E-06
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	1.90E+00	--	--	--	3.66E-09	8.00E-02	4.58E-08
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	4.33E-01	--	--	--	8.34E-10	2.00E-01	4.17E-09
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	4.71E-02	--	--	--	9.07E-11	6.00E-02	1.51E-09
Acenaphthylene	--	1.68E-01	--	--	--	--	--	--
Anthracene	nm	3.06E-01	--	--	--	5.89E-10	3.00E-01	1.96E-09
Benzo(a)pyrene	c	1.98E+00	1.36E-09	1.00E+00	1.36E-09	--	--	--
Benzo(g,h,i)perylene	--	8.25E-01	--	--	--	--	--	--
Dibenzofuran	n	1.17E-01	--	--	--	2.25E-10	1.00E-03	2.25E-07
Fluoranthene	n	1.93E+00	--	--	--	3.72E-09	4.00E-02	9.30E-08
Fluorene	n	6.32E-02	--	--	--	1.22E-10	4.00E-02	3.04E-09
2-Methylnaphthalene	n	4.67E-01	--	--	--	9.00E-10	4.00E-03	2.25E-07
Naphthalene	c*	3.18E-01	--	--	--	6.13E-10	2.00E-02	3.06E-08
Phenanthrene	--	1.43E+00	--	--	--	--	--	--
Pyrene	n	1.94E+00	--	--	--	3.74E-09	3.00E-02	1.25E-07
Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	2.39E+01	1.64E-08	2.00E+00	3.29E-08	4.60E-08	2.00E-05	2.30E-03
Total					5.0E-08			4.5E-03

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	9.68E+03	2.99E-06	--	--	--	1.54E-09	5.00E-03	3.07E-07	3.24E+09	--	--	1.90E-05
Antimony	n	2.32E+01	7.17E-09	--	--	--	--	--	--	3.24E+09	--	--	1.12E-04
Arsenic	cR	1.87E+01	5.79E-09	1.06E-12	4.30E+00	4.56E-12	2.97E-12	1.50E-05	1.98E-07	3.24E+09	--	1.41E-08	8.76E-05
Barium	nm	2.10E+02	6.48E-08	--	--	--	3.33E-11	5.00E-04	6.66E-08	3.24E+09	--	--	2.09E-06
Beryllium	n	7.24E-01	2.24E-10	4.10E-14	2.40E+00	9.85E-14	1.15E-13	2.00E-05	5.74E-09	3.24E+09	--	9.85E-14	7.03E-07
Cadmium (food, soil)	n	2.43E+00	7.51E-10	1.38E-13	1.80E+00	2.48E-13	3.86E-13	1.00E-05	3.86E-08	3.24E+09	--	2.48E-13	5.51E-06
Chromium (Total)	nm	3.12E+02	9.63E-08	--	--	--	--	--	--	3.24E+09	--	--	4.00E-07
Cobalt	n	1.77E+01	5.47E-09	1.00E-12	9.00E+00	9.03E-12	2.81E-12	6.00E-06	4.68E-07	3.24E+09	--	9.03E-12	1.14E-04
Copper	n	4.26E+02	1.32E-07	--	--	--	--	--	--	3.24E+09	--	--	2.05E-05
Iron	nm	5.22E+04	1.61E-05	--	--	--	--	--	--	3.24E+09	--	--	1.44E-04
Lead	L	7.42E+02	2.29E-07	4.21E-11	1.20E-02	5.05E-13	--	--	--	3.24E+09	--	4.34E-09	--
Manganese	n	2.11E+03	6.52E-07	--	--	--	3.35E-10	5.00E-05	6.69E-06	3.24E+09	--	--	1.76E-04
Mercury	ns	6.66E-01	3.96E-05	--	--	--	2.04E-08	3.00E-04	6.79E-05	3.24E+09	1.68E+04	--	7.59E-05
Nickel	n	6.00E+01	1.85E-08	3.40E-12	2.60E-01	8.84E-13	9.53E-12	9.00E-05	1.06E-07	3.24E+09	--	8.84E-13	5.89E-06
Selenium	n	5.31E+00	1.64E-09	--	--	--	8.42E-13	2.00E-02	4.21E-11	3.24E+09	--	--	2.05E-06
Silver	n	1.81E+00	5.60E-10	--	--	--	--	--	--	3.24E+09	--	--	6.99E-07
Thallium	n	7.53E+00	2.33E-09	--	--	--	--	--	--	3.24E+09	--	--	1.45E-03
Vanadium	n	5.54E+01	1.71E-08	--	--	--	8.80E-12	1.00E-04	8.80E-08	3.24E+09	--	--	2.14E-05
Zinc	nm	3.84E+02	1.19E-07	--	--	--	--	--	--	3.24E+09	--	--	2.46E-06
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	1.90E+00	6.29E-04	--	--	--	3.23E-07	5.00E+00	6.46E-08	3.24E+09	3.02E+03	--	1.10E-07
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	4.33E-01	7.89E-05	--	--	--	4.05E-08	1.00E-01	4.05E-07	3.24E+09	5.49E+03	--	4.10E-07
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	4.71E-02	2.62E-07	--	--	--	--	--	--	3.24E+09	1.80E+05	--	2.34E-09
Acenaphthylene	--	1.68E-01	5.19E-11	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.06E-01	4.56E-07	--	--	--	--	--	--	3.24E+09	6.71E+05	--	3.05E-09
Benzo(a)pyrene	c	1.98E+00	6.13E-10	1.12E-13	6.00E-01	6.75E-14	--	--	--	3.24E+09	--	2.12E-09	--
Benzo(g,h,i)perylene	--	8.25E-01	2.55E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.17E-01	3.61E-11	--	--	--	--	--	--	3.24E+09	--	--	3.49E-07
Fluoranthene	n	1.93E+00	5.97E-10	--	--	--	--	--	--	3.24E+09	--	--	1.44E-07
Fluorene	n	6.32E-02	1.76E-07	--	--	--	--	--	--	3.24E+09	3.60E+05	--	4.72E-09
2-Methylnaphthalene	n	4.67E-01	6.29E-06	--	--	--	--	--	--	3.24E+09	7.43E+04	--	3.49E-07
Naphthalene	c*	3.18E-01	5.35E-06	9.82E-10	3.40E-02	3.34E-11	2.75E-09	3.00E-03	9.17E-07	3.24E+09	5.94E+04	3.34E-11	9.64E-07
Phenanthrene	--	1.43E+00	4.42E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.94E+00	6.37E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	1.93E-07
Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	2.39E+01	3.51E-05	6.44E-09	5.70E-01	3.67E-09	--	--	--	3.24E+09	6.81E+05	5.60E-08	3.66E-03
Total						3.7E-09			7.7E-05			7.7E-08	5.9E-03

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Maintenance Workers (5)
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	6	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	2.91E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	8.15E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Maintenance Workers (5)
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	6	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	6.88E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	1.93E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Maintenance Workers (5)
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	6	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	9.68E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	2.32E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.87E+01	1.64E-08	1.50E+00	2.45E-08	4.58E-08	3.00E-04	3.00E-02	1.53E-04
Barium	nm	2.10E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	7.24E-01	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	2.43E+00	--	--	--	1.98E-10	2.50E-05	1.00E-03	7.92E-06
Chromium (Total)	nm	3.12E+02	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.77E+01	--	--	--	--	3.00E-04	--	--
Copper	n	4.26E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	5.22E+04	--	--	--	--	7.00E-01	--	--
Lead	L	7.42E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.11E+03	--	--	--	--	9.60E-04	--	--
Mercury	ns	6.66E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	6.00E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	5.31E+00	--	--	--	--	5.00E-03	--	--
Silver	n	1.81E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	7.53E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	5.54E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.84E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	1.90E+00	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	4.33E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	4.71E-02	--	--	--	4.99E-10	6.00E-02	1.30E-01	8.32E-09
Acenaphthylene	--	1.68E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.06E-01	--	--	--	3.24E-09	3.00E-01	1.30E-01	1.08E-08
Benzo(a)pyrene	c	1.98E+00	7.51E-09	1.00E+00	7.51E-09	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.25E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.17E-01	--	--	--	1.24E-09	1.00E-03	1.30E-01	1.24E-06
Fluoranthene	n	1.93E+00	--	--	--	2.05E-08	4.00E-02	1.30E-01	5.12E-07
Fluorene	n	6.32E-02	--	--	--	6.70E-10	4.00E-02	1.30E-01	1.67E-08
2-Methylnaphthalene	n	4.67E-01	--	--	--	4.95E-09	4.00E-03	1.30E-01	1.24E-06
Naphthalene	c*	3.18E-01	--	--	--	3.37E-09	2.00E-02	1.30E-01	1.69E-07
Phenanthrene	--	1.43E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.94E+00	--	--	--	2.06E-08	3.00E-02	1.30E-01	6.86E-07
Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	2.39E+01	9.74E-08	2.00E+00	1.95E-07	2.73E-07	2.00E-05	1.40E-01	1.36E-02
Total					2.3E-07				1.4E-02

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	9.68E+03	--	--	--	1.87E-04	1.00E+00	1.87E-04
Antimony	n	2.32E+01	--	--	--	4.47E-07	4.00E-04	1.12E-03
Arsenic	cR	1.87E+01	7.73E-08	1.50E+00	1.16E-07	2.16E-07	3.00E-04	7.22E-04
Barium	nm	2.10E+02	--	--	--	4.04E-06	2.00E-01	2.02E-05
Beryllium	n	7.24E-01	--	--	--	1.39E-08	2.00E-03	6.97E-06
Cadmium (food, soil)	n	2.43E+00	--	--	--	4.68E-08	1.00E-03	4.68E-05
Chromium (Total)	nm	3.12E+02	--	--	--	6.01E-06	1.50E+00	4.00E-06
Cobalt	n	1.77E+01	--	--	--	3.41E-07	3.00E-04	1.14E-03
Copper	n	4.26E+02	--	--	--	8.21E-06	4.00E-02	2.05E-04
Iron	nm	5.22E+04	--	--	--	1.01E-03	7.00E-01	1.44E-03
Lead	L	7.42E+02	5.11E-06	8.50E-03	4.34E-08	--	--	--
Manganese	n	2.11E+03	--	--	--	4.06E-05	2.40E-02	1.69E-03
Mercury	ns	6.66E-01	--	--	--	1.28E-08	1.60E-04	8.02E-05
Nickel	n	6.00E+01	--	--	--	1.16E-06	2.00E-02	5.78E-05
Selenium	n	5.31E+00	--	--	--	1.02E-07	5.00E-03	2.05E-05
Silver	n	1.81E+00	--	--	--	3.49E-08	5.00E-03	6.99E-06
Thallium	n	7.53E+00	--	--	--	1.45E-07	1.00E-05	1.45E-02
Vanadium	n	5.54E+01	--	--	--	1.07E-06	5.00E-03	2.14E-04
Zinc	nm	3.84E+02	--	--	--	7.39E-06	3.00E-01	2.46E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	1.90E+00	--	--	--	3.66E-08	8.00E-02	4.58E-07
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	4.33E-01	--	--	--	8.34E-09	2.00E-01	4.17E-08
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	4.71E-02	--	--	--	9.07E-10	6.00E-02	1.51E-08
Acenaphthylene	--	1.68E-01	--	--	--	--	--	--
Anthracene	nm	3.06E-01	--	--	--	5.89E-09	3.00E-01	1.96E-08
Benzo(a)pyrene	c	1.98E+00	1.36E-08	1.00E+00	1.36E-08	--	--	--
Benzo(g,h,i)perylene	--	8.25E-01	--	--	--	--	--	--
Dibenzofuran	n	1.17E-01	--	--	--	2.25E-09	1.00E-03	2.25E-06
Fluoranthene	n	1.93E+00	--	--	--	3.72E-08	4.00E-02	9.30E-07
Fluorene	n	6.32E-02	--	--	--	1.22E-09	4.00E-02	3.04E-08
2-Methylnaphthalene	n	4.67E-01	--	--	--	9.00E-09	4.00E-03	2.25E-06
Naphthalene	c*	3.18E-01	--	--	--	6.13E-09	2.00E-02	3.06E-07
Phenanthrene	--	1.43E+00	--	--	--	--	--	--
Pyrene	n	1.94E+00	--	--	--	3.74E-08	3.00E-02	1.25E-06
Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	2.39E+01	1.64E-07	2.00E+00	3.29E-07	4.60E-07	2.00E-05	2.30E-02
Total					5.0E-07			4.5E-02

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	9.68E+03	2.99E-06	--	--	--	1.54E-08	5.00E-03	3.07E-06	3.24E+09	--	--	1.90E-04
Antimony	n	2.32E+01	7.17E-09	--	--	--	--	--	--	3.24E+09	--	--	1.12E-03
Arsenic	cR	1.87E+01	5.79E-09	1.06E-11	4.30E+00	4.56E-11	2.97E-11	1.50E-05	1.98E-06	3.24E+09	--	1.41E-07	8.76E-04
Barium	nm	2.10E+02	6.48E-08	--	--	--	3.33E-10	5.00E-04	6.66E-07	3.24E+09	--	--	2.09E-05
Beryllium	n	7.24E-01	2.24E-10	4.10E-13	2.40E+00	9.85E-13	1.15E-12	2.00E-05	5.74E-08	3.24E+09	--	9.85E-13	7.03E-06
Cadmium (food, soil)	n	2.43E+00	7.51E-10	1.38E-12	1.80E+00	2.48E-12	3.86E-12	1.00E-05	3.86E-07	3.24E+09	--	2.48E-12	5.51E-05
Chromium (Total)	nm	3.12E+02	9.63E-08	--	--	--	--	--	--	3.24E+09	--	--	4.00E-06
Cobalt	n	1.77E+01	5.47E-09	1.00E-11	9.00E+00	9.03E-11	2.81E-11	6.00E-06	4.68E-06	3.24E+09	--	9.03E-11	1.14E-03
Copper	n	4.26E+02	1.32E-07	--	--	--	--	--	--	3.24E+09	--	--	2.05E-04
Iron	nm	5.22E+04	1.61E-05	--	--	--	--	--	--	3.24E+09	--	--	1.44E-03
Lead	L	7.42E+02	2.29E-07	4.21E-10	1.20E-02	5.05E-12	--	--	--	3.24E+09	--	4.34E-08	--
Manganese	n	2.11E+03	6.52E-07	--	--	--	3.35E-09	5.00E-05	6.69E-05	3.24E+09	--	--	1.76E-03
Mercury	ns	6.66E-01	3.96E-05	--	--	--	2.04E-07	3.00E-04	6.79E-04	3.24E+09	1.68E+04	--	7.59E-04
Nickel	n	6.00E+01	1.85E-08	3.40E-11	2.60E-01	8.84E-12	9.53E-11	9.00E-05	1.06E-06	3.24E+09	--	8.84E-12	5.89E-05
Selenium	n	5.31E+00	1.64E-09	--	--	--	8.42E-12	2.00E-02	4.21E-10	3.24E+09	--	--	2.05E-05
Silver	n	1.81E+00	5.60E-10	--	--	--	--	--	--	3.24E+09	--	--	6.99E-06
Thallium	n	7.53E+00	2.33E-09	--	--	--	--	--	--	3.24E+09	--	--	1.45E-02
Vanadium	n	5.54E+01	1.71E-08	--	--	--	8.80E-11	1.00E-04	8.80E-07	3.24E+09	--	--	2.14E-04
Zinc	nm	3.84E+02	1.19E-07	--	--	--	--	--	--	3.24E+09	--	--	2.46E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	1.90E+00	6.29E-04	--	--	--	3.23E-06	5.00E+00	6.46E-07	3.24E+09	3.02E+03	--	1.10E-06
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	4.33E-01	7.89E-05	--	--	--	4.05E-07	1.00E-01	4.05E-06	3.24E+09	5.49E+03	--	4.10E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	4.71E-02	2.62E-07	--	--	--	--	--	--	3.24E+09	1.80E+05	--	2.34E-08
Acenaphthylene	--	1.68E-01	5.19E-11	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.06E-01	4.56E-07	--	--	--	--	--	--	3.24E+09	6.71E+05	--	3.05E-08
Benzo(a)pyrene	c	1.98E+00	6.13E-10	1.12E-12	6.00E-01	6.75E-13	--	--	--	3.24E+09	--	2.12E-08	--
Benzo(g,h,i)perylene	--	8.25E-01	2.55E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.17E-01	3.61E-11	--	--	--	--	--	--	3.24E+09	--	--	3.49E-06
Fluoranthene	n	1.93E+00	5.97E-10	--	--	--	--	--	--	3.24E+09	--	--	1.44E-06
Fluorene	n	6.32E-02	1.76E-07	--	--	--	--	--	--	3.24E+09	3.60E+05	--	4.72E-08
2-Methylnaphthalene	n	4.67E-01	6.29E-06	--	--	--	--	--	--	3.24E+09	7.43E+04	--	3.49E-06
Naphthalene	c*	3.18E-01	5.35E-06	9.82E-09	3.40E-02	3.34E-10	2.75E-08	3.00E-03	9.17E-06	3.24E+09	5.94E+04	3.34E-10	9.64E-06
Phenanthrene	--	1.43E+00	4.42E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.94E+00	6.37E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	1.93E-06
Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	2.39E+01	3.51E-05	6.44E-08	5.70E-01	3.67E-08	--	--	--	3.24E+09	6.81E+05	5.60E-07	3.66E-02
Total						3.7E-08			7.7E-04			7.7E-07	5.9E-02

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Mechanical Employees (5)
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	2	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.16E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	3.26E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Mechanical Employees (5)
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	2	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	2.75E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	7.71E-09	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Mechanical Employees (5)
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	2	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	9.68E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	2.32E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.87E+01	6.54E-09	1.50E+00	9.82E-09	1.83E-08	3.00E-04	3.00E-02	6.11E-05
Barium	nm	2.10E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	7.24E-01	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	2.43E+00	--	--	--	7.92E-11	2.50E-05	1.00E-03	3.17E-06
Chromium (Total)	nm	3.12E+02	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.77E+01	--	--	--	--	3.00E-04	--	--
Copper	n	4.26E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	5.22E+04	--	--	--	--	7.00E-01	--	--
Lead	L	7.42E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.11E+03	--	--	--	--	9.60E-04	--	--
Mercury	ns	6.66E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	6.00E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	5.31E+00	--	--	--	--	5.00E-03	--	--
Silver	n	1.81E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	7.53E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	5.54E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.84E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	1.90E+00	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	4.33E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	4.71E-02	--	--	--	2.00E-10	6.00E-02	1.30E-01	3.33E-09
Acenaphthylene	--	1.68E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.06E-01	--	--	--	1.30E-09	3.00E-01	1.30E-01	4.32E-09
Benzo(a)pyrene	c	1.98E+00	3.00E-09	1.00E+00	3.00E-09	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.25E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.17E-01	--	--	--	4.96E-10	1.00E-03	1.30E-01	4.96E-07
Fluoranthene	n	1.93E+00	--	--	--	8.19E-09	4.00E-02	1.30E-01	2.05E-07
Fluorene	n	6.32E-02	--	--	--	2.68E-10	4.00E-02	1.30E-01	6.70E-09
2-Methylnaphthalene	n	4.67E-01	--	--	--	1.98E-09	4.00E-03	1.30E-01	4.95E-07
Naphthalene	c*	3.18E-01	--	--	--	1.35E-09	2.00E-02	1.30E-01	6.74E-08
Phenanthrene	--	1.43E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.94E+00	--	--	--	8.23E-09	3.00E-02	1.30E-01	2.74E-07
Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	2.39E+01	3.90E-08	2.00E+00	7.79E-08	1.09E-07	2.00E-05	1.40E-01	5.45E-03
Total					9.1E-08				5.5E-03

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	9.68E+03	--	--	--	7.46E-05	1.00E+00	7.46E-05
Antimony	n	2.32E+01	--	--	--	1.79E-07	4.00E-04	4.47E-04
Arsenic	cR	1.87E+01	3.09E-08	1.50E+00	4.64E-08	8.66E-08	3.00E-04	2.89E-04
Barium	nm	2.10E+02	--	--	--	1.62E-06	2.00E-01	8.08E-06
Beryllium	n	7.24E-01	--	--	--	5.58E-09	2.00E-03	2.79E-06
Cadmium (food, soil)	n	2.43E+00	--	--	--	1.87E-08	1.00E-03	1.87E-05
Chromium (Total)	nm	3.12E+02	--	--	--	2.40E-06	1.50E+00	1.60E-06
Cobalt	n	1.77E+01	--	--	--	1.36E-07	3.00E-04	4.55E-04
Copper	n	4.26E+02	--	--	--	3.29E-06	4.00E-02	8.21E-05
Iron	nm	5.22E+04	--	--	--	4.03E-04	7.00E-01	5.75E-04
Lead	L	7.42E+02	2.04E-06	8.50E-03	1.74E-08	--	--	--
Manganese	n	2.11E+03	--	--	--	1.63E-05	2.40E-02	6.77E-04
Mercury	ns	6.66E-01	--	--	--	5.13E-09	1.60E-04	3.21E-05
Nickel	n	6.00E+01	--	--	--	4.62E-07	2.00E-02	2.31E-05
Selenium	n	5.31E+00	--	--	--	4.09E-08	5.00E-03	8.18E-06
Silver	n	1.81E+00	--	--	--	1.40E-08	5.00E-03	2.79E-06
Thallium	n	7.53E+00	--	--	--	5.80E-08	1.00E-05	5.80E-03
Vanadium	n	5.54E+01	--	--	--	4.27E-07	5.00E-03	8.54E-05
Zinc	nm	3.84E+02	--	--	--	2.96E-06	3.00E-01	9.86E-06
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	1.90E+00	--	--	--	1.46E-08	8.00E-02	1.83E-07
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	4.33E-01	--	--	--	3.34E-09	2.00E-01	1.67E-08
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	4.71E-02	--	--	--	3.63E-10	6.00E-02	6.05E-09
Acenaphthylene	--	1.68E-01	--	--	--	--	--	--
Anthracene	nm	3.06E-01	--	--	--	2.36E-09	3.00E-01	7.86E-09
Benzo(a)pyrene	c	1.98E+00	5.46E-09	1.00E+00	5.46E-09	--	--	--
Benzo(g,h,i)perylene	--	8.25E-01	--	--	--	--	--	--
Dibenzofuran	n	1.17E-01	--	--	--	9.02E-10	1.00E-03	9.02E-07
Fluoranthene	n	1.93E+00	--	--	--	1.49E-08	4.00E-02	3.72E-07
Fluorene	n	6.32E-02	--	--	--	4.87E-10	4.00E-02	1.22E-08
2-Methylnaphthalene	n	4.67E-01	--	--	--	3.60E-09	4.00E-03	9.00E-07
Naphthalene	c*	3.18E-01	--	--	--	2.45E-09	2.00E-02	1.23E-07
Phenanthrene	--	1.43E+00	--	--	--	--	--	--
Pyrene	n	1.94E+00	--	--	--	1.50E-08	3.00E-02	4.99E-07
Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	2.39E+01	6.57E-08	2.00E+00	1.31E-07	1.84E-07	2.00E-05	9.20E-03
Total					2.0E-07			1.8E-02

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	9.68E+03	2.99E-06	--	--	--	6.15E-09	5.00E-03	1.23E-06	3.24E+09	--	--	7.58E-05
Antimony	n	2.32E+01	7.17E-09	--	--	--	--	--	--	3.24E+09	--	--	4.47E-04
Arsenic	cR	1.87E+01	5.79E-09	4.25E-12	4.30E+00	1.83E-11	1.19E-11	1.50E-05	7.93E-07	3.24E+09	--	5.62E-08	3.51E-04
Barium	nm	2.10E+02	6.48E-08	--	--	--	1.33E-10	5.00E-04	2.66E-07	3.24E+09	--	--	8.35E-06
Beryllium	n	7.24E-01	2.24E-10	1.64E-13	2.40E+00	3.94E-13	4.60E-13	2.00E-05	2.30E-08	3.24E+09	--	3.94E-13	2.81E-06
Cadmium (food, soil)	n	2.43E+00	7.51E-10	5.51E-13	1.80E+00	9.92E-13	1.54E-12	1.00E-05	1.54E-07	3.24E+09	--	9.92E-13	2.20E-05
Chromium (Total)	nm	3.12E+02	9.63E-08	--	--	--	--	--	--	3.24E+09	--	--	1.60E-06
Cobalt	n	1.77E+01	5.47E-09	4.01E-12	9.00E+00	3.61E-11	1.12E-11	6.00E-06	1.87E-06	3.24E+09	--	3.61E-11	4.56E-04
Copper	n	4.26E+02	1.32E-07	--	--	--	--	--	--	3.24E+09	--	--	8.21E-05
Iron	nm	5.22E+04	1.61E-05	--	--	--	--	--	--	3.24E+09	--	--	5.75E-04
Lead	L	7.42E+02	2.29E-07	1.68E-10	1.20E-02	2.02E-12	--	--	--	3.24E+09	--	1.74E-08	--
Manganese	n	2.11E+03	6.52E-07	--	--	--	1.34E-09	5.00E-05	2.68E-05	3.24E+09	--	--	7.04E-04
Mercury	ns	6.66E-01	3.96E-05	--	--	--	8.14E-08	3.00E-04	2.71E-04	3.24E+09	1.68E+04	--	3.04E-04
Nickel	n	6.00E+01	1.85E-08	1.36E-11	2.60E-01	3.54E-12	3.81E-11	9.00E-05	4.23E-07	3.24E+09	--	3.54E-12	2.35E-05
Selenium	n	5.31E+00	1.64E-09	--	--	--	3.37E-12	2.00E-02	1.68E-10	3.24E+09	--	--	8.18E-06
Silver	n	1.81E+00	5.60E-10	--	--	--	--	--	--	3.24E+09	--	--	2.79E-06
Thallium	n	7.53E+00	2.33E-09	--	--	--	--	--	--	3.24E+09	--	--	5.80E-03
Vanadium	n	5.54E+01	1.71E-08	--	--	--	3.52E-11	1.00E-04	3.52E-07	3.24E+09	--	--	8.58E-05
Zinc	nm	3.84E+02	1.19E-07	--	--	--	--	--	--	3.24E+09	--	--	9.86E-06
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	1.90E+00	6.29E-04	--	--	--	1.29E-06	5.00E+00	2.59E-07	3.24E+09	3.02E+03	--	4.42E-07
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	4.33E-01	7.89E-05	--	--	--	1.62E-07	1.00E-01	1.62E-06	3.24E+09	5.49E+03	--	1.64E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	4.71E-02	2.62E-07	--	--	--	--	--	--	3.24E+09	1.80E+05	--	9.38E-09
Acenaphthylene	--	1.68E-01	5.19E-11	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.06E-01	4.56E-07	--	--	--	--	--	--	3.24E+09	6.71E+05	--	1.22E-08
Benzo(a)pyrene	c	1.98E+00	6.13E-10	4.50E-13	6.00E-01	2.70E-13	--	--	--	3.24E+09	--	8.46E-09	--
Benzo(g,h,i)perylene	--	8.25E-01	2.55E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.17E-01	3.61E-11	--	--	--	--	--	--	3.24E+09	--	--	1.40E-06
Fluoranthene	n	1.93E+00	5.97E-10	--	--	--	--	--	--	3.24E+09	--	--	5.77E-07
Fluorene	n	6.32E-02	1.76E-07	--	--	--	--	--	--	3.24E+09	3.60E+05	--	1.89E-08
2-Methylnaphthalene	n	4.67E-01	6.29E-06	--	--	--	--	--	--	3.24E+09	7.43E+04	--	1.39E-06
Naphthalene	c*	3.18E-01	5.35E-06	3.93E-09	3.40E-02	1.34E-10	1.10E-08	3.00E-03	3.67E-06	3.24E+09	5.94E+04	1.34E-10	3.86E-06
Phenanthrene	--	1.43E+00	4.42E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.94E+00	6.37E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	7.73E-07
Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	2.39E+01	3.51E-05	2.57E-08	5.70E-01	1.47E-08	--	--	--	3.24E+09	6.81E+05	2.24E-07	1.47E-02
Total						1.5E-08			3.1E-04			3.1E-07	2.4E-02

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Forklift Operator (S)

Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	6.8	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	3.49E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	9.78E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Forklift Operator (S)

Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	6.8	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	8.26E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	2.31E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Forklift Operator (S)

Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	6.8	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	9.68E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	2.32E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.87E+01	1.96E-08	1.50E+00	2.95E-08	5.50E-08	3.00E-04	3.00E-02	1.83E-04
Barium	nm	2.10E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	7.24E-01	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	2.43E+00	--	--	--	2.38E-10	2.50E-05	1.00E-03	9.51E-06
Chromium (Total)	nm	3.12E+02	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.77E+01	--	--	--	--	3.00E-04	--	--
Copper	n	4.26E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	5.22E+04	--	--	--	--	7.00E-01	--	--
Lead	L	7.42E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.11E+03	--	--	--	--	9.60E-04	--	--
Mercury	ns	6.66E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	6.00E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	5.31E+00	--	--	--	--	5.00E-03	--	--
Silver	n	1.81E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	7.53E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	5.54E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.84E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	1.90E+00	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	4.33E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	4.71E-02	--	--	--	5.99E-10	6.00E-02	1.30E-01	9.98E-09
Acenaphthylene	--	1.68E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.06E-01	--	--	--	3.89E-09	3.00E-01	1.30E-01	1.30E-08
Benzo(a)pyrene	c	1.98E+00	9.01E-09	1.00E+00	9.01E-09	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.25E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.17E-01	--	--	--	1.49E-09	1.00E-03	1.30E-01	1.49E-06
Fluoranthene	n	1.93E+00	--	--	--	2.46E-08	4.00E-02	1.30E-01	6.14E-07
Fluorene	n	6.32E-02	--	--	--	8.04E-10	4.00E-02	1.30E-01	2.01E-08
2-Methylnaphthalene	n	4.67E-01	--	--	--	5.94E-09	4.00E-03	1.30E-01	1.48E-06
Naphthalene	c*	3.18E-01	--	--	--	4.04E-09	2.00E-02	1.30E-01	2.02E-07
Phenanthrene	--	1.43E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.94E+00	--	--	--	2.47E-08	3.00E-02	1.30E-01	8.23E-07
Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	2.39E+01	1.17E-07	2.00E+00	2.34E-07	3.27E-07	2.00E-05	1.40E-01	1.64E-02
Total					2.7E-07				1.7E-02

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	9.68E+03	--	--	--	2.24E-04	1.00E+00	2.24E-04
Antimony	n	2.32E+01	--	--	--	5.37E-07	4.00E-04	1.34E-03
Arsenic	cR	1.87E+01	9.28E-08	1.50E+00	1.39E-07	2.60E-07	3.00E-04	8.66E-04
Barium	nm	2.10E+02	--	--	--	4.85E-06	2.00E-01	2.42E-05
Beryllium	n	7.24E-01	--	--	--	1.67E-08	2.00E-03	8.37E-06
Cadmium (food, soil)	n	2.43E+00	--	--	--	5.62E-08	1.00E-03	5.62E-05
Chromium (Total)	nm	3.12E+02	--	--	--	7.21E-06	1.50E+00	4.81E-06
Cobalt	n	1.77E+01	--	--	--	4.09E-07	3.00E-04	1.36E-03
Copper	n	4.26E+02	--	--	--	9.86E-06	4.00E-02	2.46E-04
Iron	nm	5.22E+04	--	--	--	1.21E-03	7.00E-01	1.73E-03
Lead	L	7.42E+02	6.13E-06	8.50E-03	5.21E-08	--	--	--
Manganese	n	2.11E+03	--	--	--	4.88E-05	2.40E-02	2.03E-03
Mercury	ns	6.66E-01	--	--	--	1.54E-08	1.60E-04	9.62E-05
Nickel	n	6.00E+01	--	--	--	1.39E-06	2.00E-02	6.94E-05
Selenium	n	5.31E+00	--	--	--	1.23E-07	5.00E-03	2.45E-05
Silver	n	1.81E+00	--	--	--	4.19E-08	5.00E-03	8.38E-06
Thallium	n	7.53E+00	--	--	--	1.74E-07	1.00E-05	1.74E-02
Vanadium	n	5.54E+01	--	--	--	1.28E-06	5.00E-03	2.56E-04
Zinc	nm	3.84E+02	--	--	--	8.87E-06	3.00E-01	2.96E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	1.90E+00	--	--	--	4.39E-08	8.00E-02	5.49E-07
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	4.33E-01	--	--	--	1.00E-08	2.00E-01	5.00E-08
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	4.71E-02	--	--	--	1.09E-09	6.00E-02	1.81E-08
Acenaphthylene	--	1.68E-01	--	--	--	--	--	--
Anthracene	nm	3.06E-01	--	--	--	7.07E-09	3.00E-01	2.36E-08
Benzo(a)pyrene	c	1.98E+00	1.64E-08	1.00E+00	1.64E-08	--	--	--
Benzo(g,h,i)perylene	--	8.25E-01	--	--	--	--	--	--
Dibenzofuran	n	1.17E-01	--	--	--	2.70E-09	1.00E-03	2.70E-06
Fluoranthene	n	1.93E+00	--	--	--	4.47E-08	4.00E-02	1.12E-06
Fluorene	n	6.32E-02	--	--	--	1.46E-09	4.00E-02	3.65E-08
2-Methylnaphthalene	n	4.67E-01	--	--	--	1.08E-08	4.00E-03	2.70E-06
Naphthalene	c*	3.18E-01	--	--	--	7.35E-09	2.00E-02	3.68E-07
Phenanthrene	--	1.43E+00	--	--	--	--	--	--
Pyrene	n	1.94E+00	--	--	--	4.49E-08	3.00E-02	1.50E-06
Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	2.39E+01	1.97E-07	2.00E+00	3.94E-07	5.52E-07	2.00E-05	2.76E-02
Total					6.0E-07			5.3E-02

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	9.68E+03	2.99E-06	--	--	--	1.84E-08	5.00E-03	3.69E-06	3.24E+09	--	--	2.28E-04
Antimony	n	2.32E+01	7.17E-09	--	--	--	--	--	--	3.24E+09	--	--	1.34E-03
Arsenic	cR	1.87E+01	5.79E-09	1.27E-11	4.30E+00	5.48E-11	3.57E-11	1.50E-05	2.38E-06	3.24E+09	--	1.69E-07	1.05E-03
Barium	nm	2.10E+02	6.48E-08	--	--	--	4.00E-10	5.00E-04	7.99E-07	3.24E+09	--	--	2.50E-05
Beryllium	n	7.24E-01	2.24E-10	4.92E-13	2.40E+00	1.18E-12	1.38E-12	2.00E-05	6.89E-08	3.24E+09	--	1.18E-12	8.44E-06
Cadmium (food, soil)	n	2.43E+00	7.51E-10	1.65E-12	1.80E+00	2.97E-12	4.63E-12	1.00E-05	4.63E-07	3.24E+09	--	2.97E-12	6.61E-05
Chromium (Total)	nm	3.12E+02	9.63E-08	--	--	--	--	--	--	3.24E+09	--	--	4.81E-06
Cobalt	n	1.77E+01	5.47E-09	1.20E-11	9.00E+00	1.08E-10	3.37E-11	6.00E-06	5.62E-06	3.24E+09	--	1.08E-10	1.37E-03
Copper	n	4.26E+02	1.32E-07	--	--	--	--	--	--	3.24E+09	--	--	2.46E-04
Iron	nm	5.22E+04	1.61E-05	--	--	--	--	--	--	3.24E+09	--	--	1.73E-03
Lead	L	7.42E+02	2.29E-07	5.05E-10	1.20E-02	6.06E-12	--	--	--	3.24E+09	--	5.21E-08	--
Manganese	n	2.11E+03	6.52E-07	--	--	--	4.02E-09	5.00E-05	8.03E-05	3.24E+09	--	--	2.11E-03
Mercury	ns	6.66E-01	3.96E-05	--	--	--	2.44E-07	3.00E-04	8.14E-04	3.24E+09	1.68E+04	--	9.11E-04
Nickel	n	6.00E+01	1.85E-08	4.08E-11	2.60E-01	1.06E-11	1.14E-10	9.00E-05	1.27E-06	3.24E+09	--	1.06E-11	7.06E-05
Selenium	n	5.31E+00	1.64E-09	--	--	--	1.01E-11	2.00E-02	5.05E-10	3.24E+09	--	--	2.45E-05
Silver	n	1.81E+00	5.60E-10	--	--	--	--	--	--	3.24E+09	--	--	8.38E-06
Thallium	n	7.53E+00	2.33E-09	--	--	--	--	--	--	3.24E+09	--	--	1.74E-02
Vanadium	n	5.54E+01	1.71E-08	--	--	--	1.06E-10	1.00E-04	1.06E-06	3.24E+09	--	--	2.57E-04
Zinc	nm	3.84E+02	1.19E-07	--	--	--	--	--	--	3.24E+09	--	--	2.96E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	1.90E+00	6.29E-04	--	--	--	3.88E-06	5.00E+00	7.76E-07	3.24E+09	3.02E+03	--	1.32E-06
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	4.33E-01	7.89E-05	--	--	--	4.86E-07	1.00E-01	4.86E-06	3.24E+09	5.49E+03	--	4.91E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	4.71E-02	2.62E-07	--	--	--	--	--	--	3.24E+09	1.80E+05	--	2.81E-08
Acenaphthylene	--	1.68E-01	5.19E-11	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.06E-01	4.56E-07	--	--	--	--	--	--	3.24E+09	6.71E+05	--	3.66E-08
Benzo(a)pyrene	c	1.98E+00	6.13E-10	1.35E-12	6.00E-01	8.10E-13	--	--	--	3.24E+09	--	2.54E-08	--
Benzo(g,h,i)perylene	--	8.25E-01	2.55E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.17E-01	3.61E-11	--	--	--	--	--	--	3.24E+09	--	--	4.19E-06
Fluoranthene	n	1.93E+00	5.97E-10	--	--	--	--	--	--	3.24E+09	--	--	1.73E-06
Fluorene	n	6.32E-02	1.76E-07	--	--	--	--	--	--	3.24E+09	3.60E+05	--	5.66E-08
2-Methylnaphthalene	n	4.67E-01	6.29E-06	--	--	--	--	--	--	3.24E+09	7.43E+04	--	4.18E-06
Naphthalene	c*	3.18E-01	5.35E-06	1.18E-08	3.40E-02	4.01E-10	3.30E-08	3.00E-03	1.10E-05	3.24E+09	5.94E+04	4.01E-10	1.16E-05
Phenanthrene	--	1.43E+00	4.42E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.94E+00	6.37E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	2.32E-06
Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	2.39E+01	3.51E-05	7.72E-08	5.70E-01	4.40E-08	--	--	--	3.24E+09	6.81E+05	6.72E-07	4.40E-02
Total						4.5E-08			9.3E-04			9.2E-07	7.1E-02

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Grounds Maintenance Worker (6)
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	2	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.04E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	2.90E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Grounds Maintenance Worker (6)
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	2	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	2.45E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	6.85E-09	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Grounds Maintenance Worker (6)
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	2	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	2.78E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	9.14E+00	--	--	--	--	6.00E-05	--	--
Arsenic	cR	2.22E+01	6.90E-09	1.50E+00	1.03E-08	1.93E-08	3.00E-04	3.00E-02	6.44E-05
Barium	nm	2.24E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	1.27E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	1.21E+00	--	--	--	3.51E-11	2.50E-05	1.00E-03	1.40E-06
Chromium (Total)	nm	7.18E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.76E+01	--	--	--	--	3.00E-04	--	--
Copper	n	2.88E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	6.95E+04	--	--	--	--	7.00E-01	--	--
Lead	L	1.95E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	6.07E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	2.95E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	8.93E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	--	--	--	--	--	5.00E-03	--	--
Silver	n	6.26E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	9.29E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	6.95E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.30E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	--	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	2.20E+00	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.88E+00	--	--	--	7.08E-09	6.00E-02	1.30E-01	1.18E-07
Acenaphthylene	--	1.11E+01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	1.81E+01	--	--	--	6.82E-08	3.00E-01	1.30E-01	2.27E-07
Benzo(a)pyrene	c	2.16E+01	2.90E-08	1.00E+00	2.90E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	1.98E+01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.53E+00	--	--	--	5.77E-09	1.00E-03	1.30E-01	5.77E-06
Fluoranthene	n	6.06E+01	--	--	--	2.29E-07	4.00E-02	1.30E-01	5.71E-06
Fluorene	n	3.58E+00	--	--	--	1.35E-08	4.00E-02	1.30E-01	3.37E-07
2-Methylnaphthalene	n	1.25E+00	--	--	--	4.72E-09	4.00E-03	1.30E-01	1.18E-06
Naphthalene	c*	9.92E-01	--	--	--	3.74E-09	2.00E-02	1.30E-01	1.87E-07
Phenanthrene	--	3.22E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	5.77E+01	--	--	--	2.18E-07	3.00E-02	1.30E-01	7.25E-06
Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	1.91E+01	2.76E-08	2.00E+00	5.53E-08	7.74E-08	2.00E-05	1.40E-01	3.87E-03
Total					9.5E-08				4.0E-03

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	2.78E+04	--	--	--	1.90E-04	1.00E+00	1.90E-04
Antimony	n	9.14E+00	--	--	--	6.26E-08	4.00E-04	1.57E-04
Arsenic	cR	2.22E+01	3.26E-08	1.50E+00	4.89E-08	9.13E-08	3.00E-04	3.04E-04
Barium	nm	2.24E+02	--	--	--	1.54E-06	2.00E-01	7.68E-06
Beryllium	n	1.27E+00	--	--	--	8.67E-09	2.00E-03	4.34E-06
Cadmium (food, soil)	n	1.21E+00	--	--	--	8.29E-09	1.00E-03	8.29E-06
Chromium (Total)	nm	7.18E+01	--	--	--	4.92E-07	1.50E+00	3.28E-07
Cobalt	n	1.76E+01	--	--	--	1.20E-07	3.00E-04	4.01E-04
Copper	n	2.88E+02	--	--	--	1.97E-06	4.00E-02	4.93E-05
Iron	nm	6.95E+04	--	--	--	4.76E-04	7.00E-01	6.80E-04
Lead	L	1.95E+02	4.77E-07	8.50E-03	4.05E-09	--	--	--
Manganese	n	6.07E+02	--	--	--	4.16E-06	2.40E-02	1.73E-04
Mercury	ns	2.95E-01	--	--	--	2.02E-09	1.60E-04	1.26E-05
Nickel	n	8.93E+01	--	--	--	6.12E-07	2.00E-02	3.06E-05
Selenium	n	--	--	--	--	--	5.00E-03	--
Silver	n	6.26E+00	--	--	--	4.29E-08	5.00E-03	8.58E-06
Thallium	n	9.29E+00	--	--	--	6.36E-08	1.00E-05	6.36E-03
Vanadium	n	6.95E+01	--	--	--	4.76E-07	5.00E-03	9.52E-05
Zinc	nm	3.30E+02	--	--	--	2.26E-06	3.00E-01	7.53E-06
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	--	--	--	--	--	8.00E-02	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	2.20E+00	--	--	--	1.51E-08	2.00E-01	7.53E-08
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.88E+00	--	--	--	1.29E-08	6.00E-02	2.14E-07
Acenaphthylene	--	1.11E+01	--	--	--	--	--	--
Anthracene	nm	1.81E+01	--	--	--	1.24E-07	3.00E-01	4.13E-07
Benzo(a)pyrene	c	2.16E+01	5.27E-08	1.00E+00	5.27E-08	--	--	--
Benzo(g,h,i)perylene	--	1.98E+01	--	--	--	--	--	--
Dibenzofuran	n	1.53E+00	--	--	--	1.05E-08	1.00E-03	1.05E-05
Fluoranthene	n	6.06E+01	--	--	--	4.15E-07	4.00E-02	1.04E-05
Fluorene	n	3.58E+00	--	--	--	2.45E-08	4.00E-02	6.13E-07
2-Methylnaphthalene	n	1.25E+00	--	--	--	8.58E-09	4.00E-03	2.15E-06
Naphthalene	c*	9.92E-01	--	--	--	6.79E-09	2.00E-02	3.40E-07
Phenanthrene	--	3.22E+01	--	--	--	--	--	--
Pyrene	n	5.77E+01	--	--	--	3.95E-07	3.00E-02	1.32E-05
Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	1.91E+01	4.66E-08	2.00E+00	9.32E-08	1.31E-07	2.00E-05	6.53E-03
Total					2.0E-07			1.5E-02

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	2.78E+04	8.58E-06	--	--	--	1.57E-08	5.00E-03	3.13E-06	3.24E+09	--	--	1.93E-04
Antimony	n	9.14E+00	2.82E-09	--	--	--	--	--	--	3.24E+09	--	--	1.57E-04
Arsenic	cR	2.22E+01	6.86E-09	4.48E-12	4.30E+00	1.92E-11	1.25E-11	1.50E-05	8.35E-07	3.24E+09	--	5.93E-08	3.69E-04
Barium	nm	2.24E+02	6.93E-08	--	--	--	1.27E-10	5.00E-04	2.53E-07	3.24E+09	--	--	7.94E-06
Beryllium	n	1.27E+00	3.91E-10	2.55E-13	2.40E+00	6.12E-13	7.14E-13	2.00E-05	3.57E-08	3.24E+09	--	6.12E-13	4.37E-06
Cadmium (food, soil)	n	1.21E+00	3.74E-10	2.44E-13	1.80E+00	4.39E-13	6.83E-13	1.00E-05	6.83E-08	3.24E+09	--	4.39E-13	9.76E-06
Chromium (Total)	nm	7.18E+01	2.22E-08	--	--	--	--	--	--	3.24E+09	--	--	3.28E-07
Cobalt	n	1.76E+01	5.42E-09	3.54E-12	9.00E+00	3.18E-11	9.91E-12	6.00E-06	1.65E-06	3.24E+09	--	3.18E-11	4.03E-04
Copper	n	2.88E+02	8.90E-08	--	--	--	--	--	--	3.24E+09	--	--	4.93E-05
Iron	nm	6.95E+04	2.15E-05	--	--	--	--	--	--	3.24E+09	--	--	6.80E-04
Lead	L	1.95E+02	6.02E-08	3.93E-11	1.20E-02	4.71E-13	--	--	--	3.24E+09	--	4.05E-09	--
Manganese	n	6.07E+02	1.88E-07	--	--	--	3.43E-10	5.00E-05	6.85E-06	3.24E+09	--	--	1.80E-04
Mercury	ns	2.95E-01	1.76E-05	--	--	--	3.21E-08	3.00E-04	1.07E-04	3.24E+09	1.68E+04	--	1.20E-04
Nickel	n	8.93E+01	2.76E-08	1.80E-11	2.60E-01	4.68E-12	5.04E-11	9.00E-05	5.60E-07	3.24E+09	--	4.68E-12	3.11E-05
Selenium	n	--	0.00E+00	--	--	--	--	2.00E-02	--	3.24E+09	--	--	--
Silver	n	6.26E+00	1.94E-09	--	--	--	--	--	--	3.24E+09	--	--	8.58E-06
Thallium	n	9.29E+00	2.87E-09	--	--	--	--	--	--	3.24E+09	--	--	6.36E-03
Vanadium	n	6.95E+01	2.15E-08	--	--	--	3.92E-11	1.00E-04	3.92E-07	3.24E+09	--	--	9.56E-05
Zinc	nm	3.30E+02	1.02E-07	--	--	--	--	--	--	3.24E+09	--	--	7.53E-06
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	2.20E+00	4.01E-04	--	--	--	7.32E-07	1.00E-01	7.32E-06	3.24E+09	5.49E+03	--	7.40E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.88E+00	1.04E-05	--	--	--	--	--	--	3.24E+09	1.80E+05	--	3.32E-07
Acenaphthylene	--	1.11E+01	3.44E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	1.81E+01	2.70E-05	--	--	--	--	--	--	3.24E+09	6.71E+05	--	6.40E-07
Benzo(a)pyrene	c	2.16E+01	6.66E-09	4.34E-12	6.00E-01	2.61E-12	--	--	--	3.24E+09	--	8.17E-08	--
Benzo(g,h,i)perylene	--	1.98E+01	6.11E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.53E+00	4.73E-10	--	--	--	--	--	--	3.24E+09	--	--	1.63E-05
Fluoranthene	n	6.06E+01	1.87E-08	--	--	--	--	--	--	3.24E+09	--	--	1.61E-05
Fluorene	n	3.58E+00	9.95E-06	--	--	--	--	--	--	3.24E+09	3.60E+05	--	9.51E-07
2-Methylnaphthalene	n	1.25E+00	1.69E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	3.33E-06
Naphthalene	c*	9.92E-01	1.67E-05	1.09E-08	3.40E-02	3.70E-10	3.05E-08	3.00E-03	1.02E-05	3.24E+09	5.94E+04	3.70E-10	1.07E-05
Phenanthrene	--	3.22E+01	9.95E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	5.77E+01	1.89E-05	--	--	--	--	--	--	3.24E+09	3.05E+06	--	2.04E-05
Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	1.91E+01	2.80E-05	1.83E-08	5.70E-01	1.04E-08	--	--	--	3.24E+09	6.81E+05	1.59E-07	1.04E-02
Total						1.1E-08			1.4E-04			3.0E-07	1.9E-02

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Engineering/Maintenance of Way Employee (6)

Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	23	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.16E-07	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	3.26E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: gineering/Maintenance of Way Employee (6)

Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	23	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	2.75E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	7.71E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: gineering/Maintenance of Way Employee (6)

Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	23	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	2.78E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	9.14E+00	--	--	--	--	6.00E-05	--	--
Arsenic	cR	2.22E+01	7.76E-08	1.50E+00	1.16E-07	2.17E-07	3.00E-04	3.00E-02	7.24E-04
Barium	nm	2.24E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	1.27E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	1.21E+00	--	--	--	3.95E-10	2.50E-05	1.00E-03	1.58E-05
Chromium (Total)	nm	7.18E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.76E+01	--	--	--	--	3.00E-04	--	--
Copper	n	2.88E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	6.95E+04	--	--	--	--	7.00E-01	--	--
Lead	L	1.95E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	6.07E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	2.95E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	8.93E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	--	--	--	--	--	5.00E-03	--	--
Silver	n	6.26E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	9.29E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	6.95E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.30E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	--	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	2.20E+00	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.88E+00	--	--	--	7.96E-08	6.00E-02	1.30E-01	1.33E-06
Acenaphthylene	--	1.11E+01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	1.81E+01	--	--	--	7.67E-07	3.00E-01	1.30E-01	2.56E-06
Benzo(a)pyrene	c	2.16E+01	3.26E-07	1.00E+00	3.26E-07	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	1.98E+01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.53E+00	--	--	--	6.49E-08	1.00E-03	1.30E-01	6.49E-05
Fluoranthene	n	6.06E+01	--	--	--	2.57E-06	4.00E-02	1.30E-01	6.43E-05
Fluorene	n	3.58E+00	--	--	--	1.52E-07	4.00E-02	1.30E-01	3.80E-06
2-Methylnaphthalene	n	1.25E+00	--	--	--	5.31E-08	4.00E-03	1.30E-01	1.33E-05
Naphthalene	c*	9.92E-01	--	--	--	4.21E-08	2.00E-02	1.30E-01	2.10E-06
Phenanthrene	--	3.22E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	5.77E+01	--	--	--	2.45E-06	3.00E-02	1.30E-01	8.16E-05
Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	1.91E+01	3.11E-07	2.00E+00	6.22E-07	8.70E-07	2.00E-05	1.40E-01	4.35E-02
Total					1.1E-06				4.4E-02

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	2.78E+04	--	--	--	2.14E-03	1.00E+00	2.14E-03
Antimony	n	9.14E+00	--	--	--	7.04E-07	4.00E-04	1.76E-03
Arsenic	cR	2.22E+01	3.67E-07	1.50E+00	5.50E-07	1.03E-06	3.00E-04	3.42E-03
Barium	nm	2.24E+02	--	--	--	1.73E-05	2.00E-01	8.65E-05
Beryllium	n	1.27E+00	--	--	--	9.76E-08	2.00E-03	4.88E-05
Cadmium (food, soil)	n	1.21E+00	--	--	--	9.32E-08	1.00E-03	9.32E-05
Chromium (Total)	nm	7.18E+01	--	--	--	5.53E-06	1.50E+00	3.69E-06
Cobalt	n	1.76E+01	--	--	--	1.35E-06	3.00E-04	4.51E-03
Copper	n	2.88E+02	--	--	--	2.22E-05	4.00E-02	5.55E-04
Iron	nm	6.95E+04	--	--	--	5.35E-03	7.00E-01	7.65E-03
Lead	L	1.95E+02	5.36E-06	8.50E-03	4.56E-08	--	--	--
Manganese	n	6.07E+02	--	--	--	4.68E-05	2.40E-02	1.95E-03
Mercury	ns	2.95E-01	--	--	--	2.27E-08	1.60E-04	1.42E-04
Nickel	n	8.93E+01	--	--	--	6.88E-06	2.00E-02	3.44E-04
Selenium	n	--	--	--	--	--	5.00E-03	--
Silver	n	6.26E+00	--	--	--	4.83E-07	5.00E-03	9.65E-05
Thallium	n	9.29E+00	--	--	--	7.16E-07	1.00E-05	7.16E-02
Vanadium	n	6.95E+01	--	--	--	5.36E-06	5.00E-03	1.07E-03
Zinc	nm	3.30E+02	--	--	--	2.54E-05	3.00E-01	8.47E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	--	--	--	--	--	8.00E-02	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	2.20E+00	--	--	--	1.70E-07	2.00E-01	8.48E-07
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.88E+00	--	--	--	1.45E-07	6.00E-02	2.41E-06
Acenaphthylene	--	1.11E+01	--	--	--	--	--	--
Anthracene	nm	1.81E+01	--	--	--	1.39E-06	3.00E-01	4.65E-06
Benzo(a)pyrene	c	2.16E+01	5.93E-07	1.00E+00	5.93E-07	--	--	--
Benzo(g,h,i)perylene	--	1.98E+01	--	--	--	--	--	--
Dibenzofuran	n	1.53E+00	--	--	--	1.18E-07	1.00E-03	1.18E-04
Fluoranthene	n	6.06E+01	--	--	--	4.67E-06	4.00E-02	1.17E-04
Fluorene	n	3.58E+00	--	--	--	2.76E-07	4.00E-02	6.90E-06
2-Methylnaphthalene	n	1.25E+00	--	--	--	9.65E-08	4.00E-03	2.41E-05
Naphthalene	c*	9.92E-01	--	--	--	7.64E-08	2.00E-02	3.82E-06
Phenanthrene	--	3.22E+01	--	--	--	--	--	--
Pyrene	n	5.77E+01	--	--	--	4.45E-06	3.00E-02	1.48E-04
Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	1.91E+01	5.25E-07	2.00E+00	1.05E-06	1.47E-06	2.00E-05	7.34E-02
Total					2.2E-06			1.7E-01

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	2.78E+04	8.58E-06	--	--	--	1.76E-07	5.00E-03	3.53E-05	3.24E+09	--	--	2.18E-03
Antimony	n	9.14E+00	2.82E-09	--	--	--	--	--	--	3.24E+09	--	--	1.76E-03
Arsenic	cR	2.22E+01	6.86E-09	5.04E-11	4.30E+00	2.17E-10	1.41E-10	1.50E-05	9.40E-06	3.24E+09	--	6.67E-07	4.16E-03
Barium	nm	2.24E+02	6.93E-08	--	--	--	1.42E-09	5.00E-04	2.85E-06	3.24E+09	--	--	8.93E-05
Beryllium	n	1.27E+00	3.91E-10	2.87E-12	2.40E+00	6.89E-12	8.04E-12	2.00E-05	4.02E-07	3.24E+09	--	6.89E-12	4.92E-05
Cadmium (food, soil)	n	1.21E+00	3.74E-10	2.74E-12	1.80E+00	4.94E-12	7.68E-12	1.00E-05	7.68E-07	3.24E+09	--	4.94E-12	1.10E-04
Chromium (Total)	nm	7.18E+01	2.22E-08	--	--	--	--	--	--	3.24E+09	--	--	3.69E-06
Cobalt	n	1.76E+01	5.42E-09	3.98E-11	9.00E+00	3.58E-10	1.11E-10	6.00E-06	1.86E-05	3.24E+09	--	3.58E-10	4.53E-03
Copper	n	2.88E+02	8.90E-08	--	--	--	--	--	--	3.24E+09	--	--	5.55E-04
Iron	nm	6.95E+04	2.15E-05	--	--	--	--	--	--	3.24E+09	--	--	7.65E-03
Lead	L	1.95E+02	6.02E-08	4.42E-10	1.20E-02	5.30E-12	--	--	--	3.24E+09	--	4.56E-08	--
Manganese	n	6.07E+02	1.88E-07	--	--	--	3.86E-09	5.00E-05	7.71E-05	3.24E+09	--	--	2.03E-03
Mercury	ns	2.95E-01	1.76E-05	--	--	--	3.61E-07	3.00E-04	1.20E-03	3.24E+09	1.68E+04	--	1.34E-03
Nickel	n	8.93E+01	2.76E-08	2.03E-10	2.60E-01	5.27E-11	5.67E-10	9.00E-05	6.30E-06	3.24E+09	--	5.27E-11	3.50E-04
Selenium	n	--	0.00E+00	--	--	--	--	2.00E-02	--	3.24E+09	--	--	--
Silver	n	6.26E+00	1.94E-09	--	--	--	--	--	--	3.24E+09	--	--	9.65E-05
Thallium	n	9.29E+00	2.87E-09	--	--	--	--	--	--	3.24E+09	--	--	7.16E-02
Vanadium	n	6.95E+01	2.15E-08	--	--	--	4.41E-10	1.00E-04	4.41E-06	3.24E+09	--	--	1.08E-03
Zinc	nm	3.30E+02	1.02E-07	--	--	--	--	--	--	3.24E+09	--	--	8.47E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	2.20E+00	4.01E-04	--	--	--	8.24E-06	1.00E-01	8.24E-05	3.24E+09	5.49E+03	--	8.32E-05
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.88E+00	1.04E-05	--	--	--	--	--	--	3.24E+09	1.80E+05	--	3.74E-06
Acenaphthylene	--	1.11E+01	3.44E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	1.81E+01	2.70E-05	--	--	--	--	--	--	3.24E+09	6.71E+05	--	7.20E-06
Benzo(a)pyrene	c	2.16E+01	6.66E-09	4.89E-11	6.00E-01	2.93E-11	--	--	--	3.24E+09	--	9.19E-07	--
Benzo(g,h,i)perylene	--	1.98E+01	6.11E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.53E+00	4.73E-10	--	--	--	--	--	--	3.24E+09	--	--	1.83E-04
Fluoranthene	n	6.06E+01	1.87E-08	--	--	--	--	--	--	3.24E+09	--	--	1.81E-04
Fluorene	n	3.58E+00	9.95E-06	--	--	--	--	--	--	3.24E+09	3.60E+05	--	1.07E-05
2-Methylnaphthalene	n	1.25E+00	1.69E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	3.74E-05
Naphthalene	c*	9.92E-01	1.67E-05	1.23E-07	3.40E-02	4.17E-09	3.43E-07	3.00E-03	1.14E-04	3.24E+09	5.94E+04	4.17E-09	1.20E-04
Phenanthrene	--	3.22E+01	9.95E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	5.77E+01	1.89E-05	--	--	--	--	--	--	3.24E+09	3.05E+06	--	2.30E-04
Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	1.91E+01	2.80E-05	2.05E-07	5.70E-01	1.17E-07	--	--	--	3.24E+09	6.81E+05	1.79E-06	1.17E-01
Total						1.2E-07			1.6E-03			3.4E-06	2.2E-01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Roadway Equipment Worker (7)

Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	6	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	2.91E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	8.15E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Roadway Equipment Worker (7)

Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	6	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	6.88E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	1.93E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Roadway Equipment Worker (7)

Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	6	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	1.02E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	5.81E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	3.79E+01	3.31E-08	1.50E+00	4.96E-08	9.26E-08	3.00E-04	3.00E-02	3.09E-04
Barium	nm	1.26E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	2.10E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	--	--	--	--	--	2.50E-05	1.00E-03	--
Chromium (Total)	nm	3.83E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	7.43E+00	--	--	--	--	3.00E-04	--	--
Copper	n	2.12E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	3.69E+04	--	--	--	--	7.00E-01	--	--
Lead	L	3.49E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.30E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	3.37E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	3.06E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	1.02E+01	--	--	--	--	5.00E-03	--	--
Silver	n	3.76E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	--	--	--	--	--	1.00E-05	--	--
Vanadium	n	3.37E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	1.34E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	3.30E+02	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	1.50E+01	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	--	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	4.70E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.09E-01	--	--	--	1.16E-09	6.00E-02	1.30E-01	1.93E-08
Acenaphthylene	--	3.22E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	5.08E-01	--	--	--	5.38E-09	3.00E-01	1.30E-01	1.79E-08
Benzo(a)pyrene	c	1.83E+00	6.92E-09	1.00E+00	6.92E-09	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.37E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	4.58E-01	--	--	--	4.85E-09	1.00E-03	1.30E-01	4.85E-06
Fluoranthene	n	1.99E+00	--	--	--	2.11E-08	4.00E-02	1.30E-01	5.27E-07
Fluorene	n	1.39E-01	--	--	--	1.47E-09	4.00E-02	1.30E-01	3.68E-08
2-Methylnaphthalene	n	1.15E+00	--	--	--	1.22E-08	4.00E-03	1.30E-01	3.05E-06
Naphthalene	c*	7.50E-01	--	--	--	7.95E-09	2.00E-02	1.30E-01	3.97E-07
Phenanthrene	--	2.11E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.75E+00	--	--	--	1.85E-08	3.00E-02	1.30E-01	6.17E-07
Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	4.64E+03	1.89E-05	2.00E+00	3.78E-05	5.29E-05	2.00E-05	1.40E-01	2.65E+00
Total					3.8E-05				2.6E+00

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	1.02E+04	--	--	--	1.97E-04	1.00E+00	1.97E-04
Antimony	n	5.81E+01	--	--	--	1.12E-06	4.00E-04	2.80E-03
Arsenic	cR	3.79E+01	1.56E-07	1.50E+00	2.34E-07	4.38E-07	3.00E-04	1.46E-03
Barium	nm	1.26E+02	--	--	--	2.42E-06	2.00E-01	1.21E-05
Beryllium	n	2.10E+00	--	--	--	4.05E-08	2.00E-03	2.02E-05
Cadmium (food, soil)	n	--	--	--	--	--	1.00E-03	--
Chromium (Total)	nm	3.83E+01	--	--	--	7.38E-07	1.50E+00	4.92E-07
Cobalt	n	7.43E+00	--	--	--	1.43E-07	3.00E-04	4.77E-04
Copper	n	2.12E+02	--	--	--	4.09E-06	4.00E-02	1.02E-04
Iron	nm	3.69E+04	--	--	--	7.10E-04	7.00E-01	1.01E-03
Lead	L	3.49E+02	2.40E-06	8.50E-03	2.04E-08	--	--	--
Manganese	n	2.30E+02	--	--	--	4.43E-06	2.40E-02	1.85E-04
Mercury	ns	3.37E-01	--	--	--	6.49E-09	1.60E-04	4.06E-05
Nickel	n	3.06E+01	--	--	--	5.89E-07	2.00E-02	2.94E-05
Selenium	n	1.02E+01	--	--	--	1.96E-07	5.00E-03	3.93E-05
Silver	n	3.76E+00	--	--	--	7.24E-08	5.00E-03	1.45E-05
Thallium	n	--	--	--	--	--	1.00E-05	--
Vanadium	n	3.37E+01	--	--	--	6.48E-07	5.00E-03	1.30E-04
Zinc	nm	1.34E+02	--	--	--	2.58E-06	3.00E-01	8.60E-06
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	3.30E+02	2.27E-06	5.40E-03	1.23E-08	6.36E-06	7.00E-02	9.08E-05
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	1.50E+01	1.03E-07	1.60E+00	1.65E-07	2.89E-07	8.00E-04	3.61E-04
Toluene	ns	--	--	--	--	--	8.00E-02	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	4.70E-01	--	--	--	9.05E-09	2.00E-01	4.53E-08
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.09E-01	--	--	--	2.10E-09	6.00E-02	3.50E-08
Acenaphthylene	--	3.22E-01	--	--	--	--	--	--
Anthracene	nm	5.08E-01	--	--	--	9.79E-09	3.00E-01	3.26E-08
Benzo(a)pyrene	c	1.83E+00	1.26E-08	1.00E+00	1.26E-08	--	--	--
Benzo(g,h,i)perylene	--	8.37E-01	--	--	--	--	--	--
Dibenzofuran	n	4.58E-01	--	--	--	8.82E-09	1.00E-03	8.82E-06
Fluoranthene	n	1.99E+00	--	--	--	3.83E-08	4.00E-02	9.58E-07
Fluorene	n	1.39E-01	--	--	--	2.68E-09	4.00E-02	6.69E-08
2-Methylnaphthalene	n	1.15E+00	--	--	--	2.22E-08	4.00E-03	5.54E-06
Naphthalene	c*	7.50E-01	--	--	--	1.44E-08	2.00E-02	7.22E-07
Phenanthrene	--	2.11E+00	--	--	--	--	--	--
Pyrene	n	1.75E+00	--	--	--	3.36E-08	3.00E-02	1.12E-06
Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	4.64E+03	3.19E-05	2.00E+00	6.38E-05	8.93E-05	2.00E-05	4.47E+00
Total					6.4E-05			4.5E+00

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	1.02E+04	3.16E-06	--	--	--	1.62E-08	5.00E-03	3.24E-06	3.24E+09	--	--	2.00E-04
Antimony	n	5.81E+01	1.80E-08	--	--	--	--	--	--	3.24E+09	--	--	2.80E-03
Arsenic	cR	3.79E+01	1.17E-08	2.15E-11	4.30E+00	9.23E-11	6.01E-11	1.50E-05	4.01E-06	3.24E+09	--	2.84E-07	1.77E-03
Barium	nm	1.26E+02	3.88E-08	--	--	--	1.99E-10	5.00E-04	3.99E-07	3.24E+09	--	--	1.25E-05
Beryllium	n	2.10E+00	6.49E-10	1.19E-12	2.40E+00	2.86E-12	3.33E-12	2.00E-05	1.67E-07	3.24E+09	--	2.86E-12	2.04E-05
Cadmium (food, soil)	n	--	0.00E+00	--	1.80E+00	--	--	1.00E-05	--	3.24E+09	--	--	--
Chromium (Total)	nm	3.83E+01	1.18E-08	--	--	--	--	--	--	3.24E+09	--	--	4.92E-07
Cobalt	n	7.43E+00	2.30E-09	4.21E-12	9.00E+00	3.79E-11	1.18E-11	6.00E-06	1.96E-06	3.24E+09	--	3.79E-11	4.79E-04
Copper	n	2.12E+02	6.56E-08	--	--	--	--	--	--	3.24E+09	--	--	1.02E-04
Iron	nm	3.69E+04	1.14E-05	--	--	--	--	--	--	3.24E+09	--	--	1.01E-03
Lead	L	3.49E+02	1.08E-07	1.98E-10	1.20E-02	2.38E-12	--	--	--	3.24E+09	--	2.04E-08	--
Manganese	n	2.30E+02	7.11E-08	--	--	--	3.65E-10	5.00E-05	7.30E-06	3.24E+09	--	--	1.92E-04
Mercury	ns	3.37E-01	2.01E-05	--	--	--	1.03E-07	3.00E-04	3.43E-04	3.24E+09	1.68E+04	--	3.84E-04
Nickel	n	3.06E+01	9.44E-09	1.73E-11	2.60E-01	4.50E-12	4.85E-11	9.00E-05	5.39E-07	3.24E+09	--	4.50E-12	3.00E-05
Selenium	n	1.02E+01	3.15E-09	--	--	--	1.62E-11	2.00E-02	8.09E-10	3.24E+09	--	--	3.93E-05
Silver	n	3.76E+00	1.16E-09	--	--	--	--	--	--	3.24E+09	--	--	1.45E-05
Thallium	n	--	0.00E+00	--	--	--	--	--	--	3.24E+09	--	--	--
Vanadium	n	3.37E+01	1.04E-08	--	--	--	5.34E-11	1.00E-04	5.34E-07	3.24E+09	--	--	1.30E-04
Zinc	nm	1.34E+02	4.14E-08	--	--	--	--	--	--	3.24E+09	--	--	8.60E-06
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	3.30E+02	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	1.23E-08	9.08E-05
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	1.50E+01	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	1.65E-07	3.61E-04
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	4.70E-01	8.57E-05	--	--	--	4.40E-07	1.00E-01	4.40E-06	3.24E+09	5.49E+03	--	4.45E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.09E-01	6.06E-07	--	--	--	--	--	--	3.24E+09	1.80E+05	--	5.43E-08
Acenaphthylene	--	3.22E-01	9.95E-11	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	5.08E-01	7.57E-07	--	--	--	--	--	--	3.24E+09	6.71E+05	--	5.06E-08
Benzo(a)pyrene	c	1.83E+00	5.64E-10	1.04E-12	6.00E-01	6.21E-13	--	--	--	3.24E+09	--	1.95E-08	--
Benzo(g,h,i)perylene	--	8.37E-01	2.59E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	4.58E-01	1.41E-10	--	--	--	--	--	--	3.24E+09	--	--	1.37E-05
Fluoranthene	n	1.99E+00	6.15E-10	--	--	--	--	--	--	3.24E+09	--	--	1.49E-06
Fluorene	n	1.39E-01	3.86E-07	--	--	--	--	--	--	3.24E+09	3.60E+05	--	1.04E-07
2-Methylnaphthalene	n	1.15E+00	1.55E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	8.59E-06
Naphthalene	c*	7.50E-01	1.26E-05	2.32E-08	3.40E-02	7.88E-10	6.49E-08	3.00E-03	2.16E-05	3.24E+09	5.94E+04	7.88E-10	2.27E-05
Phenanthrene	--	2.11E+00	6.51E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.75E+00	5.73E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	1.74E-06
Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	4.64E+03	6.81E-03	1.25E-05	5.70E-01	7.12E-06	--	--	--	3.24E+09	6.81E+05	1.09E-04	7.11E+00
Total						7.1E-06			3.9E-04			1.1E-04	7.1E+00

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Track Maintenance Worker (7)

Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	3	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.55E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	4.35E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Track Maintenance Worker (7)

Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	3	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	3.67E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	1.03E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Track Maintenance Worker (7)

Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	3	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	1.02E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	5.81E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	3.79E+01	1.76E-08	1.50E+00	2.65E-08	4.94E-08	3.00E-04	3.00E-02	1.65E-04
Barium	nm	1.26E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	2.10E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	--	--	--	--	--	2.50E-05	1.00E-03	--
Chromium (Total)	nm	3.83E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	7.43E+00	--	--	--	--	3.00E-04	--	--
Copper	n	2.12E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	3.69E+04	--	--	--	--	7.00E-01	--	--
Lead	L	3.49E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.30E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	3.37E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	3.06E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	1.02E+01	--	--	--	--	5.00E-03	--	--
Silver	n	3.76E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	--	--	--	--	--	1.00E-05	--	--
Vanadium	n	3.37E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	1.34E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	3.30E+02	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	1.50E+01	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	--	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	4.70E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.09E-01	--	--	--	6.16E-10	6.00E-02	1.30E-01	1.03E-08
Acenaphthylene	--	3.22E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	5.08E-01	--	--	--	2.87E-09	3.00E-01	1.30E-01	9.57E-09
Benzo(a)pyrene	c	1.83E+00	3.69E-09	1.00E+00	3.69E-09	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.37E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	4.58E-01	--	--	--	2.59E-09	1.00E-03	1.30E-01	2.59E-06
Fluoranthene	n	1.99E+00	--	--	--	1.12E-08	4.00E-02	1.30E-01	2.81E-07
Fluorene	n	1.39E-01	--	--	--	7.86E-10	4.00E-02	1.30E-01	1.96E-08
2-Methylnaphthalene	n	1.15E+00	--	--	--	6.50E-09	4.00E-03	1.30E-01	1.63E-06
Naphthalene	c*	7.50E-01	--	--	--	4.24E-09	2.00E-02	1.30E-01	2.12E-07
Phenanthrene	--	2.11E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.75E+00	--	--	--	9.86E-09	3.00E-02	1.30E-01	3.29E-07
Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	4.64E+03	1.01E-05	2.00E+00	2.02E-05	2.82E-05	2.00E-05	1.40E-01	1.41E+00
Total					2.0E-05				1.4E+00

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	1.02E+04	--	--	--	1.05E-04	1.00E+00	1.05E-04
Antimony	n	5.81E+01	--	--	--	5.97E-07	4.00E-04	1.49E-03
Arsenic	cR	3.79E+01	8.34E-08	1.50E+00	1.25E-07	2.33E-07	3.00E-04	7.78E-04
Barium	nm	1.26E+02	--	--	--	1.29E-06	2.00E-01	6.45E-06
Beryllium	n	2.10E+00	--	--	--	2.16E-08	2.00E-03	1.08E-05
Cadmium (food, soil)	n	--	--	--	--	--	1.00E-03	--
Chromium (Total)	nm	3.83E+01	--	--	--	3.93E-07	1.50E+00	2.62E-07
Cobalt	n	7.43E+00	--	--	--	7.63E-08	3.00E-04	2.54E-04
Copper	n	2.12E+02	--	--	--	2.18E-06	4.00E-02	5.46E-05
Iron	nm	3.69E+04	--	--	--	3.79E-04	7.00E-01	5.41E-04
Lead	L	3.49E+02	1.28E-06	8.50E-03	1.09E-08	--	--	--
Manganese	n	2.30E+02	--	--	--	2.36E-06	2.40E-02	9.85E-05
Mercury	ns	3.37E-01	--	--	--	3.46E-09	1.60E-04	2.16E-05
Nickel	n	3.06E+01	--	--	--	3.14E-07	2.00E-02	1.57E-05
Selenium	n	1.02E+01	--	--	--	1.05E-07	5.00E-03	2.10E-05
Silver	n	3.76E+00	--	--	--	3.86E-08	5.00E-03	7.73E-06
Thallium	n	--	--	--	--	--	1.00E-05	--
Vanadium	n	3.37E+01	--	--	--	3.46E-07	5.00E-03	6.91E-05
Zinc	nm	1.34E+02	--	--	--	1.38E-06	3.00E-01	4.59E-06
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	3.30E+02	1.21E-06	5.40E-03	6.54E-09	3.39E-06	7.00E-02	4.84E-05
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	1.50E+01	5.50E-08	1.60E+00	8.81E-08	1.54E-07	8.00E-04	1.93E-04
Toluene	ns	--	--	--	--	--	8.00E-02	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	4.70E-01	--	--	--	4.83E-09	2.00E-01	2.41E-08
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.09E-01	--	--	--	1.12E-09	6.00E-02	1.87E-08
Acenaphthylene	--	3.22E-01	--	--	--	--	--	--
Anthracene	nm	5.08E-01	--	--	--	5.22E-09	3.00E-01	1.74E-08
Benzo(a)pyrene	c	1.83E+00	6.70E-09	1.00E+00	6.70E-09	--	--	--
Benzo(g,h,i)perylene	--	8.37E-01	--	--	--	--	--	--
Dibenzofuran	n	4.58E-01	--	--	--	4.71E-09	1.00E-03	4.71E-06
Fluoranthene	n	1.99E+00	--	--	--	2.04E-08	4.00E-02	5.11E-07
Fluorene	n	1.39E-01	--	--	--	1.43E-09	4.00E-02	3.57E-08
2-Methylnaphthalene	n	1.15E+00	--	--	--	1.18E-08	4.00E-03	2.95E-06
Naphthalene	c*	7.50E-01	--	--	--	7.71E-09	2.00E-02	3.85E-07
Phenanthrene	--	2.11E+00	--	--	--	--	--	--
Pyrene	n	1.75E+00	--	--	--	1.79E-08	3.00E-02	5.98E-07
Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	4.64E+03	1.70E-05	2.00E+00	3.40E-05	4.77E-05	2.00E-05	2.38E+00
Total					3.4E-05			2.4E+00

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	1.02E+04	3.16E-06	--	--	--	8.65E-09	5.00E-03	1.73E-06	3.24E+09	--	--	1.07E-04
Antimony	n	5.81E+01	1.80E-08	--	--	--	--	--	--	3.24E+09	--	--	1.49E-03
Arsenic	cR	3.79E+01	1.17E-08	1.14E-11	4.30E+00	4.92E-11	3.20E-11	1.50E-05	2.14E-06	3.24E+09	--	1.52E-07	9.45E-04
Barium	nm	1.26E+02	3.88E-08	--	--	--	1.06E-10	5.00E-04	2.13E-07	3.24E+09	--	--	6.66E-06
Beryllium	n	2.10E+00	6.49E-10	6.35E-13	2.40E+00	1.52E-12	1.78E-12	2.00E-05	8.89E-08	3.24E+09	--	1.52E-12	1.09E-05
Cadmium (food, soil)	n	--	0.00E+00	--	1.80E+00	--	--	1.00E-05	--	3.24E+09	--	--	--
Chromium (Total)	nm	3.83E+01	1.18E-08	--	--	--	--	--	--	3.24E+09	--	--	2.62E-07
Cobalt	n	7.43E+00	2.30E-09	2.25E-12	9.00E+00	2.02E-11	6.29E-12	6.00E-06	1.05E-06	3.24E+09	--	2.02E-11	2.55E-04
Copper	n	2.12E+02	6.56E-08	--	--	--	--	--	--	3.24E+09	--	--	5.46E-05
Iron	nm	3.69E+04	1.14E-05	--	--	--	--	--	--	3.24E+09	--	--	5.41E-04
Lead	L	3.49E+02	1.08E-07	1.06E-10	1.20E-02	1.27E-12	--	--	--	3.24E+09	--	1.09E-08	--
Manganese	n	2.30E+02	7.11E-08	--	--	--	1.95E-10	5.00E-05	3.90E-06	3.24E+09	--	--	1.02E-04
Mercury	ns	3.37E-01	2.01E-05	--	--	--	5.49E-08	3.00E-04	1.83E-04	3.24E+09	1.68E+04	--	2.05E-04
Nickel	n	3.06E+01	9.44E-09	9.24E-12	2.60E-01	2.40E-12	2.59E-11	9.00E-05	2.87E-07	3.24E+09	--	2.40E-12	1.60E-05
Selenium	n	1.02E+01	3.15E-09	--	--	--	8.63E-12	2.00E-02	4.32E-10	3.24E+09	--	--	2.10E-05
Silver	n	3.76E+00	1.16E-09	--	--	--	--	--	--	3.24E+09	--	--	7.73E-06
Thallium	n	--	0.00E+00	--	--	--	--	--	--	3.24E+09	--	--	--
Vanadium	n	3.37E+01	1.04E-08	--	--	--	2.85E-11	1.00E-04	2.85E-07	3.24E+09	--	--	6.94E-05
Zinc	nm	1.34E+02	4.14E-08	--	--	--	--	--	--	3.24E+09	--	--	4.59E-06
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	3.30E+02	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	6.54E-09	4.84E-05
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	1.50E+01	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	8.81E-08	1.93E-04
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	4.70E-01	8.57E-05	--	--	--	2.35E-07	1.00E-01	2.35E-06	3.24E+09	5.49E+03	--	2.37E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.09E-01	6.06E-07	--	--	--	--	--	--	3.24E+09	1.80E+05	--	2.89E-08
Acenaphthylene	--	3.22E-01	9.95E-11	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	5.08E-01	7.57E-07	--	--	--	--	--	--	3.24E+09	6.71E+05	--	2.70E-08
Benzo(a)pyrene	c	1.83E+00	5.64E-10	5.52E-13	6.00E-01	3.31E-13	--	--	--	3.24E+09	--	1.04E-08	--
Benzo(g,h,i)perylene	--	8.37E-01	2.59E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	4.58E-01	1.41E-10	--	--	--	--	--	--	3.24E+09	--	--	7.29E-06
Fluoranthene	n	1.99E+00	6.15E-10	--	--	--	--	--	--	3.24E+09	--	--	7.92E-07
Fluorene	n	1.39E-01	3.86E-07	--	--	--	--	--	--	3.24E+09	3.60E+05	--	5.53E-08
2-Methylnaphthalene	n	1.15E+00	1.55E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	4.58E-06
Naphthalene	c*	7.50E-01	1.26E-05	1.24E-08	3.40E-02	4.20E-10	3.46E-08	3.00E-03	1.15E-05	3.24E+09	5.94E+04	4.20E-10	1.21E-05
Phenanthrene	--	2.11E+00	6.51E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.75E+00	5.73E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	9.26E-07
Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	4.64E+03	6.81E-03	6.67E-06	5.70E-01	3.80E-06	--	--	--	3.24E+09	6.81E+05	5.80E-05	3.79E+00
Total						3.8E-06			2.1E-04			5.8E-05	3.8E+00

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium:	Soil	Intake Equation:	
Exposure Medium:	Soil	DAD=CS x ABS x IF	
Receptor Population:	Adult Trespasser	Intake Factor Equation:	
		IF=SA x CF x AF x EF x ED x 1/BW x 1/AT	
Exposure Route:	Dermal		
Receptor Age:	Adult		

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.16E-06	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	3.26E-06	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium:	Soil	Intake Equation:	
Exposure Medium:	Soil	CDI = CS x IF	
Receptor Population:	Adult Trespasser	Intake Factor Equation:	
		IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT	
Exposure Route:	Ingestion		
Receptor Age:	Adult		

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	2.75E-07	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	7.71E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium:	Soil	Intake Equation:	
Exposure Medium:	Air	EC=(CA x (ET/24hrs/day) x EF x ED)/AT	
Receptor Population:	Adult Trespasser		
Exposure Route:	Inhalation		
Receptor Age:	Adult		

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	9.31E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	4.00E+02	--	--	--	--	6.00E-05	--	--
Arsenic	cR	2.96E+01	1.03E-06	1.50E+00	1.55E-06	2.89E-06	3.00E-04	3.00E-02	9.64E-03
Barium	nm	1.39E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	8.43E-01	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	2.59E+00	--	--	--	8.45E-09	2.50E-05	1.00E-03	3.38E-04
Chromium (Total)	nm	1.22E+02	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.14E+01	--	--	--	--	3.00E-04	--	--
Copper	n	2.86E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	4.96E+04	--	--	--	--	7.00E-01	--	--
Lead	L	2.00E+03	--	8.50E-03	--	--	--	--	--
Manganese	n	3.88E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	5.07E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	3.83E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	3.77E+00	--	--	--	--	5.00E-03	--	--
Silver	n	2.95E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	5.31E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	3.49E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	4.11E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	2.66E-01	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	9.28E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.63E+00	--	--	--	6.89E-07	6.00E-02	1.30E-01	1.15E-05
Acenaphthylene	--	5.67E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	1.28E+00	--	--	--	5.44E-07	3.00E-01	1.30E-01	1.81E-06
Benzo(a)pyrene	c	1.95E+00	2.96E-07	1.00E+00	2.96E-07	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.79E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.28E+00	--	--	--	5.44E-07	1.00E-03	1.30E-01	5.44E-04
Fluoranthene	n	2.17E+00	--	--	--	9.21E-07	4.00E-02	1.30E-01	2.30E-05
Fluorene	n	2.68E+00	--	--	--	1.14E-06	4.00E-02	1.30E-01	2.84E-05
2-Methylnaphthalene	n	1.87E+01	--	--	--	7.92E-06	4.00E-03	1.30E-01	1.98E-03
Naphthalene	c*	3.65E+00	--	--	--	1.55E-06	2.00E-02	1.30E-01	7.74E-05
Phenanthrene	--	7.26E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	2.06E+00	--	--	--	8.72E-07	3.00E-02	1.30E-01	2.91E-05
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	1.24E+01	2.03E-06	2.00E+00	4.05E-06	5.67E-06	2.00E-05	1.40E-01	2.84E-01
Total					5.9E-06				3.0E-01

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	9.31E+03	--	--	--	7.17E-03	1.00E+00	7.17E-03
Antimony	n	4.00E+02	--	--	--	3.08E-04	4.00E-04	7.71E-01
Arsenic	cR	2.96E+01	4.88E-06	1.50E+00	7.32E-06	1.37E-05	3.00E-04	4.55E-02
Barium	nm	1.39E+02	--	--	--	1.07E-04	2.00E-01	5.34E-04
Beryllium	n	8.43E-01	--	--	--	6.50E-07	2.00E-03	3.25E-04
Cadmium (food, soil)	n	2.59E+00	--	--	--	2.00E-06	1.00E-03	2.00E-03
Chromium (Total)	nm	1.22E+02	--	--	--	9.41E-05	1.50E+00	6.27E-05
Cobalt	n	1.14E+01	--	--	--	8.82E-06	3.00E-04	2.94E-02
Copper	n	2.86E+02	--	--	--	2.20E-04	4.00E-02	5.50E-03
Iron	nm	4.96E+04	--	--	--	3.83E-02	7.00E-01	5.47E-02
Lead	L	2.00E+03	5.50E-04	8.50E-03	4.67E-06	--	--	--
Manganese	n	3.88E+02	--	--	--	2.99E-04	2.40E-02	1.25E-02
Mercury	ns	5.07E-01	--	--	--	3.91E-07	1.60E-04	2.44E-03
Nickel	n	3.83E+01	--	--	--	2.95E-05	2.00E-02	1.48E-03
Selenium	n	3.77E+00	--	--	--	2.90E-06	5.00E-03	5.80E-04
Silver	n	2.95E+00	--	--	--	2.28E-06	5.00E-03	4.55E-04
Thallium	n	5.31E+00	--	--	--	4.09E-06	1.00E-05	4.09E-01
Vanadium	n	3.49E+01	--	--	--	2.69E-05	5.00E-03	5.38E-03
Zinc	nm	4.11E+02	--	--	--	3.17E-04	3.00E-01	1.06E-03
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	2.66E-01	--	--	--	2.05E-07	8.00E-02	2.56E-06
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	9.28E-01	--	--	--	7.15E-07	2.00E-01	3.58E-06
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.63E+00	--	--	--	1.25E-06	6.00E-02	2.09E-05
Acenaphthylene	--	5.67E-01	--	--	--	--	--	--
Anthracene	nm	1.28E+00	--	--	--	9.89E-07	3.00E-01	3.30E-06
Benzo(a)pyrene	c	1.95E+00	5.37E-07	1.00E+00	5.37E-07	--	--	--
Benzo(g,h,i)perylene	--	8.79E-01	--	--	--	--	--	--
Dibenzofuran	n	1.28E+00	--	--	--	9.89E-07	1.00E-03	9.89E-04
Fluoranthene	n	2.17E+00	--	--	--	1.67E-06	4.00E-02	4.19E-05
Fluorene	n	2.68E+00	--	--	--	2.07E-06	4.00E-02	5.17E-05
2-Methylnaphthalene	n	1.87E+01	--	--	--	1.44E-05	4.00E-03	3.60E-03
Naphthalene	c*	3.65E+00	--	--	--	2.81E-06	2.00E-02	1.41E-04
Phenanthrene	--	7.26E+00	--	--	--	--	--	--
Pyrene	n	2.06E+00	--	--	--	1.58E-06	3.00E-02	5.28E-05
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	1.24E+01	3.42E-06	2.00E+00	6.84E-06	9.57E-06	2.00E-05	4.79E-01
Total					1.9E-05			1.8E+00

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	9.31E+03	2.88E-06	--	--	--	5.91E-07	5.00E-03	1.18E-04	3.24E+09	--	--	7.29E-03
Antimony	n	4.00E+02	1.24E-07	--	--	--	--	--	--	3.24E+09	--	--	7.71E-01
Arsenic	cR	2.96E+01	9.13E-09	6.70E-10	4.30E+00	2.88E-09	1.88E-09	1.50E-05	1.25E-04	3.24E+09	--	8.87E-06	5.53E-02
Barium	nm	1.39E+02	4.28E-08	--	--	--	8.79E-09	5.00E-04	1.76E-05	3.24E+09	--	--	5.51E-04
Beryllium	n	8.43E-01	2.60E-10	1.91E-11	2.40E+00	4.59E-11	5.35E-11	2.00E-05	2.68E-06	3.24E+09	--	4.59E-11	3.27E-04
Cadmium (food, soil)	n	2.59E+00	8.00E-10	5.87E-11	1.80E+00	1.06E-10	1.64E-10	1.00E-05	1.64E-05	3.24E+09	--	1.06E-10	2.35E-03
Chromium (Total)	nm	1.22E+02	3.77E-08	--	--	--	--	--	--	3.24E+09	--	--	6.27E-05
Cobalt	n	1.14E+01	3.53E-09	2.59E-10	9.00E+00	2.33E-09	7.26E-10	6.00E-06	1.21E-04	3.24E+09	--	2.33E-09	2.95E-02
Copper	n	2.86E+02	8.82E-08	--	--	--	--	--	--	3.24E+09	--	--	5.50E-03
Iron	nm	4.96E+04	1.53E-05	--	--	--	--	--	--	3.24E+09	--	--	5.47E-02
Lead	L	2.00E+03	6.17E-07	4.53E-08	1.20E-02	5.43E-10	--	--	--	3.24E+09	--	4.67E-06	--
Manganese	n	3.88E+02	1.20E-07	--	--	--	2.46E-08	5.00E-05	4.93E-04	3.24E+09	--	--	1.30E-02
Mercury	ns	5.07E-01	3.02E-05	--	--	--	6.20E-06	3.00E-04	2.07E-02	3.24E+09	1.68E+04	--	2.31E-02
Nickel	n	3.83E+01	1.18E-08	8.68E-10	2.60E-01	2.26E-10	2.43E-09	9.00E-05	2.70E-05	3.24E+09	--	2.26E-10	1.50E-03
Selenium	n	3.77E+00	1.16E-09	--	--	--	2.39E-10	2.00E-02	1.20E-08	3.24E+09	--	--	5.80E-04
Silver	n	2.95E+00	9.13E-10	--	--	--	--	--	--	3.24E+09	--	--	4.55E-04
Thallium	n	5.31E+00	1.64E-09	--	--	--	--	--	--	3.24E+09	--	--	4.09E-01
Vanadium	n	3.49E+01	1.08E-08	--	--	--	2.22E-09	1.00E-04	2.22E-05	3.24E+09	--	--	5.41E-03
Zinc	nm	4.11E+02	1.27E-07	--	--	--	--	--	--	3.24E+09	--	--	1.06E-03
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	2.66E-01	8.81E-05	--	--	--	1.81E-05	5.00E+00	3.62E-06	3.24E+09	3.02E+03	--	6.18E-06
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	9.28E-01	1.69E-04	--	--	--	3.47E-05	1.00E-01	3.47E-04	3.24E+09	5.49E+03	--	3.51E-04
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.63E+00	9.03E-06	--	--	--	--	--	--	3.24E+09	1.80E+05	--	3.24E-05
Acenaphthylene	--	5.67E-01	1.75E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	1.28E+00	1.91E-06	--	--	--	--	--	--	3.24E+09	6.71E+05	--	5.11E-06
Benzo(a)pyrene	c	1.95E+00	6.03E-10	4.43E-11	6.00E-01	2.66E-11	--	--	--	3.24E+09	--	8.33E-07	--
Benzo(g,h,i)perylene	--	8.79E-01	2.72E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.28E+00	3.96E-10	--	--	--	--	--	--	3.24E+09	--	--	1.53E-03
Fluoranthene	n	2.17E+00	6.71E-10	--	--	--	--	--	--	3.24E+09	--	--	6.49E-05
Fluorene	n	2.68E+00	7.45E-06	--	--	--	--	--	--	3.24E+09	3.60E+05	--	8.01E-05
2-Methylnaphthalene	n	1.87E+01	2.51E-04	--	--	--	--	--	--	3.24E+09	7.43E+04	--	5.58E-03
Naphthalene	c*	3.65E+00	6.14E-05	4.51E-06	3.40E-02	1.53E-07	1.26E-05	3.00E-03	4.21E-03	3.24E+09	5.94E+04	1.53E-07	4.43E-03
Phenanthrene	--	7.26E+00	2.24E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	2.06E+00	6.75E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	8.19E-05
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	1.24E+01	1.82E-05	1.34E-06	5.70E-01	7.63E-07	--	--	--	3.24E+09	6.81E+05	1.16E-05	7.62E-01
Total						9.2E-07			2.6E-02			2.6E-05	2.2E+00

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.16E-06	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	3.26E-06	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	2.75E-07	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	7.71E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	8.53E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	8.15E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	3.51E+01	1.23E-06	1.50E+00	1.84E-06	3.44E-06	3.00E-04	3.00E-02	1.15E-02
Barium	nm	1.85E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	9.46E-01	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	2.30E+00	--	--	--	7.50E-09	2.50E-05	1.00E-03	3.00E-04
Chromium (Total)	nm	5.19E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	9.35E+00	--	--	--	--	3.00E-04	--	--
Copper	n	2.33E+03	--	--	--	--	4.00E-02	--	--
Iron	nm	3.62E+04	--	--	--	--	7.00E-01	--	--
Lead	L	9.50E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.06E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	3.24E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	1.37E+02	--	--	--	--	8.00E-04	--	--
Selenium	n	1.19E+01	--	--	--	--	5.00E-03	--	--
Silver	n	3.67E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	--	--	--	--	--	1.00E-05	--	--
Vanadium	n	2.72E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.81E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	2.40E+00	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	1.20E+00	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	6.04E+00	--	--	--	2.56E-06	6.00E-02	1.30E-01	4.27E-05
Acenaphthylene	--	8.26E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.60E+01	--	--	--	1.52E-05	3.00E-01	1.30E-01	5.08E-05
Benzo(a)pyrene	c	5.07E+00	7.67E-07	1.00E+00	7.67E-07	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	2.15E+00	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.04E+01	--	--	--	4.41E-06	1.00E-03	1.30E-01	4.41E-03
Fluoranthene	n	5.33E+01	--	--	--	2.26E-05	4.00E-02	1.30E-01	5.65E-04
Fluorene	n	2.43E+01	--	--	--	1.03E-05	4.00E-02	1.30E-01	2.58E-04
2-Methylnaphthalene	n	5.11E+00	--	--	--	2.17E-06	4.00E-03	1.30E-01	5.42E-04
Naphthalene	c*	3.80E+00	--	--	--	1.61E-06	2.00E-02	1.30E-01	8.04E-05
Phenanthrene	--	6.52E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	4.16E+01	--	--	--	1.77E-05	3.00E-02	1.30E-01	5.88E-04
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	2.01E+02	3.28E-05	2.00E+00	6.56E-05	9.18E-05	2.00E-05	1.40E-01	4.59E+00
Total					6.8E-05				4.6E+00

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	8.53E+03	--	--	--	6.58E-03	1.00E+00	6.58E-03
Antimony	n	8.15E+01	--	--	--	6.28E-05	4.00E-04	1.57E-01
Arsenic	cR	3.51E+01	5.80E-06	1.50E+00	8.70E-06	1.62E-05	3.00E-04	5.41E-02
Barium	nm	1.85E+02	--	--	--	1.43E-04	2.00E-01	7.14E-04
Beryllium	n	9.46E-01	--	--	--	7.29E-07	2.00E-03	3.64E-04
Cadmium (food, soil)	n	2.30E+00	--	--	--	1.77E-06	1.00E-03	1.77E-03
Chromium (Total)	nm	5.19E+01	--	--	--	4.00E-05	1.50E+00	2.67E-05
Cobalt	n	9.35E+00	--	--	--	7.21E-06	3.00E-04	2.40E-02
Copper	n	2.33E+03	--	--	--	1.80E-03	4.00E-02	4.50E-02
Iron	nm	3.62E+04	--	--	--	2.79E-02	7.00E-01	3.99E-02
Lead	L	9.50E+02	2.62E-04	8.50E-03	2.22E-06	--	--	--
Manganese	n	2.06E+02	--	--	--	1.59E-04	2.40E-02	6.62E-03
Mercury	ns	3.24E-01	--	--	--	2.50E-07	1.60E-04	1.56E-03
Nickel	n	1.37E+02	--	--	--	1.06E-04	2.00E-02	5.29E-03
Selenium	n	1.19E+01	--	--	--	9.17E-06	5.00E-03	1.83E-03
Silver	n	3.67E+00	--	--	--	2.83E-06	5.00E-03	5.65E-04
Thallium	n	--	--	--	--	--	1.00E-05	--
Vanadium	n	2.72E+01	--	--	--	2.10E-05	5.00E-03	4.20E-03
Zinc	nm	3.81E+02	--	--	--	2.94E-04	3.00E-01	9.80E-04
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	2.40E+00	--	--	--	1.85E-06	8.00E-02	2.31E-05
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	1.20E+00	--	--	--	9.27E-07	2.00E-01	4.63E-06
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	6.04E+00	--	--	--	4.65E-06	6.00E-02	7.75E-05
Acenaphthylene	--	8.26E-01	--	--	--	--	--	--
Anthracene	nm	3.60E+01	--	--	--	2.77E-05	3.00E-01	9.24E-05
Benzo(a)pyrene	c	5.07E+00	1.39E-06	1.00E+00	1.39E-06	--	--	--
Benzo(g,h,i)perylene	--	2.15E+00	--	--	--	--	--	--
Dibenzofuran	n	1.04E+01	--	--	--	8.01E-06	1.00E-03	8.01E-03
Fluoranthene	n	5.33E+01	--	--	--	4.11E-05	4.00E-02	1.03E-03
Fluorene	n	2.43E+01	--	--	--	1.87E-05	4.00E-02	4.69E-04
2-Methylnaphthalene	n	5.11E+00	--	--	--	3.94E-06	4.00E-03	9.84E-04
Naphthalene	c*	3.80E+00	--	--	--	2.92E-06	2.00E-02	1.46E-04
Phenanthrene	--	6.52E+01	--	--	--	--	--	--
Pyrene	n	4.16E+01	--	--	--	3.21E-05	3.00E-02	1.07E-03
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	2.01E+02	5.53E-05	2.00E+00	1.11E-04	1.55E-04	2.00E-05	7.75E+00
Total					1.2E-04			8.1E+00

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	8.53E+03	2.64E-06	--	--	--	5.42E-07	5.00E-03	1.08E-04	3.24E+09	--	--	6.68E-03
Antimony	n	8.15E+01	2.52E-08	--	--	--	--	--	--	3.24E+09	--	--	1.57E-01
Arsenic	cR	3.51E+01	1.08E-08	7.96E-10	4.30E+00	3.42E-09	2.23E-09	1.50E-05	1.49E-04	3.24E+09	--	1.05E-05	6.57E-02
Barium	nm	1.85E+02	5.73E-08	--	--	--	1.18E-08	5.00E-04	2.35E-05	3.24E+09	--	--	7.38E-04
Beryllium	n	9.46E-01	2.92E-10	2.14E-11	2.40E+00	5.15E-11	6.01E-11	2.00E-05	3.00E-06	3.24E+09	--	5.15E-11	3.67E-04
Cadmium (food, soil)	n	2.30E+00	7.11E-10	5.21E-11	1.80E+00	9.39E-11	1.46E-10	1.00E-05	1.46E-05	3.24E+09	--	9.39E-11	2.09E-03
Chromium (Total)	nm	5.19E+01	1.60E-08	--	--	--	--	--	--	3.24E+09	--	--	2.67E-05
Cobalt	n	9.35E+00	2.89E-09	2.12E-10	9.00E+00	1.91E-09	5.94E-10	6.00E-06	9.90E-05	3.24E+09	--	1.91E-09	2.41E-02
Copper	n	2.33E+03	7.21E-07	--	--	--	--	--	--	3.24E+09	--	--	4.50E-02
Iron	nm	3.62E+04	1.12E-05	--	--	--	--	--	--	3.24E+09	--	--	3.99E-02
Lead	L	9.50E+02	2.94E-07	2.15E-08	1.20E-02	2.59E-10	--	--	--	3.24E+09	--	2.22E-06	--
Manganese	n	2.06E+02	6.37E-08	--	--	--	1.31E-08	5.00E-05	2.62E-04	3.24E+09	--	--	6.88E-03
Mercury	ns	3.24E-01	1.93E-05	--	--	--	3.96E-06	3.00E-04	1.32E-02	3.24E+09	1.68E+04	--	1.48E-02
Nickel	n	1.37E+02	4.24E-08	3.12E-09	2.60E-01	8.10E-10	8.72E-09	9.00E-05	9.69E-05	3.24E+09	--	8.10E-10	5.39E-03
Selenium	n	1.19E+01	3.68E-09	--	--	--	7.55E-10	2.00E-02	3.78E-08	3.24E+09	--	--	1.83E-03
Silver	n	3.67E+00	1.13E-09	--	--	--	--	--	--	3.24E+09	--	--	5.65E-04
Thallium	n	--	0.00E+00	--	--	--	--	--	--	3.24E+09	--	--	--
Vanadium	n	2.72E+01	8.41E-09	--	--	--	1.73E-09	1.00E-04	1.73E-05	3.24E+09	--	--	4.21E-03
Zinc	nm	3.81E+02	1.18E-07	--	--	--	--	--	--	3.24E+09	--	--	9.80E-04
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	2.40E+00	7.95E-04	--	--	--	1.63E-04	5.00E+00	3.27E-05	3.24E+09	3.02E+03	--	5.58E-05
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	1.20E+00	2.19E-04	--	--	--	4.50E-05	1.00E-01	4.50E-04	3.24E+09	5.49E+03	--	4.55E-04
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	6.04E+00	3.35E-05	--	--	--	--	--	--	3.24E+09	1.80E+05	--	1.20E-04
Acenaphthylene	--	8.26E-01	2.55E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.60E+01	5.36E-05	--	--	--	--	--	--	3.24E+09	6.71E+05	--	1.43E-04
Benzo(a)pyrene	c	5.07E+00	1.57E-09	1.15E-10	6.00E-01	6.89E-11	--	--	--	3.24E+09	--	2.16E-06	--
Benzo(g,h,i)perylene	--	2.15E+00	6.65E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.04E+01	3.21E-09	--	--	--	--	--	--	3.24E+09	--	--	1.24E-02
Fluoranthene	n	5.33E+01	1.65E-08	--	--	--	--	--	--	3.24E+09	--	--	1.59E-03
Fluorene	n	2.43E+01	6.76E-05	--	--	--	--	--	--	3.24E+09	3.60E+05	--	7.27E-04
2-Methylnaphthalene	n	5.11E+00	6.88E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	1.53E-03
Naphthalene	c*	3.80E+00	6.39E-05	4.69E-06	3.40E-02	1.59E-07	1.31E-05	3.00E-03	4.38E-03	3.24E+09	5.94E+04	1.59E-07	4.60E-03
Phenanthrene	--	6.52E+01	2.01E-08	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	4.16E+01	1.37E-05	--	--	--	--	--	--	3.24E+09	3.05E+06	--	1.66E-03
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	2.01E+02	2.95E-04	2.17E-05	5.70E-01	1.24E-05	--	--	--	3.24E+09	6.81E+05	1.89E-04	1.23E+01
Total						1.3E-05			1.9E-02			2.0E-04	1.3E+01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.16E-06	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	3.26E-06	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	2.75E-07	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	7.71E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	1.15E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	2.28E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.09E+02	3.80E-06	1.50E+00	5.70E-06	1.06E-05	3.00E-04	3.00E-02	3.55E-02
Barium	nm	4.61E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	8.53E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	7.69E+00	--	--	--	2.51E-08	2.50E-05	1.00E-03	1.00E-03
Chromium (Total)	nm	1.93E+03	--	--	--	--	1.95E-02	--	--
Cobalt	n	6.87E+01	--	--	--	--	3.00E-04	--	--
Copper	n	5.56E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	8.77E+04	--	--	--	--	7.00E-01	--	--
Lead	L	3.88E+03	--	8.50E-03	--	--	--	--	--
Manganese	n	2.00E+03	--	--	--	--	9.60E-04	--	--
Mercury	ns	4.89E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	2.97E+02	--	--	--	--	8.00E-04	--	--
Selenium	n	5.52E+01	--	--	--	--	5.00E-03	--	--
Silver	n	9.40E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	6.74E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	4.26E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.11E+03	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	0.00E+00	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	0.00E+00	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	0.00E+00	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	7.66E+00	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	0.00E+00	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	0.00E+00	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	3.48E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.66E+00	--	--	--	7.02E-07	6.00E-02	1.30E-01	1.17E-05
Acenaphthylene	--	1.04E+00	--	--	--	--	--	1.30E-01	--
Anthracene	nm	1.45E+00	--	--	--	6.13E-07	3.00E-01	1.30E-01	2.04E-06
Benzo(a)pyrene	c	2.88E+00	4.36E-07	1.00E+00	4.36E-07	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.52E+00	--	--	--	6.44E-07	1.00E-03	1.30E-01	6.44E-04
Fluoranthene	n	2.86E+00	--	--	--	1.21E-06	4.00E-02	1.30E-01	3.03E-05
Fluorene	n	2.90E+00	--	--	--	1.23E-06	4.00E-02	1.30E-01	3.08E-05
2-Methylnaphthalene	n	3.70E+00	--	--	--	1.57E-06	4.00E-03	1.30E-01	3.92E-04
Naphthalene	c*	2.41E+00	--	--	--	1.02E-06	2.00E-02	1.30E-01	5.12E-05
Phenanthrene	--	1.19E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	3.02E+00	--	--	--	1.28E-06	3.00E-02	1.30E-01	4.27E-05
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	3.54E+00	5.77E-07	2.00E+00	1.15E-06	1.61E-06	2.00E-05	1.40E-01	8.07E-02
Total					7.3E-06				1.2E-01

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	1.15E+04	--	--	--	8.84E-03	1.00E+00	8.84E-03
Antimony	n	2.28E+01	--	--	--	1.75E-05	4.00E-04	4.39E-02
Arsenic	cR	1.09E+02	1.80E-05	1.50E+00	2.69E-05	5.03E-05	3.00E-04	1.68E-01
Barium	nm	4.61E+02	--	--	--	3.55E-04	2.00E-01	1.78E-03
Beryllium	n	8.53E+00	--	--	--	6.57E-06	2.00E-03	3.29E-03
Cadmium (food, soil)	n	7.69E+00	--	--	--	5.93E-06	1.00E-03	5.93E-03
Chromium (Total)	nm	1.93E+03	--	--	--	1.48E-03	1.50E+00	9.90E-04
Cobalt	n	6.87E+01	--	--	--	5.29E-05	3.00E-04	1.76E-01
Copper	n	5.56E+02	--	--	--	4.28E-04	4.00E-02	1.07E-02
Iron	nm	8.77E+04	--	--	--	6.76E-02	7.00E-01	9.66E-02
Lead	L	3.88E+03	1.07E-03	8.50E-03	9.07E-06	--	--	--
Manganese	n	2.00E+03	--	--	--	1.54E-03	2.40E-02	6.43E-02
Mercury	ns	4.89E-01	--	--	--	3.77E-07	1.60E-04	2.35E-03
Nickel	n	2.97E+02	--	--	--	2.29E-04	2.00E-02	1.14E-02
Selenium	n	5.52E+01	--	--	--	4.25E-05	5.00E-03	8.50E-03
Silver	n	9.40E+00	--	--	--	7.24E-06	5.00E-03	1.45E-03
Thallium	n	6.74E+00	--	--	--	5.20E-06	1.00E-05	5.20E-01
Vanadium	n	4.26E+01	--	--	--	3.28E-05	5.00E-03	6.57E-03
Zinc	nm	3.11E+03	--	--	--	2.40E-03	3.00E-01	8.00E-03
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	0.00E+00	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	0.00E+00	--	--	--	--	2.00E-03	--
Ethylbenzene	c	0.00E+00	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	7.66E+00	2.11E-06	1.60E+00	3.37E-06	5.90E-06	8.00E-04	7.38E-03
Toluene	ns	0.00E+00	--	--	--	--	8.00E-02	--
Trichloroethene	c**	0.00E+00	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	3.48E-01	--	--	--	2.68E-07	2.00E-01	1.34E-06
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.66E+00	--	--	--	1.28E-06	6.00E-02	2.13E-05
Acenaphthylene	--	1.04E+00	--	--	--	--	--	--
Anthracene	nm	1.45E+00	--	--	--	1.11E-06	3.00E-01	3.71E-06
Benzo(a)pyrene	c	2.88E+00	7.93E-07	1.00E+00	7.93E-07	--	--	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	--
Dibenzofuran	n	1.52E+00	--	--	--	1.17E-06	1.00E-03	1.17E-03
Fluoranthene	n	2.86E+00	--	--	--	2.21E-06	4.00E-02	5.52E-05
Fluorene	n	2.90E+00	--	--	--	2.24E-06	4.00E-02	5.59E-05
2-Methylnaphthalene	n	3.70E+00	--	--	--	2.85E-06	4.00E-03	7.12E-04
Naphthalene	c*	2.41E+00	--	--	--	1.86E-06	2.00E-02	9.30E-05
Phenanthrene	--	1.19E+01	--	--	--	--	--	--
Pyrene	n	3.02E+00	--	--	--	2.33E-06	3.00E-02	7.77E-05
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	3.54E+00	9.73E-07	2.00E+00	1.95E-06	2.73E-06	2.00E-05	1.36E-01
Total					4.2E-05			1.3E+00

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	1.15E+04	3.54E-06	--	--	--	7.28E-07	5.00E-03	1.46E-04	3.24E+09	--	--	8.99E-03
Antimony	n	2.28E+01	7.03E-09	--	--	--	--	--	--	3.24E+09	--	--	4.39E-02
Arsenic	cR	1.09E+02	3.36E-08	2.47E-09	4.30E+00	1.06E-08	6.91E-09	1.50E-05	4.60E-04	3.24E+09	--	3.27E-05	2.04E-01
Barium	nm	4.61E+02	1.42E-07	--	--	--	2.93E-08	5.00E-04	5.86E-05	3.24E+09	--	--	1.84E-03
Beryllium	n	8.53E+00	2.64E-09	1.93E-10	2.40E+00	4.64E-10	5.41E-10	2.00E-05	2.71E-05	3.24E+09	--	4.64E-10	3.31E-03
Cadmium (food, soil)	n	7.69E+00	2.38E-09	1.74E-10	1.80E+00	3.14E-10	4.88E-10	1.00E-05	4.88E-05	3.24E+09	--	3.14E-10	6.98E-03
Chromium (Total)	nm	1.93E+03	5.95E-07	--	--	--	--	--	--	3.24E+09	--	--	9.90E-04
Cobalt	n	6.87E+01	2.12E-08	1.56E-09	9.00E+00	1.40E-08	4.36E-09	6.00E-06	7.26E-04	3.24E+09	--	1.40E-08	1.77E-01
Copper	n	5.56E+02	1.72E-07	--	--	--	--	--	--	3.24E+09	--	--	1.07E-02
Iron	nm	8.77E+04	2.71E-05	--	--	--	--	--	--	3.24E+09	--	--	9.66E-02
Lead	L	3.88E+03	1.20E-06	8.79E-08	1.20E-02	1.05E-09	--	--	--	3.24E+09	--	9.07E-06	--
Manganese	n	2.00E+03	6.18E-07	--	--	--	1.27E-07	5.00E-05	2.54E-03	3.24E+09	--	--	6.68E-02
Mercury	ns	4.89E-01	2.91E-05	--	--	--	5.98E-06	3.00E-04	1.99E-02	3.24E+09	1.68E+04	--	2.23E-02
Nickel	n	2.97E+02	9.17E-08	6.73E-09	2.60E-01	1.75E-09	1.88E-08	9.00E-05	2.09E-04	3.24E+09	--	1.75E-09	1.16E-02
Selenium	n	5.52E+01	1.70E-08	--	--	--	3.50E-09	2.00E-02	1.75E-07	3.24E+09	--	--	8.50E-03
Silver	n	9.40E+00	2.90E-09	--	--	--	--	--	--	3.24E+09	--	--	1.45E-03
Thallium	n	6.74E+00	2.08E-09	--	--	--	--	--	--	3.24E+09	--	--	5.20E-01
Vanadium	n	4.26E+01	1.32E-08	--	--	--	2.71E-09	1.00E-04	2.71E-05	3.24E+09	--	--	6.60E-03
Zinc	nm	3.11E+03	9.62E-07	--	--	--	--	--	--	3.24E+09	--	--	8.00E-03
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	0.00E+00	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	0.00E+00	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	0.00E+00	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	7.66E+00	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	3.37E-06	7.38E-03
Toluene	ns	0.00E+00	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	0.00E+00	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	3.48E-01	6.34E-05	--	--	--	1.30E-05	1.00E-01	1.30E-04	3.24E+09	5.49E+03	--	1.32E-04
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.66E+00	9.19E-06	--	--	--	--	--	--	3.24E+09	1.80E+05	--	3.29E-05
Acenaphthylene	--	1.04E+00	3.20E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	1.45E+00	2.16E-06	--	--	--	--	--	--	3.24E+09	6.71E+05	--	5.76E-06
Benzo(a)pyrene	c	2.88E+00	8.90E-10	6.53E-11	6.00E-01	3.92E-11	--	--	--	3.24E+09	--	1.23E-06	--
Benzo(g,h,i)perylene	--	1.78E+00	5.48E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.52E+00	4.69E-10	--	--	--	--	--	--	3.24E+09	--	--	1.81E-03
Fluoranthene	n	2.86E+00	8.84E-10	--	--	--	--	--	--	3.24E+09	--	--	8.55E-05
Fluorene	n	2.90E+00	8.06E-06	--	--	--	--	--	--	3.24E+09	3.60E+05	--	8.67E-05
2-Methylnaphthalene	n	3.70E+00	4.97E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	1.10E-03
Naphthalene	c*	2.41E+00	4.06E-05	2.98E-06	3.40E-02	1.01E-07	8.35E-06	3.00E-03	2.78E-03	3.24E+09	5.94E+04	1.01E-07	2.93E-03
Phenanthrene	--	1.19E+01	3.69E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	3.02E+00	9.92E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	1.20E-04
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	3.54E+00	5.19E-06	3.81E-07	5.70E-01	2.17E-07	--	--	--	3.24E+09	6.81E+05	3.32E-06	2.17E-01
Total						3.5E-07			2.7E-02			5.0E-05	1.4E+00

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.16E-06	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	3.26E-06	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	2.75E-07	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	7.71E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	8.25E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	4.16E+00	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.27E+01	4.43E-07	1.50E+00	6.65E-07	1.24E-06	3.00E-04	3.00E-02	4.14E-03
Barium	nm	1.03E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	2.73E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	8.84E-01	--	--	--	2.88E-09	2.50E-05	1.00E-03	1.15E-04
Chromium (Total)	nm	4.37E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.13E+01	--	--	--	--	3.00E-04	--	--
Copper	n	1.66E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	3.11E+04	--	--	--	--	7.00E-01	--	--
Lead	L	2.34E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	4.88E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	7.31E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	1.84E+02	--	--	--	--	8.00E-04	--	--
Selenium	n	3.61E+00	--	--	--	--	5.00E-03	--	--
Silver	n	1.89E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	5.00E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	2.81E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	2.12E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	2.00E+00	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	0.00E+00	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	0.00E+00	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	0.00E+00	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	0.00E+00	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	8.70E-01	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	3.40E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.47E+00	--	--	--	6.25E-07	6.00E-02	1.30E-01	1.04E-05
Acenaphthylene	--	4.54E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.18E+00	--	--	--	1.35E-06	3.00E-01	1.30E-01	4.50E-06
Benzo(a)pyrene	c	3.25E+00	4.92E-07	1.00E+00	4.92E-07	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.06E+00	--	--	--	4.49E-07	1.00E-03	1.30E-01	4.49E-04
Fluoranthene	n	1.29E+01	--	--	--	5.46E-06	4.00E-02	1.30E-01	1.36E-04
Fluorene	n	5.36E+00	--	--	--	2.27E-06	4.00E-02	1.30E-01	5.68E-05
2-Methylnaphthalene	n	2.04E+00	--	--	--	8.64E-07	4.00E-03	1.30E-01	2.16E-04
Naphthalene	c*	6.14E-01	--	--	--	2.60E-07	2.00E-02	1.30E-01	1.30E-05
Phenanthrene	--	1.10E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.02E+01	--	--	--	4.31E-06	3.00E-02	1.30E-01	1.44E-04
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	4.20E+01	6.85E-06	2.00E+00	1.37E-05	1.92E-05	2.00E-05	1.40E-01	9.58E-01
Total					1.5E-05				9.6E-01

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	8.25E+03	--	--	--	6.36E-03	1.00E+00	6.36E-03
Antimony	n	4.16E+00	--	--	--	3.20E-06	4.00E-04	8.01E-03
Arsenic	cR	1.27E+01	2.09E-06	1.50E+00	3.14E-06	5.86E-06	3.00E-04	1.95E-02
Barium	nm	1.03E+02	--	--	--	7.90E-05	2.00E-01	3.95E-04
Beryllium	n	2.73E+00	--	--	--	2.10E-06	2.00E-03	1.05E-03
Cadmium (food, soil)	n	8.84E-01	--	--	--	6.81E-07	1.00E-03	6.81E-04
Chromium (Total)	nm	4.37E+01	--	--	--	3.37E-05	1.50E+00	2.25E-05
Cobalt	n	1.13E+01	--	--	--	8.73E-06	3.00E-04	2.91E-02
Copper	n	1.66E+02	--	--	--	1.28E-04	4.00E-02	3.20E-03
Iron	nm	3.11E+04	--	--	--	2.39E-02	7.00E-01	3.42E-02
Lead	L	2.34E+02	6.44E-05	8.50E-03	5.47E-07	--	--	--
Manganese	n	4.88E+02	--	--	--	3.76E-04	2.40E-02	1.57E-02
Mercury	ns	7.31E-01	--	--	--	5.63E-07	1.60E-04	3.52E-03
Nickel	n	1.84E+02	--	--	--	1.42E-04	2.00E-02	7.09E-03
Selenium	n	3.61E+00	--	--	--	2.78E-06	5.00E-03	5.56E-04
Silver	n	1.89E+00	--	--	--	1.45E-06	5.00E-03	2.91E-04
Thallium	n	5.00E+00	--	--	--	3.85E-06	1.00E-05	3.85E-01
Vanadium	n	2.81E+01	--	--	--	2.17E-05	5.00E-03	4.33E-03
Zinc	nm	2.12E+02	--	--	--	1.63E-04	3.00E-01	5.43E-04
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	2.00E+00	5.50E-07	5.40E-03	2.97E-09	1.54E-06	7.00E-02	2.20E-05
cis-1,2-Dichloroethene	n	0.00E+00	--	--	--	--	2.00E-03	--
Ethylbenzene	c	0.00E+00	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	0.00E+00	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	0.00E+00	--	--	--	--	8.00E-02	--
Trichloroethene	c**	8.70E-01	2.39E-07	4.60E-02	1.10E-08	6.70E-07	5.00E-04	1.34E-03
Total Xylenes	ns	3.40E-01	--	--	--	2.62E-07	2.00E-01	1.31E-06
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.47E+00	--	--	--	1.14E-06	6.00E-02	1.89E-05
Acenaphthylene	--	4.54E-01	--	--	--	--	--	--
Anthracene	nm	3.18E+00	--	--	--	2.45E-06	3.00E-01	8.18E-06
Benzo(a)pyrene	c	3.25E+00	8.94E-07	1.00E+00	8.94E-07	--	--	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	--
Dibenzofuran	n	1.06E+00	--	--	--	8.16E-07	1.00E-03	8.16E-04
Fluoranthene	n	1.29E+01	--	--	--	9.92E-06	4.00E-02	2.48E-04
Fluorene	n	5.36E+00	--	--	--	4.13E-06	4.00E-02	1.03E-04
2-Methylnaphthalene	n	2.04E+00	--	--	--	1.57E-06	4.00E-03	3.92E-04
Naphthalene	c*	6.14E-01	--	--	--	4.73E-07	2.00E-02	2.37E-05
Phenanthrene	--	1.10E+01	--	--	--	--	--	--
Pyrene	n	1.02E+01	--	--	--	7.84E-06	3.00E-02	2.61E-04
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	4.20E+01	1.16E-05	2.00E+00	2.31E-05	3.23E-05	2.00E-05	1.62E+00
Total					2.8E-05			2.1E+00

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	8.25E+03	2.55E-06	--	--	--	5.24E-07	5.00E-03	1.05E-04	3.24E+09	--	--	6.46E-03
Antimony	n	4.16E+00	1.28E-09	--	--	--	--	--	--	3.24E+09	--	--	8.01E-03
Arsenic	cR	1.27E+01	3.92E-09	2.87E-10	4.30E+00	1.24E-09	8.05E-10	1.50E-05	5.37E-05	3.24E+09	--	3.81E-06	2.37E-02
Barium	nm	1.03E+02	3.17E-08	--	--	--	6.51E-09	5.00E-04	1.30E-05	3.24E+09	--	--	4.08E-04
Beryllium	n	2.73E+00	8.43E-10	6.19E-11	2.40E+00	1.49E-10	1.73E-10	2.00E-05	8.67E-06	3.24E+09	--	1.49E-10	1.06E-03
Cadmium (food, soil)	n	8.84E-01	2.73E-10	2.00E-11	1.80E+00	3.61E-11	5.61E-11	1.00E-05	5.61E-06	3.24E+09	--	3.61E-11	8.02E-04
Chromium (Total)	nm	4.37E+01	1.35E-08	--	--	--	--	--	--	3.24E+09	--	--	2.25E-05
Cobalt	n	1.13E+01	3.50E-09	2.57E-10	9.00E+00	2.31E-09	7.19E-10	6.00E-06	1.20E-04	3.24E+09	--	2.31E-09	2.92E-02
Copper	n	1.66E+02	5.13E-08	--	--	--	--	--	--	3.24E+09	--	--	3.20E-03
Iron	nm	3.11E+04	9.60E-06	--	--	--	--	--	--	3.24E+09	--	--	3.42E-02
Lead	L	2.34E+02	7.23E-08	5.31E-09	1.20E-02	6.37E-11	--	--	--	3.24E+09	--	5.47E-07	--
Manganese	n	4.88E+02	1.51E-07	--	--	--	3.10E-08	5.00E-05	6.19E-04	3.24E+09	--	--	1.63E-02
Mercury	ns	7.31E-01	4.35E-05	--	--	--	8.94E-06	3.00E-04	2.98E-02	3.24E+09	1.68E+04	--	3.33E-02
Nickel	n	1.84E+02	5.69E-08	4.17E-09	2.60E-01	1.09E-09	1.17E-08	9.00E-05	1.30E-04	3.24E+09	--	1.09E-09	7.22E-03
Selenium	n	3.61E+00	1.11E-09	--	--	--	2.29E-10	2.00E-02	1.15E-08	3.24E+09	--	--	5.56E-04
Silver	n	1.89E+00	5.83E-10	--	--	--	--	--	--	3.24E+09	--	--	2.91E-04
Thallium	n	5.00E+00	1.54E-09	--	--	--	--	--	--	3.24E+09	--	--	3.85E-01
Vanadium	n	2.81E+01	8.69E-09	--	--	--	1.79E-09	1.00E-04	1.79E-05	3.24E+09	--	--	4.35E-03
Zinc	nm	2.12E+02	6.54E-08	--	--	--	--	--	--	3.24E+09	--	--	5.43E-04
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	2.00E+00	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	2.97E-09	2.20E-05
cis-1,2-Dichloroethene	n	0.00E+00	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	0.00E+00	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	0.00E+00	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	0.00E+00	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	8.70E-01	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	1.10E-08	1.34E-03
Total Xylenes	ns	3.40E-01	6.20E-05	--	--	--	1.27E-05	1.00E-01	1.27E-04	3.24E+09	5.49E+03	--	1.29E-04
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.47E+00	8.19E-06	--	--	--	--	--	--	3.24E+09	1.80E+05	--	2.93E-05
Acenaphthylene	--	4.54E-01	1.40E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.18E+00	4.75E-06	--	--	--	--	--	--	3.24E+09	6.71E+05	--	1.27E-05
Benzo(a)pyrene	c	3.25E+00	1.00E-09	7.37E-11	6.00E-01	4.42E-11	--	--	--	3.24E+09	--	1.39E-06	--
Benzo(g,h,i)perylene	--	1.78E+00	5.50E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.06E+00	3.27E-10	--	--	--	--	--	--	3.24E+09	--	--	1.26E-03
Fluoranthene	n	1.29E+01	3.98E-09	--	--	--	--	--	--	3.24E+09	--	--	3.84E-04
Fluorene	n	5.36E+00	1.49E-05	--	--	--	--	--	--	3.24E+09	3.60E+05	--	1.60E-04
2-Methylnaphthalene	n	2.04E+00	2.74E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	6.08E-04
Naphthalene	c*	6.14E-01	1.03E-05	7.59E-07	3.40E-02	2.58E-08	2.12E-06	3.00E-03	7.08E-04	3.24E+09	5.94E+04	2.58E-08	7.45E-04
Phenanthrene	--	1.10E+01	3.39E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.02E+01	3.34E-06	--	--	--	--	--	--	3.24E+09	3.05E+06	--	4.05E-04
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	4.20E+01	6.17E-05	4.52E-06	5.70E-01	2.58E-06	--	--	--	3.24E+09	6.81E+05	3.94E-05	2.58E+00
Total						2.6E-06			3.2E-02			4.5E-05	3.1E+00

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.16E-06	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	3.26E-06	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	2.75E-07	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	7.71E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	9.68E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	2.32E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.87E+01	6.54E-07	1.50E+00	9.82E-07	1.83E-06	3.00E-04	3.00E-02	6.11E-03
Barium	nm	2.10E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	7.24E-01	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	2.43E+00	--	--	--	7.92E-09	2.50E-05	1.00E-03	3.17E-04
Chromium (Total)	nm	3.12E+02	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.77E+01	--	--	--	--	3.00E-04	--	--
Copper	n	4.26E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	5.22E+04	--	--	--	--	7.00E-01	--	--
Lead	L	7.42E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.11E+03	--	--	--	--	9.60E-04	--	--
Mercury	ns	6.66E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	6.00E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	5.31E+00	--	--	--	--	5.00E-03	--	--
Silver	n	1.81E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	7.53E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	5.54E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.84E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	0.00E+00	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	0.00E+00	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	0.00E+00	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	0.00E+00	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	1.90E+00	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	0.00E+00	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	4.33E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	4.71E-02	--	--	--	2.00E-08	6.00E-02	1.30E-01	3.33E-07
Acenaphthylene	--	1.68E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.06E-01	--	--	--	1.30E-07	3.00E-01	1.30E-01	4.32E-07
Benzo(a)pyrene	c	1.98E+00	3.00E-07	1.00E+00	3.00E-07	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.25E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.17E-01	--	--	--	4.96E-08	1.00E-03	1.30E-01	4.96E-05
Fluoranthene	n	1.93E+00	--	--	--	8.19E-07	4.00E-02	1.30E-01	2.05E-05
Fluorene	n	6.32E-02	--	--	--	2.68E-08	4.00E-02	1.30E-01	6.70E-07
2-Methylnaphthalene	n	4.67E-01	--	--	--	1.98E-07	4.00E-03	1.30E-01	4.95E-05
Naphthalene	c*	3.18E-01	--	--	--	1.35E-07	2.00E-02	1.30E-01	6.74E-06
Phenanthrene	--	1.43E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.94E+00	--	--	--	8.23E-07	3.00E-02	1.30E-01	2.74E-05
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	2.39E+01	3.90E-06	2.00E+00	7.79E-06	1.09E-05	2.00E-05	1.40E-01	5.45E-01
Total					9.1E-06				5.5E-01

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	9.68E+03	--	--	--	7.46E-03	1.00E+00	7.46E-03
Antimony	n	2.32E+01	--	--	--	1.79E-05	4.00E-04	4.47E-02
Arsenic	cR	1.87E+01	3.09E-06	1.50E+00	4.64E-06	8.66E-06	3.00E-04	2.89E-02
Barium	nm	2.10E+02	--	--	--	1.62E-04	2.00E-01	8.08E-04
Beryllium	n	7.24E-01	--	--	--	5.58E-07	2.00E-03	2.79E-04
Cadmium (food, soil)	n	2.43E+00	--	--	--	1.87E-06	1.00E-03	1.87E-03
Chromium (Total)	nm	3.12E+02	--	--	--	2.40E-04	1.50E+00	1.60E-04
Cobalt	n	1.77E+01	--	--	--	1.36E-05	3.00E-04	4.55E-02
Copper	n	4.26E+02	--	--	--	3.29E-04	4.00E-02	8.21E-03
Iron	nm	5.22E+04	--	--	--	4.03E-02	7.00E-01	5.75E-02
Lead	L	7.42E+02	2.04E-04	8.50E-03	1.74E-06	--	--	--
Manganese	n	2.11E+03	--	--	--	1.63E-03	2.40E-02	6.77E-02
Mercury	ns	6.66E-01	--	--	--	5.13E-07	1.60E-04	3.21E-03
Nickel	n	6.00E+01	--	--	--	4.62E-05	2.00E-02	2.31E-03
Selenium	n	5.31E+00	--	--	--	4.09E-06	5.00E-03	8.18E-04
Silver	n	1.81E+00	--	--	--	1.40E-06	5.00E-03	2.79E-04
Thallium	n	7.53E+00	--	--	--	5.80E-06	1.00E-05	5.80E-01
Vanadium	n	5.54E+01	--	--	--	4.27E-05	5.00E-03	8.54E-03
Zinc	nm	3.84E+02	--	--	--	2.96E-04	3.00E-01	9.86E-04
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	0.00E+00	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	0.00E+00	--	--	--	--	2.00E-03	--
Ethylbenzene	c	0.00E+00	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	0.00E+00	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	1.90E+00	--	--	--	1.46E-06	8.00E-02	1.83E-05
Trichloroethene	c**	0.00E+00	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	4.33E-01	--	--	--	3.34E-07	2.00E-01	1.67E-06
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	4.71E-02	--	--	--	3.63E-08	6.00E-02	6.05E-07
Acenaphthylene	--	1.68E-01	--	--	--	--	--	--
Anthracene	nm	3.06E-01	--	--	--	2.36E-07	3.00E-01	7.86E-07
Benzo(a)pyrene	c	1.98E+00	5.46E-07	1.00E+00	5.46E-07	--	--	--
Benzo(g,h,i)perylene	--	8.25E-01	--	--	--	--	--	--
Dibenzofuran	n	1.17E-01	--	--	--	9.02E-08	1.00E-03	9.02E-05
Fluoranthene	n	1.93E+00	--	--	--	1.49E-06	4.00E-02	3.72E-05
Fluorene	n	6.32E-02	--	--	--	4.87E-08	4.00E-02	1.22E-06
2-Methylnaphthalene	n	4.67E-01	--	--	--	3.60E-07	4.00E-03	9.00E-05
Naphthalene	c*	3.18E-01	--	--	--	2.45E-07	2.00E-02	1.23E-05
Phenanthrene	--	1.43E+00	--	--	--	--	--	--
Pyrene	n	1.94E+00	--	--	--	1.50E-06	3.00E-02	4.99E-05
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	2.39E+01	6.57E-06	2.00E+00	1.31E-05	1.84E-05	2.00E-05	9.20E-01
Total					2.0E-05			1.8E+00

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	9.68E+03	2.99E-06	--	--	--	6.15E-07	5.00E-03	1.23E-04	3.24E+09	--	--	7.58E-03
Antimony	n	2.32E+01	7.17E-09	--	--	--	--	--	--	3.24E+09	--	--	4.47E-02
Arsenic	cR	1.87E+01	5.79E-09	4.25E-10	4.30E+00	1.83E-09	1.19E-09	1.50E-05	7.93E-05	3.24E+09	--	5.62E-06	3.51E-02
Barium	nm	2.10E+02	6.48E-08	--	--	--	1.33E-08	5.00E-04	2.66E-05	3.24E+09	--	--	8.35E-04
Beryllium	n	7.24E-01	2.24E-10	1.64E-11	2.40E+00	3.94E-11	4.60E-11	2.00E-05	2.30E-06	3.24E+09	--	3.94E-11	2.81E-04
Cadmium (food, soil)	n	2.43E+00	7.51E-10	5.51E-11	1.80E+00	9.92E-11	1.54E-10	1.00E-05	1.54E-05	3.24E+09	--	9.92E-11	2.20E-03
Chromium (Total)	nm	3.12E+02	9.63E-08	--	--	--	--	--	--	3.24E+09	--	--	1.60E-04
Cobalt	n	1.77E+01	5.47E-09	4.01E-10	9.00E+00	3.61E-09	1.12E-09	6.00E-06	1.87E-04	3.24E+09	--	3.61E-09	4.56E-02
Copper	n	4.26E+02	1.32E-07	--	--	--	--	--	--	3.24E+09	--	--	8.21E-03
Iron	nm	5.22E+04	1.61E-05	--	--	--	--	--	--	3.24E+09	--	--	5.75E-02
Lead	L	7.42E+02	2.29E-07	1.68E-08	1.20E-02	2.02E-10	--	--	--	3.24E+09	--	1.74E-06	--
Manganese	n	2.11E+03	6.52E-07	--	--	--	1.34E-07	5.00E-05	2.68E-03	3.24E+09	--	--	7.04E-02
Mercury	ns	6.66E-01	3.96E-05	--	--	--	8.14E-06	3.00E-04	2.71E-02	3.24E+09	1.68E+04	--	3.04E-02
Nickel	n	6.00E+01	1.85E-08	1.36E-09	2.60E-01	3.54E-10	3.81E-09	9.00E-05	4.23E-05	3.24E+09	--	3.54E-10	2.35E-03
Selenium	n	5.31E+00	1.64E-09	--	--	--	3.37E-10	2.00E-02	1.68E-08	3.24E+09	--	--	8.18E-04
Silver	n	1.81E+00	5.60E-10	--	--	--	--	--	--	3.24E+09	--	--	2.79E-04
Thallium	n	7.53E+00	2.33E-09	--	--	--	--	--	--	3.24E+09	--	--	5.80E-01
Vanadium	n	5.54E+01	1.71E-08	--	--	--	3.52E-09	1.00E-04	3.52E-05	3.24E+09	--	--	8.58E-03
Zinc	nm	3.84E+02	1.19E-07	--	--	--	--	--	--	3.24E+09	--	--	9.86E-04
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	0.00E+00	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	0.00E+00	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	0.00E+00	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	0.00E+00	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	1.90E+00	6.29E-04	--	--	--	1.29E-04	5.00E+00	2.59E-05	3.24E+09	3.02E+03	--	4.42E-05
Trichloroethene	c**	0.00E+00	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	4.33E-01	7.89E-05	--	--	--	1.62E-05	1.00E-01	1.62E-04	3.24E+09	5.49E+03	--	1.64E-04
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	4.71E-02	2.62E-07	--	--	--	--	--	--	3.24E+09	1.80E+05	--	9.38E-07
Acenaphthylene	--	1.68E-01	5.19E-11	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.06E-01	4.56E-07	--	--	--	--	--	--	3.24E+09	6.71E+05	--	1.22E-06
Benzo(a)pyrene	c	1.98E+00	6.13E-10	4.50E-11	6.00E-01	2.70E-11	--	--	--	3.24E+09	--	8.46E-07	--
Benzo(g,h,i)perylene	--	8.25E-01	2.55E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.17E-01	3.61E-11	--	--	--	--	--	--	3.24E+09	--	--	1.40E-04
Fluoranthene	n	1.93E+00	5.97E-10	--	--	--	--	--	--	3.24E+09	--	--	5.77E-05
Fluorene	n	6.32E-02	1.76E-07	--	--	--	--	--	--	3.24E+09	3.60E+05	--	1.89E-06
2-Methylnaphthalene	n	4.67E-01	6.29E-06	--	--	--	--	--	--	3.24E+09	7.43E+04	--	1.39E-04
Naphthalene	c*	3.18E-01	5.35E-06	3.93E-07	3.40E-02	1.34E-08	1.10E-06	3.00E-03	3.67E-04	3.24E+09	5.94E+04	1.34E-08	3.86E-04
Phenanthrene	--	1.43E+00	4.42E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.94E+00	6.37E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	7.73E-05
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	2.39E+01	3.51E-05	2.57E-06	5.70E-01	1.47E-06	--	--	--	3.24E+09	6.81E+05	2.24E-05	1.47E+00
Total						1.5E-06			3.1E-02			3.1E-05	2.4E+00

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.16E-06	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	3.26E-06	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	2.75E-07	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	7.71E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	2.78E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	9.14E+00	--	--	--	--	6.00E-05	--	--
Arsenic	cR	2.22E+01	7.76E-07	1.50E+00	1.16E-06	2.17E-06	3.00E-04	3.00E-02	7.24E-03
Barium	nm	2.24E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	1.27E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	1.21E+00	--	--	--	3.95E-09	2.50E-05	1.00E-03	1.58E-04
Chromium (Total)	nm	7.18E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.76E+01	--	--	--	--	3.00E-04	--	--
Copper	n	2.88E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	6.95E+04	--	--	--	--	7.00E-01	--	--
Lead	L	1.95E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	6.07E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	2.95E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	8.93E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	--	--	--	--	--	5.00E-03	--	--
Silver	n	6.26E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	9.29E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	6.95E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.30E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	0.00E+00	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	0.00E+00	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	0.00E+00	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	0.00E+00	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	0.00E+00	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	0.00E+00	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	2.20E+00	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.88E+00	--	--	--	7.96E-07	6.00E-02	1.30E-01	1.33E-05
Acenaphthylene	--	1.11E+01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	1.81E+01	--	--	--	7.67E-06	3.00E-01	1.30E-01	2.56E-05
Benzo(a)pyrene	c	2.16E+01	3.26E-06	1.00E+00	3.26E-06	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	1.98E+01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.53E+00	--	--	--	6.49E-07	1.00E-03	1.30E-01	6.49E-04
Fluoranthene	n	6.06E+01	--	--	--	2.57E-05	4.00E-02	1.30E-01	6.43E-04
Fluorene	n	3.58E+00	--	--	--	1.52E-06	4.00E-02	1.30E-01	3.80E-05
2-Methylnaphthalene	n	1.25E+00	--	--	--	5.31E-07	4.00E-03	1.30E-01	1.33E-04
Naphthalene	c*	9.92E-01	--	--	--	4.21E-07	2.00E-02	1.30E-01	2.10E-05
Phenanthrene	--	3.22E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	5.77E+01	--	--	--	2.45E-05	3.00E-02	1.30E-01	8.16E-04
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	1.91E+01	3.11E-06	2.00E+00	6.22E-06	8.70E-06	2.00E-05	1.40E-01	4.35E-01
Total					1.1E-05				4.4E-01

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	2.78E+04	--	--	--	2.14E-02	1.00E+00	2.14E-02
Antimony	n	9.14E+00	--	--	--	7.04E-06	4.00E-04	1.76E-02
Arsenic	cR	2.22E+01	3.67E-06	1.50E+00	5.50E-06	1.03E-05	3.00E-04	3.42E-02
Barium	nm	2.24E+02	--	--	--	1.73E-04	2.00E-01	8.65E-04
Beryllium	n	1.27E+00	--	--	--	9.76E-07	2.00E-03	4.88E-04
Cadmium (food, soil)	n	1.21E+00	--	--	--	9.32E-07	1.00E-03	9.32E-04
Chromium (Total)	nm	7.18E+01	--	--	--	5.53E-05	1.50E+00	3.69E-05
Cobalt	n	1.76E+01	--	--	--	1.35E-05	3.00E-04	4.51E-02
Copper	n	2.88E+02	--	--	--	2.22E-04	4.00E-02	5.55E-03
Iron	nm	6.95E+04	--	--	--	5.35E-02	7.00E-01	7.65E-02
Lead	L	1.95E+02	5.36E-05	8.50E-03	4.56E-07	--	--	--
Manganese	n	6.07E+02	--	--	--	4.68E-04	2.40E-02	1.95E-02
Mercury	ns	2.95E-01	--	--	--	2.27E-07	1.60E-04	1.42E-03
Nickel	n	8.93E+01	--	--	--	6.88E-05	2.00E-02	3.44E-03
Selenium	n	--	--	--	--	--	5.00E-03	--
Silver	n	6.26E+00	--	--	--	4.83E-06	5.00E-03	9.65E-04
Thallium	n	9.29E+00	--	--	--	7.16E-06	1.00E-05	7.16E-01
Vanadium	n	6.95E+01	--	--	--	5.36E-05	5.00E-03	1.07E-02
Zinc	nm	3.30E+02	--	--	--	2.54E-04	3.00E-01	8.47E-04
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	0.00E+00	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	0.00E+00	--	--	--	--	2.00E-03	--
Ethylbenzene	c	0.00E+00	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	0.00E+00	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	0.00E+00	--	--	--	--	8.00E-02	--
Trichloroethene	c**	0.00E+00	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	2.20E+00	--	--	--	1.70E-06	2.00E-01	8.48E-06
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.88E+00	--	--	--	1.45E-06	6.00E-02	2.41E-05
Acenaphthylene	--	1.11E+01	--	--	--	--	--	--
Anthracene	nm	1.81E+01	--	--	--	1.39E-05	3.00E-01	4.65E-05
Benzo(a)pyrene	c	2.16E+01	5.93E-06	1.00E+00	5.93E-06	--	--	--
Benzo(g,h,i)perylene	--	1.98E+01	--	--	--	--	--	--
Dibenzofuran	n	1.53E+00	--	--	--	1.18E-06	1.00E-03	1.18E-03
Fluoranthene	n	6.06E+01	--	--	--	4.67E-05	4.00E-02	1.17E-03
Fluorene	n	3.58E+00	--	--	--	2.76E-06	4.00E-02	6.90E-05
2-Methylnaphthalene	n	1.25E+00	--	--	--	9.65E-07	4.00E-03	2.41E-04
Naphthalene	c*	9.92E-01	--	--	--	7.64E-07	2.00E-02	3.82E-05
Phenanthrene	--	3.22E+01	--	--	--	--	--	--
Pyrene	n	5.77E+01	--	--	--	4.45E-05	3.00E-02	1.48E-03
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	1.91E+01	5.25E-06	2.00E+00	1.05E-05	1.47E-05	2.00E-05	7.34E-01
Total					2.2E-05			1.7E+00

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	2.78E+04	8.58E-06	--	--	--	1.76E-06	5.00E-03	3.53E-04	3.24E+09	--	--	2.18E-02
Antimony	n	9.14E+00	2.82E-09	--	--	--	--	--	--	3.24E+09	--	--	1.76E-02
Arsenic	cR	2.22E+01	6.86E-09	5.04E-10	4.30E+00	2.17E-09	1.41E-09	1.50E-05	9.40E-05	3.24E+09	--	6.67E-06	4.16E-02
Barium	nm	2.24E+02	6.93E-08	--	--	--	1.42E-08	5.00E-04	2.85E-05	3.24E+09	--	--	8.93E-04
Beryllium	n	1.27E+00	3.91E-10	2.87E-11	2.40E+00	6.89E-11	8.04E-11	2.00E-05	4.02E-06	3.24E+09	--	6.89E-11	4.92E-04
Cadmium (food, soil)	n	1.21E+00	3.74E-10	2.74E-11	1.80E+00	4.94E-11	7.68E-11	1.00E-05	7.68E-06	3.24E+09	--	4.94E-11	1.10E-03
Chromium (Total)	nm	7.18E+01	2.22E-08	--	--	--	--	--	--	3.24E+09	--	--	3.69E-05
Cobalt	n	1.76E+01	5.42E-09	3.98E-10	9.00E+00	3.58E-09	1.11E-09	6.00E-06	1.86E-04	3.24E+09	--	3.58E-09	4.53E-02
Copper	n	2.88E+02	8.90E-08	--	--	--	--	--	--	3.24E+09	--	--	5.55E-03
Iron	nm	6.95E+04	2.15E-05	--	--	--	--	--	--	3.24E+09	--	--	7.65E-02
Lead	L	1.95E+02	6.02E-08	4.42E-09	1.20E-02	5.30E-11	--	--	--	3.24E+09	--	4.56E-07	--
Manganese	n	6.07E+02	1.88E-07	--	--	--	3.86E-08	5.00E-05	7.71E-04	3.24E+09	--	--	2.03E-02
Mercury	ns	2.95E-01	1.76E-05	--	--	--	3.61E-06	3.00E-04	1.20E-02	3.24E+09	1.68E+04	--	1.34E-02
Nickel	n	8.93E+01	2.76E-08	2.03E-09	2.60E-01	5.27E-10	5.67E-09	9.00E-05	6.30E-05	3.24E+09	--	5.27E-10	3.50E-03
Selenium	n	--	0.00E+00	--	--	--	--	2.00E-02	--	3.24E+09	--	--	--
Silver	n	6.26E+00	1.94E-09	--	--	--	--	--	--	3.24E+09	--	--	9.65E-04
Thallium	n	9.29E+00	2.87E-09	--	--	--	--	--	--	3.24E+09	--	--	7.16E-01
Vanadium	n	6.95E+01	2.15E-08	--	--	--	4.41E-09	1.00E-04	4.41E-05	3.24E+09	--	--	1.08E-02
Zinc	nm	3.30E+02	1.02E-07	--	--	--	--	--	--	3.24E+09	--	--	8.47E-04
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	0.00E+00	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	0.00E+00	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	0.00E+00	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	0.00E+00	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	0.00E+00	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	0.00E+00	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	2.20E+00	4.01E-04	--	--	--	8.24E-05	1.00E-01	8.24E-04	3.24E+09	5.49E+03	--	8.32E-04
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.88E+00	1.04E-05	--	--	--	--	--	--	3.24E+09	1.80E+05	--	3.74E-05
Acenaphthylene	--	1.11E+01	3.44E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	1.81E+01	2.70E-05	--	--	--	--	--	--	3.24E+09	6.71E+05	--	7.20E-05
Benzo(a)pyrene	c	2.16E+01	6.66E-09	4.89E-10	6.00E-01	2.93E-10	--	--	--	3.24E+09	--	9.19E-06	--
Benzo(g,h,i)perylene	--	1.98E+01	6.11E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.53E+00	4.73E-10	--	--	--	--	--	--	3.24E+09	--	--	1.83E-03
Fluoranthene	n	6.06E+01	1.87E-08	--	--	--	--	--	--	3.24E+09	--	--	1.81E-03
Fluorene	n	3.58E+00	9.95E-06	--	--	--	--	--	--	3.24E+09	3.60E+05	--	1.07E-04
2-Methylnaphthalene	n	1.25E+00	1.69E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	3.74E-04
Naphthalene	c*	9.92E-01	1.67E-05	1.23E-06	3.40E-02	4.17E-08	3.43E-06	3.00E-03	1.14E-03	3.24E+09	5.94E+04	4.17E-08	1.20E-03
Phenanthrene	--	3.22E+01	9.95E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	5.77E+01	1.89E-05	--	--	--	--	--	--	3.24E+09	3.05E+06	--	2.30E-03
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	1.91E+01	2.80E-05	2.05E-06	5.70E-01	1.17E-06	--	--	--	3.24E+09	6.81E+05	1.79E-05	1.17E+00
Total						1.2E-06			1.6E-02			3.4E-05	2.2E+00

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.12	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.16E-06	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	3.26E-06	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	2.75E-07	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	7.71E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	225	EPA, 1991		
ED	Exposure Duration	years	25	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	1.02E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	5.81E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	3.79E+01	1.32E-06	1.50E+00	1.98E-06	3.70E-06	3.00E-04	3.00E-02	1.23E-02
Barium	nm	1.26E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	2.10E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	--	--	--	--	--	2.50E-05	1.00E-03	--
Chromium (Total)	nm	3.83E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	7.43E+00	--	--	--	--	3.00E-04	--	--
Copper	n	2.12E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	3.69E+04	--	--	--	--	7.00E-01	--	--
Lead	L	3.49E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.30E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	3.37E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	3.06E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	1.02E+01	--	--	--	--	5.00E-03	--	--
Silver	n	3.76E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	N/A	--	--	--	--	1.00E-05	--	--
Vanadium	n	3.37E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	1.34E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	3.30E+02	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	0.00E+00	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	0.00E+00	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	1.50E+01	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	0.00E+00	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	0.00E+00	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	4.70E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.09E-01	--	--	--	4.62E-08	6.00E-02	1.30E-01	7.70E-07
Acenaphthylene	--	3.22E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	5.08E-01	--	--	--	2.15E-07	3.00E-01	1.30E-01	7.18E-07
Benzo(a)pyrene	c	1.83E+00	2.77E-07	1.00E+00	2.77E-07	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.37E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	4.58E-01	--	--	--	1.94E-07	1.00E-03	1.30E-01	1.94E-04
Fluoranthene	n	1.99E+00	--	--	--	8.44E-07	4.00E-02	1.30E-01	2.11E-05
Fluorene	n	1.39E-01	--	--	--	5.89E-08	4.00E-02	1.30E-01	1.47E-06
2-Methylnaphthalene	n	1.15E+00	--	--	--	4.88E-07	4.00E-03	1.30E-01	1.22E-04
Naphthalene	c*	7.50E-01	--	--	--	3.18E-07	2.00E-02	1.30E-01	1.59E-05
Phenanthrene	--	2.11E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.75E+00	--	--	--	7.40E-07	3.00E-02	1.30E-01	2.47E-05
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	4.64E+03	7.56E-04	2.00E+00	1.51E-03	2.12E-03	2.00E-05	1.40E-01	1.06E+02
Total					1.5E-03				1.1E+02

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	1.02E+04	--	--	--	7.87E-03	1.00E+00	7.87E-03
Antimony	n	5.81E+01	--	--	--	4.48E-05	4.00E-04	1.12E-01
Arsenic	cR	3.79E+01	6.25E-06	1.50E+00	9.38E-06	1.75E-05	3.00E-04	5.83E-02
Barium	nm	1.26E+02	--	--	--	9.68E-05	2.00E-01	4.84E-04
Beryllium	n	2.10E+00	--	--	--	1.62E-06	2.00E-03	8.09E-04
Cadmium (food, soil)	n	--	--	--	--	--	1.00E-03	--
Chromium (Total)	nm	3.83E+01	--	--	--	2.95E-05	1.50E+00	1.97E-05
Cobalt	n	7.43E+00	--	--	--	5.72E-06	3.00E-04	1.91E-02
Copper	n	2.12E+02	--	--	--	1.64E-04	4.00E-02	4.09E-03
Iron	nm	3.69E+04	--	--	--	2.84E-02	7.00E-01	4.06E-02
Lead	L	3.49E+02	9.61E-05	8.50E-03	8.17E-07	--	--	--
Manganese	n	2.30E+02	--	--	--	1.77E-04	2.40E-02	7.39E-03
Mercury	ns	3.37E-01	--	--	--	2.60E-07	1.60E-04	1.62E-03
Nickel	n	3.06E+01	--	--	--	2.36E-05	2.00E-02	1.18E-03
Selenium	n	1.02E+01	--	--	--	7.86E-06	5.00E-03	1.57E-03
Silver	n	3.76E+00	--	--	--	2.90E-06	5.00E-03	5.79E-04
Thallium	n	N/A	--	--	--	0.00E+00	1.00E-05	--
Vanadium	n	3.37E+01	--	--	--	2.59E-05	5.00E-03	5.19E-03
Zinc	nm	1.34E+02	--	--	--	1.03E-04	3.00E-01	3.44E-04
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	3.30E+02	9.08E-05	5.40E-03	4.90E-07	2.54E-04	7.00E-02	3.63E-03
cis-1,2-Dichloroethene	n	0.00E+00	--	--	--	--	2.00E-03	--
Ethylbenzene	c	0.00E+00	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	1.50E+01	4.13E-06	1.60E+00	6.60E-06	1.16E-05	8.00E-04	1.44E-02
Toluene	ns	0.00E+00	--	--	--	--	8.00E-02	--
Trichloroethene	c**	0.00E+00	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	4.70E-01	--	--	--	3.62E-07	2.00E-01	1.81E-06
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.09E-01	--	--	--	8.40E-08	6.00E-02	1.40E-06
Acenaphthylene	--	3.22E-01	--	--	--	--	--	--
Anthracene	nm	5.08E-01	--	--	--	3.91E-07	3.00E-01	1.30E-06
Benzo(a)pyrene	c	1.83E+00	5.03E-07	1.00E+00	5.03E-07	--	--	--
Benzo(g,h,i)perylene	--	8.37E-01	--	--	--	--	--	--
Dibenzofuran	n	4.58E-01	--	--	--	3.53E-07	1.00E-03	3.53E-04
Fluoranthene	n	1.99E+00	--	--	--	1.53E-06	4.00E-02	3.83E-05
Fluorene	n	1.39E-01	--	--	--	1.07E-07	4.00E-02	2.68E-06
2-Methylnaphthalene	n	1.15E+00	--	--	--	8.86E-07	4.00E-03	2.22E-04
Naphthalene	c*	7.50E-01	--	--	--	5.78E-07	2.00E-02	2.89E-05
Phenanthrene	--	2.11E+00	--	--	--	--	--	--
Pyrene	n	1.75E+00	--	--	--	1.34E-06	3.00E-02	4.48E-05
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	4.64E+03	1.28E-03	2.00E+00	2.55E-03	3.57E-03	2.00E-05	1.79E+02
Total					2.6E-03			1.8E+02

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	1.02E+04	3.16E-06	--	--	--	6.48E-07	5.00E-03	1.30E-04	3.24E+09	--	--	8.00E-03
Antimony	n	5.81E+01	1.80E-08	--	--	--	--	--	--	3.24E+09	--	--	1.12E-01
Arsenic	cR	3.79E+01	1.17E-08	8.58E-10	4.30E+00	3.69E-09	2.40E-09	1.50E-05	1.60E-04	3.24E+09	--	1.14E-05	7.09E-02
Barium	nm	1.26E+02	3.88E-08	--	--	--	7.97E-09	5.00E-04	1.59E-05	3.24E+09	--	--	5.00E-04
Beryllium	n	2.10E+00	6.49E-10	4.76E-11	2.40E+00	1.14E-10	1.33E-10	2.00E-05	6.67E-06	3.24E+09	--	1.14E-10	8.16E-04
Cadmium (food, soil)	n	--	0.00E+00	--	1.80E+00	--	--	1.00E-05	--	3.24E+09	--	--	--
Chromium (Total)	nm	3.83E+01	1.18E-08	--	--	--	--	--	--	3.24E+09	--	--	1.97E-05
Cobalt	n	7.43E+00	2.30E-09	1.68E-10	9.00E+00	1.52E-09	4.72E-10	6.00E-06	7.86E-05	3.24E+09	--	1.52E-09	1.92E-02
Copper	n	2.12E+02	6.56E-08	--	--	--	--	--	--	3.24E+09	--	--	4.09E-03
Iron	nm	3.69E+04	1.14E-05	--	--	--	--	--	--	3.24E+09	--	--	4.06E-02
Lead	L	3.49E+02	1.08E-07	7.92E-09	1.20E-02	9.50E-11	--	--	--	3.24E+09	--	8.17E-07	--
Manganese	n	2.30E+02	7.11E-08	--	--	--	1.46E-08	5.00E-05	2.92E-04	3.24E+09	--	--	7.68E-03
Mercury	ns	3.37E-01	2.01E-05	--	--	--	4.12E-06	3.00E-04	1.37E-02	3.24E+09	1.68E+04	--	1.54E-02
Nickel	n	3.06E+01	9.44E-09	6.93E-10	2.60E-01	1.80E-10	1.94E-09	9.00E-05	2.16E-05	3.24E+09	--	1.80E-10	1.20E-03
Selenium	n	1.02E+01	3.15E-09	--	--	--	6.48E-10	2.00E-02	3.24E-08	3.24E+09	--	--	1.57E-03
Silver	n	3.76E+00	1.16E-09	--	--	--	--	--	--	3.24E+09	--	--	5.79E-04
Thallium	n	N/A	0.00E+00	--	--	--	--	--	--	3.24E+09	--	--	--
Vanadium	n	3.37E+01	1.04E-08	--	--	--	2.14E-09	1.00E-04	2.14E-05	3.24E+09	--	--	5.21E-03
Zinc	nm	1.34E+02	4.14E-08	--	--	--	--	--	--	3.24E+09	--	--	3.44E-04
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	3.30E+02	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	4.90E-07	3.63E-03
cis-1,2-Dichloroethene	n	0.00E+00	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	0.00E+00	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	1.50E+01	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	6.60E-06	1.44E-02
Toluene	ns	0.00E+00	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	0.00E+00	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	4.70E-01	8.57E-05	--	--	--	1.76E-05	1.00E-01	1.76E-04	3.24E+09	5.49E+03	--	1.78E-04
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.09E-01	6.06E-07	--	--	--	--	--	--	3.24E+09	1.80E+05	--	2.17E-06
Acenaphthylene	--	3.22E-01	9.95E-11	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	5.08E-01	7.57E-07	--	--	--	--	--	--	3.24E+09	6.71E+05	--	2.02E-06
Benzo(a)pyrene	c	1.83E+00	5.64E-10	4.14E-11	6.00E-01	2.49E-11	--	--	--	3.24E+09	--	7.79E-07	--
Benzo(g,h,i)perylene	--	8.37E-01	2.59E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	4.58E-01	1.41E-10	--	--	--	--	--	--	3.24E+09	--	--	5.47E-04
Fluoranthene	n	1.99E+00	6.15E-10	--	--	--	--	--	--	3.24E+09	--	--	5.94E-05
Fluorene	n	1.39E-01	3.86E-07	--	--	--	--	--	--	3.24E+09	3.60E+05	--	4.15E-06
2-Methylnaphthalene	n	1.15E+00	1.55E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	3.43E-04
Naphthalene	c*	7.50E-01	1.26E-05	9.27E-07	3.40E-02	3.15E-08	2.59E-06	3.00E-03	8.65E-04	3.24E+09	5.94E+04	3.15E-08	9.10E-04
Phenanthrene	--	2.11E+00	6.51E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.75E+00	5.73E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	6.95E-05
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	4.64E+03	6.81E-03	5.00E-04	5.70E-01	2.85E-04	--	--	--	3.24E+09	6.81E+05	4.35E-03	2.85E+02
Total						2.8E-04			1.6E-02			4.4E-03	2.8E+02

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	4,600 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
BW	Body Weight	kg	57	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	6.63E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	6.63E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
BW	Body Weight	kg	57	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	4.81E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	4.81E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
ET	Exposure Time	hours/day	2	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	9.31E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	4.00E+02	--	--	--	--	6.00E-05	--	--
Arsenic	cR	2.96E+01	5.88E-08	1.50E+00	8.82E-08	5.88E-07	3.00E-04	3.00E-02	1.96E-03
Barium	nm	1.39E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	8.43E-01	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	2.59E+00	--	--	--	1.72E-09	2.50E-05	1.00E-03	6.87E-05
Chromium (Total)	nm	1.22E+02	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.14E+01	--	--	--	--	3.00E-04	--	--
Copper	n	2.86E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	4.96E+04	--	--	--	--	7.00E-01	--	--
Lead	L	2.00E+03	--	8.50E-03	--	--	--	--	--
Manganese	n	3.88E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	5.07E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	3.83E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	3.77E+00	--	--	--	--	5.00E-03	--	--
Silver	n	2.95E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	5.31E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	3.49E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	4.11E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	2.66E-01	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	9.28E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.63E+00	--	--	--	1.40E-07	6.00E-02	1.30E-01	2.34E-06
Acenaphthylene	--	5.67E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	1.28E+00	--	--	--	1.11E-07	3.00E-01	1.30E-01	3.69E-07
Benzo(a)pyrene	c	1.95E+00	1.68E-08	1.00E+00	1.68E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.79E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.28E+00	--	--	--	1.11E-07	1.00E-03	1.30E-01	1.11E-04
Fluoranthene	n	2.17E+00	--	--	--	1.87E-07	4.00E-02	1.30E-01	4.68E-06
Fluorene	n	2.68E+00	--	--	--	2.31E-07	4.00E-02	1.30E-01	5.78E-06
2-Methylnaphthalene	n	1.87E+01	--	--	--	1.61E-06	4.00E-03	1.30E-01	4.03E-04
Naphthalene	c*	3.65E+00	--	--	--	3.15E-07	2.00E-02	1.30E-01	1.57E-05
Phenanthrene	--	7.26E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	2.06E+00	--	--	--	1.77E-07	3.00E-02	1.30E-01	5.91E-06
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	1.24E+01	1.15E-07	2.00E+000	2.31E-07	1.15E-06	2.00E-05	1.40E-01	5.77E-02
Total					3.4E-07				6.0E-02

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	9.31E+03	--	--	--	4.47E-04	1.00E+00	4.47E-04
Antimony	n	4.00E+02	--	--	--	1.92E-05	4.00E-04	4.81E-02
Arsenic	cR	2.96E+01	8.52E-08	1.50E+00	1.28E-07	8.52E-07	3.00E-04	2.84E-03
Barium	nm	1.39E+02	--	--	--	6.66E-06	2.00E-01	3.33E-05
Beryllium	n	8.43E-01	--	--	--	4.05E-08	2.00E-03	2.03E-05
Cadmium (food, soil)	n	2.59E+00	--	--	--	1.25E-07	1.00E-03	1.25E-04
Chromium (Total)	nm	1.22E+02	--	--	--	5.87E-06	1.50E+00	3.91E-06
Cobalt	n	1.14E+01	--	--	--	5.50E-07	3.00E-04	1.83E-03
Copper	n	2.86E+02	--	--	--	1.37E-05	4.00E-02	3.43E-04
Iron	nm	4.96E+04	--	--	--	2.39E-03	7.00E-01	3.41E-03
Lead	L	2.00E+03	9.60E-06	8.50E-03	8.16E-08	--	--	--
Manganese	n	3.88E+02	--	--	--	1.87E-05	2.40E-02	7.77E-04
Mercury	ns	5.07E-01	--	--	--	2.44E-08	1.60E-04	1.52E-04
Nickel	n	3.83E+01	--	--	--	1.84E-06	2.00E-02	9.20E-05
Selenium	n	3.77E+00	--	--	--	1.81E-07	5.00E-03	3.62E-05
Silver	n	2.95E+00	--	--	--	1.42E-07	5.00E-03	2.84E-05
Thallium	n	5.31E+00	--	--	--	2.55E-07	1.00E-05	2.55E-02
Vanadium	n	3.49E+01	--	--	--	1.68E-06	5.00E-03	3.36E-04
Zinc	nm	4.11E+02	--	--	--	1.98E-05	3.00E-01	6.59E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	2.66E-01	--	--	--	1.28E-08	8.00E-02	1.60E-07
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	9.28E-01	--	--	--	4.46E-08	2.00E-01	2.23E-07
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.63E+00	--	--	--	7.82E-08	6.00E-02	1.30E-06
Acenaphthylene	--	5.67E-01	--	--	--	--	--	--
Anthracene	nm	1.28E+00	--	--	--	6.17E-08	3.00E-01	2.06E-07
Benzo(a)pyrene	c	1.95E+00	9.39E-09	1.00E+00	9.39E-09	--	--	--
Benzo(g,h,i)perylene	--	8.79E-01	--	--	--	--	--	--
Dibenzofuran	n	1.28E+00	--	--	--	6.17E-08	1.00E-03	6.17E-05
Fluoranthene	n	2.17E+00	--	--	--	1.04E-07	4.00E-02	2.61E-06
Fluorene	n	2.68E+00	--	--	--	1.29E-07	4.00E-02	3.22E-06
2-Methylnaphthalene	n	1.87E+01	--	--	--	8.98E-07	4.00E-03	2.24E-04
Naphthalene	c*	3.65E+00	--	--	--	1.75E-07	2.00E-02	8.77E-06
Phenanthrene	--	7.26E+00	--	--	--	--	--	--
Pyrene	n	2.06E+00	--	--	--	9.88E-08	3.00E-02	3.29E-06
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	1.24E+01	5.97E-07	2.00E-05	1.19E-07	5.97E-07	2.00E-05	2.98E-02
Total					3.4E-07			1.1E-01

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	9.31E+03	2.88E-06	--	--	--	6.57E-09	5.00E-03	1.31E-06	3.24E+09	--	--	4.49E-04
Antimony	n	4.00E+02	1.24E-07	--	--	--	--	--	--	3.24E+09	--	--	4.81E-02
Arsenic	cR	2.96E+01	9.13E-09	2.08E-12	4.30E+00	8.96E-12	2.08E-11	1.50E-05	1.39E-06	3.24E+09	--	2.16E-07	4.80E-03
Barium	nm	1.39E+02	4.28E-08	--	--	--	9.77E-11	5.00E-04	1.95E-07	3.24E+09	--	--	3.35E-05
Beryllium	n	8.43E-01	2.60E-10	5.95E-14	2.40E+00	1.43E-13	5.95E-13	2.00E-05	2.97E-08	3.24E+09	--	1.43E-13	2.03E-05
Cadmium (food, soil)	n	2.59E+00	8.00E-10	1.83E-13	1.80E+00	3.29E-13	1.83E-12	1.00E-05	1.83E-07	3.24E+09	--	3.29E-13	1.93E-04
Chromium (Total)	nm	1.22E+02	3.77E-08	--	--	--	--	--	--	3.24E+09	--	--	3.91E-06
Cobalt	n	1.14E+01	3.53E-09	8.07E-13	9.00E+00	7.26E-12	8.07E-12	6.00E-06	1.34E-06	3.24E+09	--	7.26E-12	1.83E-03
Copper	n	2.86E+02	8.82E-08	--	--	--	--	--	--	3.24E+09	--	--	3.43E-04
Iron	nm	4.96E+04	1.53E-05	--	--	--	--	--	--	3.24E+09	--	--	3.41E-03
Lead	L	2.00E+03	6.17E-07	1.41E-10	1.20E-02	1.69E-12	--	--	--	3.24E+09	--	8.16E-08	--
Manganese	n	3.88E+02	1.20E-07	--	--	--	2.74E-10	5.00E-05	5.47E-06	3.24E+09	--	--	7.83E-04
Mercury	ns	5.07E-01	3.02E-05	--	--	--	6.89E-08	3.00E-04	2.30E-04	3.24E+09	1.68E+04	--	3.82E-04
Nickel	n	3.83E+01	1.18E-08	2.70E-12	2.60E-01	7.02E-13	2.70E-11	9.00E-05	3.00E-07	3.24E+09	--	7.02E-13	9.23E-05
Selenium	n	3.77E+00	1.16E-09	--	--	--	2.66E-12	2.00E-02	1.33E-10	3.24E+09	--	--	3.62E-05
Silver	n	2.95E+00	9.13E-10	--	--	--	--	--	--	3.24E+09	--	--	2.84E-05
Thallium	n	5.31E+00	1.64E-09	--	--	--	--	--	--	3.24E+09	--	--	2.55E-02
Vanadium	n	3.49E+01	1.08E-08	--	--	--	2.46E-11	1.00E-04	2.46E-07	3.24E+09	--	--	3.36E-04
Zinc	nm	4.11E+02	1.27E-07	--	--	--	--	--	--	3.24E+09	--	--	6.59E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	2.66E-01	8.81E-05	--	--	--	2.01E-07	5.00E+00	4.02E-08	3.24E+09	3.02E+03	--	2.00E-07
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	9.28E-01	1.69E-04	--	--	--	3.86E-07	1.00E-01	3.86E-06	3.24E+09	5.49E+03	--	4.08E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.63E+00	9.03E-06	--	--	--	--	--	--	3.24E+09	1.80E+05	--	3.64E-06
Acenaphthylene	--	5.67E-01	1.75E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	1.28E+00	1.91E-06	--	--	--	--	--	--	3.24E+09	6.71E+05	--	5.75E-07
Benzo(a)pyrene	c	1.95E+00	6.03E-10	1.38E-13	6.00E-01	8.27E-14	--	--	--	3.24E+09	--	2.62E-08	--
Benzo(g,h,i)perylene	--	8.79E-01	2.72E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.28E+00	3.96E-10	--	--	--	--	--	--	3.24E+09	--	--	1.72E-04
Fluoranthene	n	2.17E+00	6.71E-10	--	--	--	--	--	--	3.24E+09	--	--	7.30E-06
Fluorene	n	2.68E+00	7.45E-06	--	--	--	--	--	--	3.24E+09	3.60E+05	--	9.01E-06
2-Methylnaphthalene	n	1.87E+01	2.51E-04	--	--	--	--	--	--	3.24E+09	7.43E+04	--	6.27E-04
Naphthalene	c*	3.65E+00	6.14E-05	1.40E-08	3.40E-02	4.77E-10	1.40E-07	3.00E-03	4.68E-05	3.24E+09	5.94E+04	4.77E-10	7.13E-05
Phenanthrene	--	7.26E+00	2.24E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	2.06E+00	6.75E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	9.20E-06
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	1.24E+01	1.82E-05	4.16E-09	5.70E-01	2.37E-09	--	--	2.98E-04	3.24E+09	6.81E+05	3.52E-07	8.75E-02
Total						2.9E-09			2.9E-04			6.8E-07	1.7E-01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	4,600 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
BW	Body Weight	kg	57	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	6.63E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	6.63E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
BW	Body Weight	kg	57	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	4.81E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	4.81E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
ET	Exposure Time	hours/day	2	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	8.53E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	8.15E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	3.51E+01	6.99E-08	1.50E+00	1.05E-07	6.99E-07	3.00E-04	3.00E-02	2.33E-03
Barium	nm	1.85E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	9.46E-01	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	2.30E+00	--	--	--	1.53E-09	2.50E-05	1.00E-03	6.10E-05
Chromium (Total)	nm	5.19E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	9.35E+00	--	--	--	--	3.00E-04	--	--
Copper	n	2.33E+03	--	--	--	--	4.00E-02	--	--
Iron	nm	3.62E+04	--	--	--	--	7.00E-01	--	--
Lead	L	9.50E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.06E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	3.24E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	1.37E+02	--	--	--	--	8.00E-04	--	--
Selenium	n	1.19E+01	--	--	--	--	5.00E-03	--	--
Silver	n	3.67E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	--	--	--	--	--	1.00E-05	--	--
Vanadium	n	2.72E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.81E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	2.40E+00	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	1.20E+00	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	6.04E+00	--	--	--	5.20E-07	6.00E-02	1.30E-01	8.67E-06
Acenaphthylene	--	8.26E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.60E+01	--	--	--	3.10E-06	3.00E-01	1.30E-01	1.03E-05
Benzo(a)pyrene	c	5.07E+00	4.37E-08	1.00E+00	4.37E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	2.15E+00	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.04E+01	--	--	--	8.97E-07	1.00E-03	1.30E-01	8.97E-04
Fluoranthene	n	5.33E+01	--	--	--	4.60E-06	4.00E-02	1.30E-01	1.15E-04
Fluorene	n	2.43E+01	--	--	--	2.10E-06	4.00E-02	1.30E-01	5.24E-05
2-Methylnaphthalene	n	5.11E+00	--	--	--	4.41E-07	4.00E-03	1.30E-01	1.10E-04
Naphthalene	c*	3.80E+00	--	--	--	3.27E-07	2.00E-02	1.30E-01	1.64E-05
Phenanthrene	--	6.52E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	4.16E+01	--	--	--	3.59E-06	3.00E-02	1.30E-01	1.20E-04
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	2.01E+02	1.87E-06	2.00E+00	3.73E-06	1.87E-05	2.00E-05	1.40E-01	9.34E-01
Total					3.9E-06				9.4E-01

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	8.53E+03	--	--	--	4.10E-04	1.00E+00	4.10E-04
Antimony	n	8.15E+01	--	--	--	3.92E-06	4.00E-04	9.79E-03
Arsenic	cR	3.51E+01	1.01E-07	1.50E+00	1.52E-07	1.01E-06	3.00E-04	3.38E-03
Barium	nm	1.85E+02	--	--	--	8.91E-06	2.00E-01	4.46E-05
Beryllium	n	9.46E-01	--	--	--	4.55E-08	2.00E-03	2.27E-05
Cadmium (food, soil)	n	2.30E+00	--	--	--	1.11E-07	1.00E-03	1.11E-04
Chromium (Total)	nm	5.19E+01	--	--	--	2.50E-06	1.50E+00	1.66E-06
Cobalt	n	9.35E+00	--	--	--	4.50E-07	3.00E-04	1.50E-03
Copper	n	2.33E+03	--	--	--	1.12E-04	4.00E-02	2.80E-03
Iron	nm	3.62E+04	--	--	--	1.74E-03	7.00E-01	2.49E-03
Lead	L	9.50E+02	4.57E-06	8.50E-03	3.88E-08	--	--	--
Manganese	n	2.06E+02	--	--	--	9.91E-06	2.40E-02	4.13E-04
Mercury	ns	3.24E-01	--	--	--	1.56E-08	1.60E-04	9.73E-05
Nickel	n	1.37E+02	--	--	--	6.60E-06	2.00E-02	3.30E-04
Selenium	n	1.19E+01	--	--	--	5.72E-07	5.00E-03	1.14E-04
Silver	n	3.67E+00	--	--	--	1.76E-07	5.00E-03	3.53E-05
Thallium	n	--	--	--	--	--	1.00E-05	--
Vanadium	n	2.72E+01	--	--	--	1.31E-06	5.00E-03	2.62E-04
Zinc	nm	3.81E+02	--	--	--	1.83E-05	3.00E-01	6.11E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	2.40E+00	--	--	--	1.15E-07	8.00E-02	1.44E-06
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	1.20E+00	--	--	--	5.78E-08	2.00E-01	2.89E-07
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	6.04E+00	--	--	--	2.90E-07	6.00E-02	4.84E-06
Acenaphthylene	--	8.26E-01	--	--	--	--	--	--
Anthracene	nm	3.60E+01	--	--	--	1.73E-06	3.00E-01	5.76E-06
Benzo(a)pyrene	c	5.07E+00	2.44E-08	1.00E+00	2.44E-08	--	--	--
Benzo(g,h,i)perylene	--	2.15E+00	--	--	--	--	--	--
Dibenzofuran	n	1.04E+01	--	--	--	5.00E-07	1.00E-03	5.00E-04
Fluoranthene	n	5.33E+01	--	--	--	2.56E-06	4.00E-02	6.41E-05
Fluorene	n	2.43E+01	--	--	--	1.17E-06	4.00E-02	2.92E-05
2-Methylnaphthalene	n	5.11E+00	--	--	--	2.46E-07	4.00E-03	6.14E-05
Naphthalene	c*	3.80E+00	--	--	--	1.82E-07	2.00E-02	9.12E-06
Phenanthrene	--	6.52E+01	--	--	--	--	--	--
Pyrene	n	4.16E+01	--	--	--	2.00E-06	3.00E-02	6.67E-05
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	2.01E+02	9.67E-07	2.00E+00	1.93E-06	9.67E-06	2.00E-05	4.83E-01
Total					2.1E-06			5.1E-01

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	8.53E+03	2.64E-06	--	--	--	6.02E-09	5.00E-03	1.20E-06	3.24E+09	--	--	4.11E-04
Antimony	n	8.15E+01	2.52E-08	--	--	--	--	--	--	3.24E+09	--	--	9.79E-03
Arsenic	cR	3.51E+01	1.08E-08	2.48E-12	4.30E+00	1.07E-11	2.48E-11	1.50E-05	1.65E-06	3.24E+09	--	2.57E-07	5.71E-03
Barium	nm	1.85E+02	5.73E-08	--	--	--	1.31E-10	5.00E-04	2.62E-07	3.24E+09	--	--	4.48E-05
Beryllium	n	9.46E-01	2.92E-10	6.67E-14	2.40E+00	1.60E-13	6.67E-13	2.00E-05	3.34E-08	3.24E+09	--	1.60E-13	2.28E-05
Cadmium (food, soil)	n	2.30E+00	7.11E-10	1.62E-13	1.80E+00	2.92E-13	1.62E-12	1.00E-05	1.62E-07	3.24E+09	--	2.92E-13	1.72E-04
Chromium (Total)	nm	5.19E+01	1.60E-08	--	--	--	--	--	--	3.24E+09	--	--	1.66E-06
Cobalt	n	9.35E+00	2.89E-09	6.60E-13	9.00E+00	5.94E-12	6.60E-12	6.00E-06	1.10E-06	3.24E+09	--	5.94E-12	1.50E-03
Copper	n	2.33E+03	7.21E-07	--	--	--	--	--	--	3.24E+09	--	--	2.80E-03
Iron	nm	3.62E+04	1.12E-05	--	--	--	--	--	--	3.24E+09	--	--	2.49E-03
Lead	L	9.50E+02	2.94E-07	6.70E-11	1.20E-02	8.04E-13	--	--	--	3.24E+09	--	3.88E-08	--
Manganese	n	2.06E+02	6.37E-08	--	--	--	1.45E-10	5.00E-05	2.91E-06	3.24E+09	--	--	4.16E-04
Mercury	ns	3.24E-01	1.93E-05	--	--	--	4.40E-08	3.00E-04	1.47E-04	3.24E+09	1.68E+04	--	2.44E-04
Nickel	n	1.37E+02	4.24E-08	9.69E-12	2.60E-01	2.52E-12	9.69E-11	9.00E-05	1.08E-06	3.24E+09	--	2.52E-12	3.31E-04
Selenium	n	1.19E+01	3.68E-09	--	--	--	8.39E-12	2.00E-02	4.20E-10	3.24E+09	--	--	1.14E-04
Silver	n	3.67E+00	1.13E-09	--	--	--	--	--	--	3.24E+09	--	--	3.53E-05
Thallium	n	--	0.00E+00	--	--	--	--	--	--	3.24E+09	--	--	--
Vanadium	n	2.72E+01	8.41E-09	--	--	--	1.92E-11	1.00E-04	1.92E-07	3.24E+09	--	--	2.62E-04
Zinc	nm	3.81E+02	1.18E-07	--	--	--	--	--	--	3.24E+09	--	--	6.11E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	2.40E+00	7.95E-04	--	--	--	1.81E-06	5.00E+00	3.63E-07	3.24E+09	3.02E+03	--	1.80E-06
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	1.20E+00	2.19E-04	--	--	--	5.01E-07	1.00E-01	5.01E-06	3.24E+09	5.49E+03	--	5.29E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	6.04E+00	3.35E-05	--	--	--	--	--	--	3.24E+09	1.80E+05	--	1.35E-05
Acenaphthylene	--	8.26E-01	2.55E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.60E+01	5.36E-05	--	--	--	--	--	--	3.24E+09	6.71E+05	--	1.61E-05
Benzo(a)pyrene	c	5.07E+00	1.57E-09	3.57E-13	6.00E-01	2.14E-13	--	--	--	3.24E+09	--	6.80E-08	--
Benzo(g,h,i)perylene	--	2.15E+00	6.65E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.04E+01	3.21E-09	--	--	--	--	--	--	3.24E+09	--	--	1.40E-03
Fluoranthene	n	5.33E+01	1.65E-08	--	--	--	--	--	--	3.24E+09	--	--	1.79E-04
Fluorene	n	2.43E+01	6.76E-05	--	--	--	--	--	--	3.24E+09	3.60E+05	--	8.17E-05
2-Methylnaphthalene	n	5.11E+00	6.88E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	1.72E-04
Naphthalene	c*	3.80E+00	6.39E-05	1.46E-08	3.40E-02	4.96E-10	1.46E-07	3.00E-03	4.86E-05	3.24E+09	5.94E+04	4.96E-10	7.41E-05
Phenanthrene	--	6.52E+01	2.01E-08	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	4.16E+01	1.37E-05	--	--	--	--	--	--	3.24E+09	3.05E+06	--	1.86E-04
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	2.01E+02	2.95E-04	6.74E-08	5.70E-01	3.84E-08	--	--	--	3.24E+09	6.81E+05	5.71E-06	1.42E+00
Total						3.9E-08			2.1E-04			6.1E-06	1.4E+00

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	4,600 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
BW	Body Weight	kg	57	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	6.63E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	6.63E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
BW	Body Weight	kg	57	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	4.81E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	4.81E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
ET	Exposure Time	hours/day	2	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	1.15E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	2.28E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.09E+02	2.17E-07	1.50E+00	3.25E-07	2.17E-06	3.00E-04	3.00E-02	7.22E-03
Barium	nm	4.61E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	8.53E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	7.69E+00	--	--	--	5.10E-09	2.50E-05	1.00E-03	2.04E-04
Chromium (Total)	nm	1.93E+03	--	--	--	--	1.95E-02	--	--
Cobalt	n	6.87E+01	--	--	--	--	3.00E-04	--	--
Copper	n	5.56E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	8.77E+04	--	--	--	--	7.00E-01	--	--
Lead	L	3.88E+03	--	8.50E-03	--	--	--	--	--
Manganese	n	2.00E+03	--	--	--	--	9.60E-04	--	--
Mercury	ns	4.89E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	2.97E+02	--	--	--	--	8.00E-04	--	--
Selenium	n	5.52E+01	--	--	--	--	5.00E-03	--	--
Silver	n	9.40E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	6.74E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	4.26E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.11E+03	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	7.66E+00	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	--	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	3.48E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.66E+00	--	--	--	1.43E-07	6.00E-02	1.30E-01	2.38E-06
Acenaphthylene	--	1.04E+00	--	--	--	--	--	1.30E-01	--
Anthracene	nm	1.45E+00	--	--	--	1.25E-07	3.00E-01	1.30E-01	4.16E-07
Benzo(a)pyrene	c	2.88E+00	2.48E-08	1.00E+00	2.48E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.52E+00	--	--	--	1.31E-07	1.00E-03	1.30E-01	1.31E-04
Fluoranthene	n	2.86E+00	--	--	--	2.47E-07	4.00E-02	1.30E-01	6.17E-06
Fluorene	n	2.90E+00	--	--	--	2.50E-07	4.00E-02	1.30E-01	6.26E-06
2-Methylnaphthalene	n	3.70E+00	--	--	--	3.19E-07	4.00E-03	1.30E-01	7.97E-05
Naphthalene	c*	2.41E+00	--	--	--	2.08E-07	2.00E-02	1.30E-01	1.04E-05
Phenanthrene	--	1.19E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	3.02E+00	--	--	--	2.61E-07	3.00E-02	1.30E-01	8.69E-06
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	3.54E+00	3.28E-08	2.00E+00	6.57E-08	3.28E-07	2.00E-05	1.40E-01	1.64E-02
Total					4.2E-07				2.4E-02

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	1.15E+04	--	--	--	5.51E-04	1.00E+00	5.51E-04
Antimony	n	2.28E+01	--	--	--	1.09E-06	4.00E-04	2.74E-03
Arsenic	cR	1.09E+02	3.14E-07	1.50E+00	4.71E-07	3.14E-06	3.00E-04	1.05E-02
Barium	nm	4.61E+02	--	--	--	2.22E-05	2.00E-01	1.11E-04
Beryllium	n	8.53E+00	--	--	--	4.10E-07	2.00E-03	2.05E-04
Cadmium (food, soil)	n	7.69E+00	--	--	--	3.70E-07	1.00E-03	3.70E-04
Chromium (Total)	nm	1.93E+03	--	--	--	9.26E-05	1.50E+00	6.17E-05
Cobalt	n	6.87E+01	--	--	--	3.30E-06	3.00E-04	1.10E-02
Copper	n	5.56E+02	--	--	--	2.67E-05	4.00E-02	6.68E-04
Iron	nm	8.77E+04	--	--	--	4.22E-03	7.00E-01	6.02E-03
Lead	L	3.88E+03	1.86E-05	8.50E-03	1.58E-07	--	--	--
Manganese	n	2.00E+03	--	--	--	9.62E-05	2.40E-02	4.01E-03
Mercury	ns	4.89E-01	--	--	--	2.35E-08	1.60E-04	1.47E-04
Nickel	n	2.97E+02	--	--	--	1.43E-05	2.00E-02	7.13E-04
Selenium	n	5.52E+01	--	--	--	2.65E-06	5.00E-03	5.30E-04
Silver	n	9.40E+00	--	--	--	4.52E-07	5.00E-03	9.04E-05
Thallium	n	6.74E+00	--	--	--	3.24E-07	1.00E-05	3.24E-02
Vanadium	n	4.26E+01	--	--	--	2.05E-06	5.00E-03	4.10E-04
Zinc	nm	3.11E+03	--	--	--	1.50E-04	3.00E-01	4.99E-04
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	7.66E+00	3.68E-08	1.60E+00	5.89E-08	3.68E-07	8.00E-04	4.60E-04
Toluene	ns	--	--	--	--	--	8.00E-02	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	3.48E-01	--	--	--	1.67E-08	2.00E-01	8.36E-08
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.66E+00	--	--	--	7.95E-08	6.00E-02	1.33E-06
Acenaphthylene	--	1.04E+00	--	--	--	--	--	--
Anthracene	nm	1.45E+00	--	--	--	6.95E-08	3.00E-01	2.32E-07
Benzo(a)pyrene	c	2.88E+00	1.38E-08	1.00E+00	1.38E-08	--	--	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	--
Dibenzofuran	n	1.52E+00	--	--	--	7.30E-08	1.00E-03	7.30E-05
Fluoranthene	n	2.86E+00	--	--	--	1.38E-07	4.00E-02	3.44E-06
Fluorene	n	2.90E+00	--	--	--	1.39E-07	4.00E-02	3.49E-06
2-Methylnaphthalene	n	3.70E+00	--	--	--	1.78E-07	4.00E-03	4.44E-05
Naphthalene	c*	2.41E+00	--	--	--	1.16E-07	2.00E-02	5.80E-06
Phenanthrene	--	1.19E+01	--	--	--	--	--	--
Pyrene	n	3.02E+00	--	--	--	1.45E-07	3.00E-02	4.84E-06
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	3.54E+00	1.70E-08	2.00E+00	3.40E-08	1.70E-07	2.00E-05	8.50E-03
Total					7.4E-07			8.0E-02

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	1.15E+04	3.54E-06	--	--	--	8.09E-09	5.00E-03	1.62E-06	3.24E+09	--	--	5.53E-04
Antimony	n	2.28E+01	7.03E-09	--	--	--	--	--	--	3.24E+09	--	--	2.74E-03
Arsenic	cR	1.09E+02	3.36E-08	7.67E-12	4.30E+00	3.30E-11	7.67E-11	1.50E-05	5.12E-06	3.24E+09	--	7.95E-07	1.77E-02
Barium	nm	4.61E+02	1.42E-07	--	--	--	3.25E-10	5.00E-04	6.51E-07	3.24E+09	--	--	1.11E-04
Beryllium	n	8.53E+00	2.64E-09	6.02E-13	2.40E+00	1.44E-12	6.02E-12	2.00E-05	3.01E-07	3.24E+09	--	1.44E-12	2.05E-04
Cadmium (food, soil)	n	7.69E+00	2.38E-09	5.42E-13	1.80E+00	9.76E-13	5.42E-12	1.00E-05	5.42E-07	3.24E+09	--	9.76E-13	5.74E-04
Chromium (Total)	nm	1.93E+03	5.95E-07	--	--	--	--	--	--	3.24E+09	--	--	6.17E-05
Cobalt	n	6.87E+01	2.12E-08	4.84E-12	9.00E+00	4.36E-11	4.84E-11	6.00E-06	8.07E-06	3.24E+09	--	4.36E-11	1.10E-02
Copper	n	5.56E+02	1.72E-07	--	--	--	--	--	--	3.24E+09	--	--	6.68E-04
Iron	nm	8.77E+04	2.71E-05	--	--	--	--	--	--	3.24E+09	--	--	6.02E-03
Lead	L	3.88E+03	1.20E-06	2.73E-10	1.20E-02	3.28E-12	--	--	--	3.24E+09	--	1.58E-07	--
Manganese	n	2.00E+03	6.18E-07	--	--	--	1.41E-09	5.00E-05	2.82E-05	3.24E+09	--	--	4.04E-03
Mercury	ns	4.89E-01	2.91E-05	--	--	--	6.64E-08	3.00E-04	2.21E-04	3.24E+09	1.68E+04	--	3.68E-04
Nickel	n	2.97E+02	9.17E-08	2.09E-11	2.60E-01	5.44E-12	2.09E-10	9.00E-05	2.33E-06	3.24E+09	--	5.44E-12	7.16E-04
Selenium	n	5.52E+01	1.70E-08	--	--	--	3.89E-11	2.00E-02	1.94E-09	3.24E+09	--	--	5.30E-04
Silver	n	9.40E+00	2.90E-09	--	--	--	--	--	--	3.24E+09	--	--	9.04E-05
Thallium	n	6.74E+00	2.08E-09	--	--	--	--	--	--	3.24E+09	--	--	3.24E-02
Vanadium	n	4.26E+01	1.32E-08	--	--	--	3.01E-11	1.00E-04	3.01E-07	3.24E+09	--	--	4.10E-04
Zinc	nm	3.11E+03	9.62E-07	--	--	--	--	--	--	3.24E+09	--	--	4.99E-04
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	7.66E+00	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	5.89E-08	4.60E-04
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	3.48E-01	6.34E-05	--	--	--	1.45E-07	1.00E-01	1.45E-06	3.24E+09	5.49E+03	--	1.53E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.66E+00	9.19E-06	--	--	--	--	--	--	3.24E+09	1.80E+05	--	3.70E-06
Acenaphthylene	--	1.04E+00	3.20E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	1.45E+00	2.16E-06	--	--	--	--	--	--	3.24E+09	6.71E+05	--	6.47E-07
Benzo(a)pyrene	c	2.88E+00	8.90E-10	2.03E-13	6.00E-01	1.22E-13	--	--	--	3.24E+09	--	3.87E-08	--
Benzo(g,h,i)perylene	--	1.78E+00	5.48E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.52E+00	4.69E-10	--	--	--	--	--	--	3.24E+09	--	--	2.04E-04
Fluoranthene	n	2.86E+00	8.84E-10	--	--	--	--	--	--	3.24E+09	--	--	9.61E-06
Fluorene	n	2.90E+00	8.06E-06	--	--	--	--	--	--	3.24E+09	3.60E+05	--	9.74E-06
2-Methylnaphthalene	n	3.70E+00	4.97E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	1.24E-04
Naphthalene	c*	2.41E+00	4.06E-05	9.28E-09	3.40E-02	3.15E-10	9.28E-08	3.00E-03	3.09E-05	3.24E+09	5.94E+04	3.15E-10	4.71E-05
Phenanthrene	--	1.19E+01	3.69E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	3.02E+00	9.92E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	1.35E-05
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	3.54E+00	5.19E-06	1.19E-09	5.70E-01	6.76E-10	--	--	--	3.24E+09	6.81E+05	1.00E-07	2.49E-02
Total						1.1E-09			3.0E-04			1.2E-06	1.0E-01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	4,600 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
BW	Body Weight	kg	57	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	6.63E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	6.63E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
BW	Body Weight	kg	57	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	4.81E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	4.81E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
ET	Exposure Time	hours/day	2	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	8.25E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	4.16E+00	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.27E+01	2.52E-08	1.50E+00	3.78E-08	2.52E-07	3.00E-04	3.00E-02	8.41E-04
Barium	nm	1.03E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	2.73E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	8.84E-01	--	--	--	5.86E-10	2.50E-05	1.00E-03	2.35E-05
Chromium (Total)	nm	4.37E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.13E+01	--	--	--	--	3.00E-04	--	--
Copper	n	1.66E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	3.11E+04	--	--	--	--	7.00E-01	--	--
Lead	L	2.34E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	4.88E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	7.31E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	1.84E+02	--	--	--	--	8.00E-04	--	--
Selenium	n	3.61E+00	--	--	--	--	5.00E-03	--	--
Silver	n	1.89E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	5.00E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	2.81E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	2.12E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	2.00E+00	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	--	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	8.70E-01	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	3.40E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.47E+00	--	--	--	1.27E-07	6.00E-02	1.30E-01	2.12E-06
Acenaphthylene	--	4.54E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.18E+00	--	--	--	2.75E-07	3.00E-01	1.30E-01	9.15E-07
Benzo(a)pyrene	c	3.25E+00	2.80E-08	1.00E+00	2.80E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.06E+00	--	--	--	9.13E-08	1.00E-03	1.30E-01	9.13E-05
Fluoranthene	n	1.29E+01	--	--	--	1.11E-06	4.00E-02	1.30E-01	2.77E-05
Fluorene	n	5.36E+00	--	--	--	4.62E-07	4.00E-02	1.30E-01	1.16E-05
2-Methylnaphthalene	n	2.04E+00	--	--	--	1.76E-07	4.00E-03	1.30E-01	4.39E-05
Naphthalene	c*	6.14E-01	--	--	--	5.29E-08	2.00E-02	1.30E-01	2.65E-06
Phenanthrene	--	1.10E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.02E+01	--	--	--	8.77E-07	3.00E-02	1.30E-01	2.92E-05
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	4.20E+01	3.90E-07	2.00E+00	7.80E-07	3.90E-06	2.00E-05	1.40E-01	1.95E-01
Total					8.5E-07				2.0E-01

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	8.25E+03	--	--	--	3.97E-04	1.00E+00	3.97E-04
Antimony	n	4.16E+00	--	--	--	2.00E-07	4.00E-04	5.00E-04
Arsenic	cR	1.27E+01	3.66E-08	1.50E+00	5.49E-08	3.66E-07	3.00E-04	1.22E-03
Barium	nm	1.03E+02	--	--	--	4.93E-06	2.00E-01	2.46E-05
Beryllium	n	2.73E+00	--	--	--	1.31E-07	2.00E-03	6.56E-05
Cadmium (food, soil)	n	8.84E-01	--	--	--	4.25E-08	1.00E-03	4.25E-05
Chromium (Total)	nm	4.37E+01	--	--	--	2.10E-06	1.50E+00	1.40E-06
Cobalt	n	1.13E+01	--	--	--	5.45E-07	3.00E-04	1.82E-03
Copper	n	1.66E+02	--	--	--	7.99E-06	4.00E-02	2.00E-04
Iron	nm	3.11E+04	--	--	--	1.49E-03	7.00E-01	2.13E-03
Lead	L	2.34E+02	1.12E-06	8.50E-03	9.56E-09	--	--	--
Manganese	n	4.88E+02	--	--	--	2.34E-05	2.40E-02	9.77E-04
Mercury	ns	7.31E-01	--	--	--	3.51E-08	1.60E-04	2.20E-04
Nickel	n	1.84E+02	--	--	--	8.85E-06	2.00E-02	4.42E-04
Selenium	n	3.61E+00	--	--	--	1.73E-07	5.00E-03	3.47E-05
Silver	n	1.89E+00	--	--	--	9.07E-08	5.00E-03	1.81E-05
Thallium	n	5.00E+00	--	--	--	2.40E-07	1.00E-05	2.40E-02
Vanadium	n	2.81E+01	--	--	--	1.35E-06	5.00E-03	2.70E-04
Zinc	nm	2.12E+02	--	--	--	1.02E-05	3.00E-01	3.39E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	2.00E+00	9.61E-09	5.40E-03	5.19E-11	9.61E-08	7.00E-02	1.37E-06
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	--	--	--	--	--	8.00E-02	--
Trichloroethene	c**	8.70E-01	4.18E-09	4.60E-02	1.92E-10	4.18E-08	5.00E-04	8.36E-05
Total Xylenes	ns	3.40E-01	--	--	--	1.63E-08	2.00E-01	8.17E-08
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.47E+00	--	--	--	7.08E-08	6.00E-02	1.18E-06
Acenaphthylene	--	4.54E-01	--	--	--	--	--	--
Anthracene	nm	3.18E+00	--	--	--	1.53E-07	3.00E-01	5.10E-07
Benzo(a)pyrene	c	3.25E+00	1.56E-08	1.00E+00	1.56E-08	--	--	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	--
Dibenzofuran	n	1.06E+00	--	--	--	5.09E-08	1.00E-03	5.09E-05
Fluoranthene	n	1.29E+01	--	--	--	6.19E-07	4.00E-02	1.55E-05
Fluorene	n	5.36E+00	--	--	--	2.58E-07	4.00E-02	6.44E-06
2-Methylnaphthalene	n	2.04E+00	--	--	--	9.79E-08	4.00E-03	2.45E-05
Naphthalene	c*	6.14E-01	--	--	--	2.95E-08	2.00E-02	1.48E-06
Phenanthrene	--	1.10E+01	--	--	--	--	--	--
Pyrene	n	1.02E+01	--	--	--	4.89E-07	3.00E-02	1.63E-05
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	4.20E+01	2.02E-07	2.00E+00	4.04E-07	2.02E-06	2.00E-05	1.01E-01
Total					4.8E-07			1.3E-01

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	8.25E+03	2.55E-06	--	--	--	5.82E-09	5.00E-03	1.16E-06	3.24E+09	--	--	3.98E-04
Antimony	n	4.16E+00	1.28E-09	--	--	--	--	--	--	3.24E+09	--	--	5.00E-04
Arsenic	cR	1.27E+01	3.92E-09	8.94E-13	4.30E+00	3.85E-12	8.94E-12	1.50E-05	5.96E-07	3.24E+09	--	9.27E-08	2.06E-03
Barium	nm	1.03E+02	3.17E-08	--	--	--	7.23E-11	5.00E-04	1.45E-07	3.24E+09	--	--	2.48E-05
Beryllium	n	2.73E+00	8.43E-10	1.93E-13	2.40E+00	4.62E-13	1.93E-12	2.00E-05	9.63E-08	3.24E+09	--	4.62E-13	6.57E-05
Cadmium (food, soil)	n	8.84E-01	2.73E-10	6.24E-14	1.80E+00	1.12E-13	6.24E-13	1.00E-05	6.24E-08	3.24E+09	--	1.12E-13	6.60E-05
Chromium (Total)	nm	4.37E+01	1.35E-08	--	--	--	--	--	--	3.24E+09	--	--	1.40E-06
Cobalt	n	1.13E+01	3.50E-09	7.99E-13	9.00E+00	7.19E-12	7.99E-12	6.00E-06	1.33E-06	3.24E+09	--	7.19E-12	1.82E-03
Copper	n	1.66E+02	5.13E-08	--	--	--	--	--	--	3.24E+09	--	--	2.00E-04
Iron	nm	3.11E+04	9.60E-06	--	--	--	--	--	--	3.24E+09	--	--	2.13E-03
Lead	L	2.34E+02	7.23E-08	1.65E-11	1.20E-02	1.98E-13	--	--	--	3.24E+09	--	9.56E-09	--
Manganese	n	4.88E+02	1.51E-07	--	--	--	3.44E-10	5.00E-05	6.88E-06	3.24E+09	--	--	9.83E-04
Mercury	ns	7.31E-01	4.35E-05	--	--	--	9.93E-08	3.00E-04	3.31E-04	3.24E+09	1.68E+04	--	5.51E-04
Nickel	n	1.84E+02	5.69E-08	1.30E-11	2.60E-01	3.38E-12	1.30E-10	9.00E-05	1.44E-06	3.24E+09	--	3.38E-12	4.44E-04
Selenium	n	3.61E+00	1.11E-09	--	--	--	2.54E-12	2.00E-02	1.27E-10	3.24E+09	--	--	3.47E-05
Silver	n	1.89E+00	5.83E-10	--	--	--	--	--	--	3.24E+09	--	--	1.81E-05
Thallium	n	5.00E+00	1.54E-09	--	--	--	--	--	--	3.24E+09	--	--	2.40E-02
Vanadium	n	2.81E+01	8.69E-09	--	--	--	1.98E-11	1.00E-04	1.98E-07	3.24E+09	--	--	2.71E-04
Zinc	nm	2.12E+02	6.54E-08	--	--	--	--	--	--	3.24E+09	--	--	3.39E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	2.00E+00	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	5.19E-11	1.37E-06
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	8.70E-01	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	1.92E-10	8.36E-05
Total Xylenes	ns	3.40E-01	6.20E-05	--	--	--	1.41E-07	1.00E-01	1.41E-06	3.24E+09	5.49E+03	--	1.50E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.47E+00	8.19E-06	--	--	--	--	--	--	3.24E+09	1.80E+05	--	3.30E-06
Acenaphthylene	--	4.54E-01	1.40E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.18E+00	4.75E-06	--	--	--	--	--	--	3.24E+09	6.71E+05	--	1.43E-06
Benzo(a)pyrene	c	3.25E+00	1.00E-09	2.29E-13	6.00E-01	1.38E-13	--	--	--	3.24E+09	--	4.36E-08	--
Benzo(g,h,i)perylene	--	1.78E+00	5.50E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.06E+00	3.27E-10	--	--	--	--	--	--	3.24E+09	--	--	1.42E-04
Fluoranthene	n	1.29E+01	3.98E-09	--	--	--	--	--	--	3.24E+09	--	--	4.32E-05
Fluorene	n	5.36E+00	1.49E-05	--	--	--	--	--	--	3.24E+09	3.60E+05	--	1.80E-05
2-Methylnaphthalene	n	2.04E+00	2.74E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	6.84E-05
Naphthalene	c*	6.14E-01	1.03E-05	2.36E-09	3.40E-02	8.02E-11	2.36E-08	3.00E-03	7.87E-06	3.24E+09	5.94E+04	8.02E-11	1.20E-05
Phenanthrene	--	1.10E+01	3.39E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.02E+01	3.34E-06	--	--	--	--	--	--	3.24E+09	3.05E+06	--	4.55E-05
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	4.20E+01	6.17E-05	1.41E-08	5.70E-01	8.02E-09	--	--	--	3.24E+09	6.81E+05	1.19E-06	2.96E-01
Total						8.1E-09			3.5E-04			1.3E-06	3.3E-01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	4,600 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
BW	Body Weight	kg	57	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	6.63E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	6.63E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
BW	Body Weight	kg	57	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	4.81E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	4.81E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
ET	Exposure Time	hours/day	2	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	9.68E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	2.32E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.87E+01	3.73E-08	1.50E+00	5.59E-08	3.73E-07	3.00E-04	3.00E-02	1.24E-03
Barium	nm	2.10E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	7.24E-01	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	2.43E+00	--	--	--	1.61E-09	2.50E-05	1.00E-03	6.45E-05
Chromium (Total)	nm	3.12E+02	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.77E+01	--	--	--	--	3.00E-04	--	--
Copper	n	4.26E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	5.22E+04	--	--	--	--	7.00E-01	--	--
Lead	L	7.42E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.11E+03	--	--	--	--	9.60E-04	--	--
Mercury	ns	6.66E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	6.00E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	5.31E+00	--	--	--	--	5.00E-03	--	--
Silver	n	1.81E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	7.53E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	5.54E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.84E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	1.90E+00	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	4.33E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	4.71E-02	--	--	--	4.06E-09	6.00E-02	1.30E-01	6.77E-08
Acenaphthylene	--	1.68E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.06E-01	--	--	--	2.64E-08	3.00E-01	1.30E-01	8.80E-08
Benzo(a)pyrene	c	1.98E+00	1.71E-08	1.00E+00	1.71E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.25E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.17E-01	--	--	--	1.01E-08	1.00E-03	1.30E-01	1.01E-05
Fluoranthene	n	1.93E+00	--	--	--	1.67E-07	4.00E-02	1.30E-01	4.16E-06
Fluorene	n	6.32E-02	--	--	--	5.45E-09	4.00E-02	1.30E-01	1.36E-07
2-Methylnaphthalene	n	4.67E-01	--	--	--	4.03E-08	4.00E-03	1.30E-01	1.01E-05
Naphthalene	c*	3.18E-01	--	--	--	2.74E-08	2.00E-02	1.30E-01	1.37E-06
Phenanthrene	--	1.43E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.94E+00	--	--	--	1.67E-07	3.00E-02	1.30E-01	5.58E-06
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	2.39E+01	2.22E-07	2.00E+00	4.44E-07	2.22E-06	2.00E-05	1.40E-01	1.11E-01
Total					5.2E-07				1.1E-01

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	9.68E+03	--	--	--	4.65E-04	1.00E+00	4.65E-04
Antimony	n	2.32E+01	--	--	--	1.12E-06	4.00E-04	2.79E-03
Arsenic	cR	1.87E+01	5.40E-08	1.50E+00	8.10E-08	5.40E-07	3.00E-04	1.80E-03
Barium	nm	2.10E+02	--	--	--	1.01E-05	2.00E-01	5.04E-05
Beryllium	n	7.24E-01	--	--	--	3.48E-08	2.00E-03	1.74E-05
Cadmium (food, soil)	n	2.43E+00	--	--	--	1.17E-07	1.00E-03	1.17E-04
Chromium (Total)	nm	3.12E+02	--	--	--	1.50E-05	1.50E+00	9.99E-06
Cobalt	n	1.77E+01	--	--	--	8.51E-07	3.00E-04	2.84E-03
Copper	n	4.26E+02	--	--	--	2.05E-05	4.00E-02	5.12E-04
Iron	nm	5.22E+04	--	--	--	2.51E-03	7.00E-01	3.59E-03
Lead	L	7.42E+02	3.57E-06	8.50E-03	3.03E-08	--	--	--
Manganese	n	2.11E+03	--	--	--	1.01E-04	2.40E-02	4.22E-03
Mercury	ns	6.66E-01	--	--	--	3.20E-08	1.60E-04	2.00E-04
Nickel	n	6.00E+01	--	--	--	2.88E-06	2.00E-02	1.44E-04
Selenium	n	5.31E+00	--	--	--	2.55E-07	5.00E-03	5.10E-05
Silver	n	1.81E+00	--	--	--	8.71E-08	5.00E-03	1.74E-05
Thallium	n	7.53E+00	--	--	--	3.62E-07	1.00E-05	3.62E-02
Vanadium	n	5.54E+01	--	--	--	2.66E-06	5.00E-03	5.33E-04
Zinc	nm	3.84E+02	--	--	--	1.84E-05	3.00E-01	6.15E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	1.90E+00	--	--	--	9.13E-08	8.00E-02	1.14E-06
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	4.33E-01	--	--	--	2.08E-08	2.00E-01	1.04E-07
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	4.71E-02	--	--	--	2.26E-09	6.00E-02	3.77E-08
Acenaphthylene	--	1.68E-01	--	--	--	--	--	--
Anthracene	nm	3.06E-01	--	--	--	1.47E-08	3.00E-01	4.90E-08
Benzo(a)pyrene	c	1.98E+00	9.54E-09	1.00E+00	9.54E-09	--	--	--
Benzo(g,h,i)perylene	--	8.25E-01	--	--	--	--	--	--
Dibenzofuran	n	1.17E-01	--	--	--	5.62E-09	1.00E-03	5.62E-06
Fluoranthene	n	1.93E+00	--	--	--	9.29E-08	4.00E-02	2.32E-06
Fluorene	n	6.32E-02	--	--	--	3.04E-09	4.00E-02	7.59E-08
2-Methylnaphthalene	n	4.67E-01	--	--	--	2.24E-08	4.00E-03	5.61E-06
Naphthalene	c*	3.18E-01	--	--	--	1.53E-08	2.00E-02	7.64E-07
Phenanthrene	--	1.43E+00	--	--	--	--	--	--
Pyrene	n	1.94E+00	--	--	--	9.33E-08	3.00E-02	3.11E-06
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	2.39E+01	1.15E-06	2.00E-05	2.30E-07	1.15E-06	2.00E-05	5.74E-02
Total					3.5E-07			1.1E-01

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	9.68E+03	2.99E-06	--	--	--	6.83E-09	5.00E-03	1.37E-06	3.24E+09	--	--	4.67E-04
Antimony	n	2.32E+01	7.17E-09	--	--	--	--	--	--	3.24E+09	--	--	2.79E-03
Arsenic	cR	1.87E+01	5.79E-09	1.32E-12	4.30E+00	5.68E-12	1.32E-11	1.50E-05	8.81E-07	3.24E+09	--	1.37E-07	3.04E-03
Barium	nm	2.10E+02	6.48E-08	--	--	--	1.48E-10	5.00E-04	2.96E-07	3.24E+09	--	--	5.07E-05
Beryllium	n	7.24E-01	2.24E-10	5.11E-14	2.40E+00	1.23E-13	5.11E-13	2.00E-05	2.55E-08	3.24E+09	--	1.23E-13	1.74E-05
Cadmium (food, soil)	n	2.43E+00	7.51E-10	1.71E-13	1.80E+00	3.09E-13	1.71E-12	1.00E-05	1.71E-07	3.24E+09	--	3.09E-13	1.81E-04
Chromium (Total)	nm	3.12E+02	9.63E-08	--	--	--	--	--	--	3.24E+09	--	--	9.99E-06
Cobalt	n	1.77E+01	5.47E-09	1.25E-12	9.00E+00	1.12E-11	1.25E-11	6.00E-06	2.08E-06	3.24E+09	--	1.12E-11	2.84E-03
Copper	n	4.26E+02	1.32E-07	--	--	--	--	--	--	3.24E+09	--	--	5.12E-04
Iron	nm	5.22E+04	1.61E-05	--	--	--	--	--	--	3.24E+09	--	--	3.59E-03
Lead	L	7.42E+02	2.29E-07	5.24E-11	1.20E-02	6.28E-13	--	--	--	3.24E+09	--	3.03E-08	--
Manganese	n	2.11E+03	6.52E-07	--	--	--	1.49E-09	5.00E-05	2.98E-05	3.24E+09	--	--	4.25E-03
Mercury	ns	6.66E-01	3.96E-05	--	--	--	9.05E-08	3.00E-04	3.02E-04	3.24E+09	1.68E+04	--	5.02E-04
Nickel	n	6.00E+01	1.85E-08	4.23E-12	2.60E-01	1.10E-12	4.23E-11	9.00E-05	4.70E-07	3.24E+09	--	1.10E-12	1.45E-04
Selenium	n	5.31E+00	1.64E-09	--	--	--	3.74E-12	2.00E-02	1.87E-10	3.24E+09	--	--	5.10E-05
Silver	n	1.81E+00	5.60E-10	--	--	--	--	--	--	3.24E+09	--	--	1.74E-05
Thallium	n	7.53E+00	2.33E-09	--	--	--	--	--	--	3.24E+09	--	--	3.62E-02
Vanadium	n	5.54E+01	1.71E-08	--	--	--	3.91E-11	1.00E-04	3.91E-07	3.24E+09	--	--	5.33E-04
Zinc	nm	3.84E+02	1.19E-07	--	--	--	--	--	--	3.24E+09	--	--	6.15E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	1.90E+00	6.29E-04	--	--	--	1.44E-06	5.00E+00	2.87E-07	3.24E+09	3.02E+03	--	1.43E-06
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	4.33E-01	7.89E-05	--	--	--	1.80E-07	1.00E-01	1.80E-06	3.24E+09	5.49E+03	--	1.91E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	4.71E-02	2.62E-07	--	--	--	--	--	--	3.24E+09	1.80E+05	--	1.05E-07
Acenaphthylene	--	1.68E-01	5.19E-11	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.06E-01	4.56E-07	--	--	--	--	--	--	3.24E+09	6.71E+05	--	1.37E-07
Benzo(a)pyrene	c	1.98E+00	6.13E-10	1.40E-13	6.00E-01	8.40E-14	--	--	--	3.24E+09	--	2.66E-08	--
Benzo(g,h,i)perylene	--	8.25E-01	2.55E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.17E-01	3.61E-11	--	--	--	--	--	--	3.24E+09	--	--	1.57E-05
Fluoranthene	n	1.93E+00	5.97E-10	--	--	--	--	--	--	3.24E+09	--	--	6.49E-06
Fluorene	n	6.32E-02	1.76E-07	--	--	--	--	--	--	3.24E+09	3.60E+05	--	2.12E-07
2-Methylnaphthalene	n	4.67E-01	6.29E-06	--	--	--	--	--	--	3.24E+09	7.43E+04	--	1.57E-05
Naphthalene	c*	3.18E-01	5.35E-06	1.22E-09	3.40E-02	4.16E-11	1.22E-08	3.00E-03	4.07E-06	3.24E+09	5.94E+04	4.16E-11	6.21E-06
Phenanthrene	--	1.43E+00	4.42E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.94E+00	6.37E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	8.69E-06
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	2.39E+01	3.51E-05	8.01E-09	5.70E-01	4.57E-09	--	--	--	3.24E+09	6.81E+05	6.78E-07	1.68E-01
Total						4.6E-09			3.4E-04			8.7E-07	2.2E-01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	4,600 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
BW	Body Weight	kg	57	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	6.63E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	6.63E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
BW	Body Weight	kg	57	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	4.81E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	4.81E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
ET	Exposure Time	hours/day	2	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	2.78E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	9.14E+00	--	--	--	--	6.00E-05	--	--
Arsenic	cR	2.22E+01	4.42E-08	1.50E+00	6.63E-08	4.42E-07	3.00E-04	3.00E-02	1.47E-03
Barium	nm	2.24E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	1.27E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	1.21E+00	--	--	--	8.03E-10	2.50E-05	1.00E-03	3.21E-05
Chromium (Total)	nm	7.18E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.76E+01	--	--	--	--	3.00E-04	--	--
Copper	n	2.88E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	6.95E+04	--	--	--	--	7.00E-01	--	--
Lead	L	1.95E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	6.07E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	2.95E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	8.93E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	--	--	--	--	--	5.00E-03	--	--
Silver	n	6.26E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	9.29E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	6.95E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.30E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	--	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	2.20E+00	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.88E+00	--	--	--	1.62E-07	6.00E-02	1.30E-01	2.70E-06
Acenaphthylene	--	1.11E+01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	1.81E+01	--	--	--	1.56E-06	3.00E-01	1.30E-01	5.20E-06
Benzo(a)pyrene	c	2.16E+01	1.86E-07	1.00E+00	1.86E-07	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	1.98E+01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.53E+00	--	--	--	1.32E-07	1.00E-03	1.30E-01	1.32E-04
Fluoranthene	n	6.06E+01	--	--	--	5.23E-06	4.00E-02	1.30E-01	1.31E-04
Fluorene	n	3.58E+00	--	--	--	3.09E-07	4.00E-02	1.30E-01	7.72E-06
2-Methylnaphthalene	n	1.25E+00	--	--	--	1.08E-07	4.00E-03	1.30E-01	2.70E-05
Naphthalene	c*	9.92E-01	--	--	--	8.55E-08	2.00E-02	1.30E-01	4.28E-06
Phenanthrene	--	3.22E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	5.77E+01	--	--	--	4.98E-06	3.00E-02	1.30E-01	1.66E-04
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	1.91E+01	1.77E-07	2.00E+00	3.54E-07	1.77E-06	2.00E-05	1.40E-01	8.85E-02
Total					6.1E-07				9.0E-02

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	2.78E+04	--	--	--	1.33E-03	1.00E+00	1.33E-03
Antimony	n	9.14E+00	--	--	--	4.39E-07	4.00E-04	1.10E-03
Arsenic	cR	2.22E+01	6.41E-08	1.50E+00	9.61E-08	6.41E-07	3.00E-04	2.14E-03
Barium	nm	2.24E+02	--	--	--	1.08E-05	2.00E-01	5.39E-05
Beryllium	n	1.27E+00	--	--	--	6.09E-08	2.00E-03	3.04E-05
Cadmium (food, soil)	n	1.21E+00	--	--	--	5.82E-08	1.00E-03	5.82E-05
Chromium (Total)	nm	7.18E+01	--	--	--	3.45E-06	1.50E+00	2.30E-06
Cobalt	n	1.76E+01	--	--	--	8.44E-07	3.00E-04	2.81E-03
Copper	n	2.88E+02	--	--	--	1.38E-05	4.00E-02	3.46E-04
Iron	nm	6.95E+04	--	--	--	3.34E-03	7.00E-01	4.77E-03
Lead	L	1.95E+02	9.37E-07	8.50E-03	7.96E-09	--	--	--
Manganese	n	6.07E+02	--	--	--	2.92E-05	2.40E-02	1.22E-03
Mercury	ns	2.95E-01	--	--	--	1.42E-08	1.60E-04	8.86E-05
Nickel	n	8.93E+01	--	--	--	4.29E-06	2.00E-02	2.15E-04
Selenium	n	--	--	--	--	--	5.00E-03	--
Silver	n	6.26E+00	--	--	--	3.01E-07	5.00E-03	6.02E-05
Thallium	n	9.29E+00	--	--	--	4.47E-07	1.00E-05	4.47E-02
Vanadium	n	6.95E+01	--	--	--	3.34E-06	5.00E-03	6.68E-04
Zinc	nm	3.30E+02	--	--	--	1.59E-05	3.00E-01	5.29E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	--	--	--	--	--	8.00E-02	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	2.20E+00	--	--	--	1.06E-07	2.00E-01	5.29E-07
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.88E+00	--	--	--	9.03E-08	6.00E-02	1.50E-06
Acenaphthylene	--	1.11E+01	--	--	--	--	--	--
Anthracene	nm	1.81E+01	--	--	--	8.70E-07	3.00E-01	2.90E-06
Benzo(a)pyrene	c	2.16E+01	1.04E-07	1.00E+00	1.04E-07	--	--	--
Benzo(g,h,i)perylene	--	1.98E+01	--	--	--	--	--	--
Dibenzofuran	n	1.53E+00	--	--	--	7.36E-08	1.00E-03	7.36E-05
Fluoranthene	n	6.06E+01	--	--	--	2.91E-06	4.00E-02	7.29E-05
Fluorene	n	3.58E+00	--	--	--	1.72E-07	4.00E-02	4.30E-06
2-Methylnaphthalene	n	1.25E+00	--	--	--	6.02E-08	4.00E-03	1.51E-05
Naphthalene	c*	9.92E-01	--	--	--	4.77E-08	2.00E-02	2.38E-06
Phenanthrene	--	3.22E+01	--	--	--	--	--	--
Pyrene	n	5.77E+01	--	--	--	2.77E-06	3.00E-02	9.25E-05
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	1.91E+01	9.16E-08	2.00E+00	1.83E-07	9.16E-07	2.00E-05	4.58E-02
Total					3.9E-07			1.1E-01

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	2.78E+04	8.58E-06	--	--	--	1.96E-08	5.00E-03	3.92E-06	3.24E+09	--	--	1.34E-03
Antimony	n	9.14E+00	2.82E-09	--	--	--	--	--	--	3.24E+09	--	--	1.10E-03
Arsenic	cR	2.22E+01	6.86E-09	1.57E-12	4.30E+00	6.74E-12	1.57E-11	1.50E-05	1.04E-06	3.24E+09	--	1.62E-07	3.61E-03
Barium	nm	2.24E+02	6.93E-08	--	--	--	1.58E-10	5.00E-04	3.17E-07	3.24E+09	--	--	5.42E-05
Beryllium	n	1.27E+00	3.91E-10	8.93E-14	2.40E+00	2.14E-13	8.93E-13	2.00E-05	4.46E-08	3.24E+09	--	2.14E-13	3.05E-05
Cadmium (food, soil)	n	1.21E+00	3.74E-10	8.53E-14	1.80E+00	1.54E-13	8.53E-13	1.00E-05	8.53E-08	3.24E+09	--	1.54E-13	9.03E-05
Chromium (Total)	nm	7.18E+01	2.22E-08	--	--	--	--	--	--	3.24E+09	--	--	2.30E-06
Cobalt	n	1.76E+01	5.42E-09	1.24E-12	9.00E+00	1.11E-11	1.24E-11	6.00E-06	2.06E-06	3.24E+09	--	1.11E-11	2.82E-03
Copper	n	2.88E+02	8.90E-08	--	--	--	--	--	--	3.24E+09	--	--	3.46E-04
Iron	nm	6.95E+04	2.15E-05	--	--	--	--	--	--	3.24E+09	--	--	4.77E-03
Lead	L	1.95E+02	6.02E-08	1.37E-11	1.20E-02	1.65E-13	--	--	--	3.24E+09	--	7.96E-09	--
Manganese	n	6.07E+02	1.88E-07	--	--	--	4.28E-10	5.00E-05	8.57E-06	3.24E+09	--	--	1.22E-03
Mercury	ns	2.95E-01	1.76E-05	--	--	--	4.01E-08	3.00E-04	1.34E-04	3.24E+09	1.68E+04	--	2.22E-04
Nickel	n	8.93E+01	2.76E-08	6.30E-12	2.60E-01	1.64E-12	6.30E-11	9.00E-05	7.00E-07	3.24E+09	--	1.64E-12	2.15E-04
Selenium	n	--	0.00E+00	--	--	--	--	2.00E-02	--	3.24E+09	--	--	--
Silver	n	6.26E+00	1.94E-09	--	--	--	--	--	--	3.24E+09	--	--	6.02E-05
Thallium	n	9.29E+00	2.87E-09	--	--	--	--	--	--	3.24E+09	--	--	4.47E-02
Vanadium	n	6.95E+01	2.15E-08	--	--	--	4.90E-11	1.00E-04	4.90E-07	3.24E+09	--	--	6.69E-04
Zinc	nm	3.30E+02	1.02E-07	--	--	--	--	--	--	3.24E+09	--	--	5.29E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	2.20E+00	4.01E-04	--	--	--	9.15E-07	1.00E-01	9.15E-06	3.24E+09	5.49E+03	--	9.68E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.88E+00	1.04E-05	--	--	--	--	--	--	3.24E+09	1.80E+05	--	4.20E-06
Acenaphthylene	--	1.11E+01	3.44E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	1.81E+01	2.70E-05	--	--	--	--	--	--	3.24E+09	6.71E+05	--	8.10E-06
Benzo(a)pyrene	c	2.16E+01	6.66E-09	1.52E-12	6.00E-01	9.12E-13	--	--	--	3.24E+09	--	2.89E-07	--
Benzo(g,h,i)perylene	--	1.98E+01	6.11E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.53E+00	4.73E-10	--	--	--	--	--	--	3.24E+09	--	--	2.06E-04
Fluoranthene	n	6.06E+01	1.87E-08	--	--	--	--	--	--	3.24E+09	--	--	2.04E-04
Fluorene	n	3.58E+00	9.95E-06	--	--	--	--	--	--	3.24E+09	3.60E+05	--	1.20E-05
2-Methylnaphthalene	n	1.25E+00	1.69E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	4.21E-05
Naphthalene	c*	9.92E-01	1.67E-05	3.81E-09	3.40E-02	1.30E-10	3.81E-08	3.00E-03	1.27E-05	3.24E+09	5.94E+04	1.30E-10	1.94E-05
Phenanthrene	--	3.22E+01	9.95E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	5.77E+01	1.89E-05	--	--	--	--	--	--	3.24E+09	3.05E+06	--	2.58E-04
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	1.91E+01	2.80E-05	6.39E-09	5.70E-01	3.64E-09	--	--	--	3.24E+09	6.81E+05	5.41E-07	1.34E-01
Total						3.8E-09			1.7E-04			1.0E-06	2.0E-01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	4,600 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
BW	Body Weight	kg	57	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	6.63E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	6.63E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
BW	Body Weight	kg	57	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	4.81E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	4.81E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	10	EPA, 1991		
ED	Exposure Duration	years	7	EPA, 1991		
ET	Exposure Time	hours/day	2	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	2,555	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	1.02E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	5.81E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	3.79E+01	7.53E-08	1.50E+00	1.13E-07	7.53E-07	3.00E-04	3.00E-02	2.51E-03
Barium	nm	1.26E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	2.10E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	--	--	--	--	--	2.50E-05	1.00E-03	--
Chromium (Total)	nm	3.83E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	7.43E+00	--	--	--	--	3.00E-04	--	--
Copper	n	2.12E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	3.69E+04	--	--	--	--	7.00E-01	--	--
Lead	L	3.49E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.30E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	3.37E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	3.06E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	1.02E+01	--	--	--	--	5.00E-03	--	--
Silver	n	3.76E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	--	--	--	--	--	1.00E-05	--	--
Vanadium	n	3.37E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	1.34E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	3.30E+02	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	1.50E+01	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	--	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	4.70E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.09E-01	--	--	--	9.40E-09	6.00E-02	1.30E-01	1.57E-07
Acenaphthylene	--	3.22E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	5.08E-01	--	--	--	4.38E-08	3.00E-01	1.30E-01	1.46E-07
Benzo(a)pyrene	c	1.83E+00	1.58E-08	1.00E+00	1.58E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.37E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	4.58E-01	--	--	--	3.95E-08	1.00E-03	1.30E-01	3.95E-05
Fluoranthene	n	1.99E+00	--	--	--	1.72E-07	4.00E-02	1.30E-01	4.29E-06
Fluorene	n	1.39E-01	--	--	--	1.20E-08	4.00E-02	1.30E-01	3.00E-07
2-Methylnaphthalene	n	1.15E+00	--	--	--	9.92E-08	4.00E-03	1.30E-01	2.48E-05
Naphthalene	c*	7.50E-01	--	--	--	6.47E-08	2.00E-02	1.30E-01	3.23E-06
Phenanthrene	--	2.11E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.75E+00	--	--	--	1.50E-07	3.00E-02	1.30E-01	5.02E-06
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	4.64E+03	4.31E-05	2.00E+00	8.61E-05	4.31E-04	2.00E-05	1.40E-01	2.15E+01
Total					8.6E-05				2.2E+01

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	1.02E+04	--	--	--	4.91E-04	1.00E+00	4.91E-04
Antimony	n	5.81E+01	--	--	--	2.79E-06	4.00E-04	6.99E-03
Arsenic	cR	3.79E+01	1.09E-07	1.50E+00	1.64E-07	1.09E-06	3.00E-04	3.64E-03
Barium	nm	1.26E+02	--	--	--	6.04E-06	2.00E-01	3.02E-05
Beryllium	n	2.10E+00	--	--	--	1.01E-07	2.00E-03	5.05E-05
Cadmium (food, soil)	n	--	--	--	--	--	1.00E-03	--
Chromium (Total)	nm	3.83E+01	--	--	--	1.84E-06	1.50E+00	1.23E-06
Cobalt	n	7.43E+00	--	--	--	3.57E-07	3.00E-04	1.19E-03
Copper	n	2.12E+02	--	--	--	1.02E-05	4.00E-02	2.55E-04
Iron	nm	3.69E+04	--	--	--	1.77E-03	7.00E-01	2.53E-03
Lead	L	3.49E+02	1.68E-06	8.50E-03	1.43E-08	--	--	--
Manganese	n	2.30E+02	--	--	--	1.11E-05	2.40E-02	4.61E-04
Mercury	ns	3.37E-01	--	--	--	1.62E-08	1.60E-04	1.01E-04
Nickel	n	3.06E+01	--	--	--	1.47E-06	2.00E-02	7.35E-05
Selenium	n	1.02E+01	--	--	--	4.90E-07	5.00E-03	9.81E-05
Silver	n	3.76E+00	--	--	--	1.81E-07	5.00E-03	3.61E-05
Thallium	n	--	--	--	--	--	1.00E-05	--
Vanadium	n	3.37E+01	--	--	--	1.62E-06	5.00E-03	3.23E-04
Zinc	nm	1.34E+02	--	--	--	6.44E-06	3.00E-01	2.15E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	3.30E+02	1.59E-06	5.40E-03	8.57E-09	1.59E-05	7.00E-02	2.27E-04
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	1.50E+01	7.21E-08	1.60E+00	1.15E-07	7.21E-07	8.00E-04	9.01E-04
Toluene	ns	--	--	--	--	--	8.00E-02	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	4.70E-01	--	--	--	2.26E-08	2.00E-01	1.13E-07
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.09E-01	--	--	--	5.24E-09	6.00E-02	8.73E-08
Acenaphthylene	--	3.22E-01	--	--	--	--	--	--
Anthracene	nm	5.08E-01	--	--	--	2.44E-08	3.00E-01	8.14E-08
Benzo(a)pyrene	c	1.83E+00	8.78E-09	1.00E+00	8.78E-09	--	--	--
Benzo(g,h,i)perylene	--	8.37E-01	--	--	--	--	--	--
Dibenzofuran	n	4.58E-01	--	--	--	2.20E-08	1.00E-03	2.20E-05
Fluoranthene	n	1.99E+00	--	--	--	9.57E-08	4.00E-02	2.39E-06
Fluorene	n	1.39E-01	--	--	--	6.68E-09	4.00E-02	1.67E-07
2-Methylnaphthalene	n	1.15E+00	--	--	--	5.53E-08	4.00E-03	1.38E-05
Naphthalene	c*	7.50E-01	--	--	--	3.60E-08	2.00E-02	1.80E-06
Phenanthrene	--	2.11E+00	--	--	--	--	--	--
Pyrene	n	1.75E+00	--	--	--	8.39E-08	3.00E-02	2.80E-06
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	4.64E+03	2.23E-05	2.00E+00	4.46E-05	2.23E-04	2.00E-05	1.11E+01
Total					4.5E-05			1.1E+01

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	1.02E+04	3.16E-06	--	--	--	7.21E-09	5.00E-03	1.44E-06	3.24E+09	--	--	4.92E-04
Antimony	n	5.81E+01	1.80E-08	--	--	--	--	--	--	3.24E+09	--	--	6.99E-03
Arsenic	cR	3.79E+01	1.17E-08	2.67E-12	4.30E+00	1.15E-11	2.67E-11	1.50E-05	1.78E-06	3.24E+09	--	2.77E-07	6.15E-03
Barium	nm	1.26E+02	3.88E-08	--	--	--	8.86E-11	5.00E-04	1.77E-07	3.24E+09	--	--	3.04E-05
Beryllium	n	2.10E+00	6.49E-10	1.48E-13	2.40E+00	3.55E-13	1.48E-12	2.00E-05	7.41E-08	3.24E+09	--	3.55E-13	5.05E-05
Cadmium (food, soil)	n	--	0.00E+00	--	1.80E+00	--	--	1.00E-05	--	3.24E+09	--	--	--
Chromium (Total)	nm	3.83E+01	1.18E-08	--	--	--	--	--	--	3.24E+09	--	--	1.23E-06
Cobalt	n	7.43E+00	2.30E-09	5.24E-13	9.00E+00	4.72E-12	5.24E-12	6.00E-06	8.73E-07	3.24E+09	--	4.72E-12	1.19E-03
Copper	n	2.12E+02	6.56E-08	--	--	--	--	--	--	3.24E+09	--	--	2.55E-04
Iron	nm	3.69E+04	1.14E-05	--	--	--	--	--	--	3.24E+09	--	--	2.53E-03
Lead	L	3.49E+02	1.08E-07	2.46E-11	1.20E-02	2.96E-13	--	--	--	3.24E+09	--	1.43E-08	--
Manganese	n	2.30E+02	7.11E-08	--	--	--	1.62E-10	5.00E-05	3.25E-06	3.24E+09	--	--	4.64E-04
Mercury	ns	3.37E-01	2.01E-05	--	--	--	4.58E-08	3.00E-04	1.53E-04	3.24E+09	1.68E+04	--	2.54E-04
Nickel	n	3.06E+01	9.44E-09	2.16E-12	2.60E-01	5.61E-13	2.16E-11	9.00E-05	2.40E-07	3.24E+09	--	5.61E-13	7.37E-05
Selenium	n	1.02E+01	3.15E-09	--	--	--	7.19E-12	2.00E-02	3.60E-10	3.24E+09	--	--	9.81E-05
Silver	n	3.76E+00	1.16E-09	--	--	--	--	--	--	3.24E+09	--	--	3.61E-05
Thallium	n	--	0.00E+00	--	--	--	--	--	--	3.24E+09	--	--	--
Vanadium	n	3.37E+01	1.04E-08	--	--	--	2.37E-11	1.00E-04	2.37E-07	3.24E+09	--	--	3.24E-04
Zinc	nm	1.34E+02	4.14E-08	--	--	--	--	--	--	3.24E+09	--	--	2.15E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	3.30E+02	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	8.57E-09	2.27E-04
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	1.50E+01	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	1.15E-07	9.01E-04
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	4.70E-01	8.57E-05	--	--	--	1.96E-07	1.00E-01	1.96E-06	3.24E+09	5.49E+03	--	2.07E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.09E-01	6.06E-07	--	--	--	--	--	--	3.24E+09	1.80E+05	--	2.44E-07
Acenaphthylene	--	3.22E-01	9.95E-11	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	5.08E-01	7.57E-07	--	--	--	--	--	--	3.24E+09	6.71E+05	--	2.27E-07
Benzo(a)pyrene	c	1.83E+00	5.64E-10	1.29E-13	6.00E-01	7.73E-14	--	--	--	3.24E+09	--	2.45E-08	--
Benzo(g,h,i)perylene	--	8.37E-01	2.59E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	4.58E-01	1.41E-10	--	--	--	--	--	--	3.24E+09	--	--	6.15E-05
Fluoranthene	n	1.99E+00	6.15E-10	--	--	--	--	--	--	3.24E+09	--	--	6.68E-06
Fluorene	n	1.39E-01	3.86E-07	--	--	--	--	--	--	3.24E+09	3.60E+05	--	4.67E-07
2-Methylnaphthalene	n	1.15E+00	1.55E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	3.86E-05
Naphthalene	c*	7.50E-01	1.26E-05	2.88E-09	3.40E-02	9.80E-11	2.88E-08	3.00E-03	9.61E-06	3.24E+09	5.94E+04	9.80E-11	1.46E-05
Phenanthrene	--	2.11E+00	6.51E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.75E+00	5.73E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	7.81E-06
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	4.64E+03	6.81E-03	1.56E-06	5.70E-01	8.86E-07	--	--	--	3.24E+09	6.81E+05	1.32E-04	3.27E+01
Total						8.9E-07			1.7E-04			1.3E-04	3.3E+01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	6,032 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.06E-07	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	6.20E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	5.87E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	3.42E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
ET	Exposure Time	hours/day	2	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	9.31E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	4.00E+02	--	--	--	--	6.00E-05	--	--
Arsenic	cR	2.96E+01	9.42E-08	1.50E+00	1.41E-07	5.49E-07	3.00E-04	3.00E-02	1.83E-03
Barium	nm	1.39E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	8.43E-01	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	2.59E+00	--	--	--	1.61E-09	2.50E-05	1.00E-03	6.42E-05
Chromium (Total)	nm	1.22E+02	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.14E+01	--	--	--	--	3.00E-04	--	--
Copper	n	2.86E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	4.96E+04	--	--	--	--	7.00E-01	--	--
Lead	L	2.00E+03	--	8.50E-03	--	--	--	--	--
Manganese	n	3.88E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	5.07E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	3.83E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	3.77E+00	--	--	--	--	5.00E-03	--	--
Silver	n	2.95E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	5.31E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	3.49E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	4.11E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	2.66E-01	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	9.28E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.63E+00	--	--	--	1.31E-07	6.00E-02	1.30E-01	2.18E-06
Acenaphthylene	--	5.67E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	1.28E+00	--	--	--	1.03E-07	3.00E-01	1.30E-01	3.45E-07
Benzo(a)pyrene	c	1.95E+00	2.70E-08	1.00E+00	2.70E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.79E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.28E+00	--	--	--	1.03E-07	1.00E-03	1.30E-01	1.03E-04
Fluoranthene	n	2.17E+00	--	--	--	1.75E-07	4.00E-02	1.30E-01	4.38E-06
Fluorene	n	2.68E+00	--	--	--	2.16E-07	4.00E-02	1.30E-01	5.40E-06
2-Methylnaphthalene	n	1.87E+01	--	--	--	1.50E-06	4.00E-03	1.30E-01	3.76E-04
Naphthalene	c*	3.65E+00	--	--	--	2.94E-07	2.00E-02	1.30E-01	1.47E-05
Phenanthrene	--	7.26E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	2.06E+00	--	--	--	1.66E-07	3.00E-02	1.30E-01	5.52E-06
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	1.24E+01	1.85E-07	2.00E+000	3.69E-07	1.08E-06	2.00E-05	1.40E-01	5.39E-02
Total					5.4E-07				5.6E-02

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	9.31E+03	--	--	--	3.19E-04	1.00E+00	3.19E-04
Antimony	n	4.00E+02	--	--	--	1.37E-05	4.00E-04	3.43E-02
Arsenic	cR	2.96E+01	1.04E-07	1.50E+00	1.56E-07	6.07E-07	3.00E-04	2.02E-03
Barium	nm	1.39E+02	--	--	--	4.74E-06	2.00E-01	2.37E-05
Beryllium	n	8.43E-01	--	--	--	2.89E-08	2.00E-03	1.44E-05
Cadmium (food, soil)	n	2.59E+00	--	--	--	8.87E-08	1.00E-03	8.87E-05
Chromium (Total)	nm	1.22E+02	--	--	--	4.18E-06	1.50E+00	2.79E-06
Cobalt	n	1.14E+01	--	--	--	3.92E-07	3.00E-04	1.31E-03
Copper	n	2.86E+02	--	--	--	9.78E-06	4.00E-02	2.45E-04
Iron	nm	4.96E+04	--	--	--	1.70E-03	7.00E-01	2.43E-03
Lead	L	2.00E+03	1.17E-05	8.50E-03	9.97E-08	--	--	--
Manganese	n	3.88E+02	--	--	--	1.33E-05	2.40E-02	5.54E-04
Mercury	ns	5.07E-01	--	--	--	1.74E-08	1.60E-04	1.09E-04
Nickel	n	3.83E+01	--	--	--	1.31E-06	2.00E-02	6.56E-05
Selenium	n	3.77E+00	--	--	--	1.29E-07	5.00E-03	2.58E-05
Silver	n	2.95E+00	--	--	--	1.01E-07	5.00E-03	2.02E-05
Thallium	n	5.31E+00	--	--	--	1.82E-07	1.00E-05	1.82E-02
Vanadium	n	3.49E+01	--	--	--	1.20E-06	5.00E-03	2.39E-04
Zinc	nm	4.11E+02	--	--	--	1.41E-05	3.00E-01	4.70E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	2.66E-01	--	--	--	9.11E-09	8.00E-02	1.14E-07
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	9.28E-01	--	--	--	3.18E-08	2.00E-01	1.59E-07
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.63E+00	--	--	--	5.57E-08	6.00E-02	9.28E-07
Acenaphthylene	--	5.67E-01	--	--	--	--	--	--
Anthracene	nm	1.28E+00	--	--	--	4.40E-08	3.00E-01	1.47E-07
Benzo(a)pyrene	c	1.95E+00	1.15E-08	1.00E+00	1.15E-08	--	--	--
Benzo(g,h,i)perylene	--	8.79E-01	--	--	--	--	--	--
Dibenzofuran	n	1.28E+00	--	--	--	4.39E-08	1.00E-03	4.39E-05
Fluoranthene	n	2.17E+00	--	--	--	7.44E-08	4.00E-02	1.86E-06
Fluorene	n	2.68E+00	--	--	--	9.19E-08	4.00E-02	2.30E-06
2-Methylnaphthalene	n	1.87E+01	--	--	--	6.40E-07	4.00E-03	1.60E-04
Naphthalene	c*	3.65E+00	--	--	--	1.25E-07	2.00E-02	6.25E-06
Phenanthrene	--	7.26E+00	--	--	--	--	--	--
Pyrene	n	2.06E+00	--	--	--	7.04E-08	3.00E-02	2.35E-06
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	1.24E+01	7.29E-08	2.00E+00	1.46E-07	4.25E-07	2.00E-05	2.13E-02
Total					4.1E-07			8.1E-02

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	9.31E+03	2.88E-06	--	--	--	6.57E-09	5.00E-03	1.31E-06	3.24E+09	--	--	3.20E-04
Antimony	n	4.00E+02	1.24E-07	--	--	--	--	--	--	3.24E+09	--	--	3.43E-02
Arsenic	cR	2.96E+01	9.13E-09	3.57E-12	4.30E+00	1.54E-11	2.08E-11	1.50E-05	1.39E-06	3.24E+09	--	2.97E-07	3.86E-03
Barium	nm	1.39E+02	4.28E-08	--	--	--	9.77E-11	5.00E-04	1.95E-07	3.24E+09	--	--	2.39E-05
Beryllium	n	8.43E-01	2.60E-10	1.02E-13	2.40E+00	2.45E-13	5.95E-13	2.00E-05	2.97E-08	3.24E+09	--	2.45E-13	1.45E-05
Cadmium (food, soil)	n	2.59E+00	8.00E-10	3.13E-13	1.80E+00	5.64E-13	1.83E-12	1.00E-05	1.83E-07	3.24E+09	--	5.64E-13	1.53E-04
Chromium (Total)	nm	1.22E+02	3.77E-08	--	--	--	--	--	--	3.24E+09	--	--	2.79E-06
Cobalt	n	1.14E+01	3.53E-09	1.38E-12	9.00E+00	1.24E-11	8.07E-12	6.00E-06	1.34E-06	3.24E+09	--	1.24E-11	1.31E-03
Copper	n	2.86E+02	8.82E-08	--	--	--	--	--	--	3.24E+09	--	--	2.45E-04
Iron	nm	4.96E+04	1.53E-05	--	--	--	--	--	--	3.24E+09	--	--	2.43E-03
Lead	L	2.00E+03	6.17E-07	2.41E-10	1.20E-02	2.90E-12	--	--	--	3.24E+09	--	9.97E-08	--
Manganese	n	3.88E+02	1.20E-07	--	--	--	2.74E-10	5.00E-05	5.47E-06	3.24E+09	--	--	5.59E-04
Mercury	ns	5.07E-01	3.02E-05	--	--	--	6.89E-08	3.00E-04	2.30E-04	3.24E+09	1.68E+04	--	3.38E-04
Nickel	n	3.83E+01	1.18E-08	4.63E-12	2.60E-01	1.20E-12	2.70E-11	9.00E-05	3.00E-07	3.24E+09	--	1.20E-12	6.59E-05
Selenium	n	3.77E+00	1.16E-09	--	--	--	2.66E-12	2.00E-02	1.33E-10	3.24E+09	--	--	2.58E-05
Silver	n	2.95E+00	9.13E-10	--	--	--	--	--	--	3.24E+09	--	--	2.02E-05
Thallium	n	5.31E+00	1.64E-09	--	--	--	--	--	--	3.24E+09	--	--	1.82E-02
Vanadium	n	3.49E+01	1.08E-08	--	--	--	2.46E-11	1.00E-04	2.46E-07	3.24E+09	--	--	2.39E-04
Zinc	nm	4.11E+02	1.27E-07	--	--	--	--	--	--	3.24E+09	--	--	4.70E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	2.66E-01	8.81E-05	--	--	--	2.01E-07	5.00E+00	4.02E-08	3.24E+09	3.02E+03	--	1.54E-07
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	9.28E-01	1.69E-04	--	--	--	3.86E-07	1.00E-01	3.86E-06	3.24E+09	5.49E+03	--	4.02E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.63E+00	9.03E-06	--	--	--	--	--	--	3.24E+09	1.80E+05	--	3.11E-06
Acenaphthylene	--	5.67E-01	1.75E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	1.28E+00	1.91E-06	--	--	--	--	--	--	3.24E+09	6.71E+05	--	4.91E-07
Benzo(a)pyrene	c	1.95E+00	6.03E-10	2.36E-13	6.00E-01	1.42E-13	--	--	--	3.24E+09	--	3.84E-08	--
Benzo(g,h,i)perylene	--	8.79E-01	2.72E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.28E+00	3.96E-10	--	--	--	--	--	--	3.24E+09	--	--	1.47E-04
Fluoranthene	n	2.17E+00	6.71E-10	--	--	--	--	--	--	3.24E+09	--	--	6.24E-06
Fluorene	n	2.68E+00	7.45E-06	--	--	--	--	--	--	3.24E+09	3.60E+05	--	7.70E-06
2-Methylnaphthalene	n	1.87E+01	2.51E-04	--	--	--	--	--	--	3.24E+09	7.43E+04	--	5.36E-04
Naphthalene	c*	3.65E+00	6.14E-05	2.41E-08	3.40E-02	8.18E-10	1.40E-07	3.00E-03	4.68E-05	3.24E+09	5.94E+04	8.18E-10	6.77E-05
Phenanthrene	--	7.26E+00	2.24E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	2.06E+00	6.75E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	7.87E-06
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	1.24E+01	1.82E-05	7.14E-09	5.70E-01	4.07E-09	--	--	--	3.24E+09	6.81E+05	5.19E-07	7.51E-02
Total						4.9E-09			2.9E-04			9.6E-07	1.4E-01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium:	Soil	Intake Equation:	
Exposure Medium:	Soil	DAD=CS x ABS x IF	
Receptor Population:	Adult Trespasser	Intake Factor Equation:	
		IF=SA x CF x AF x EF x ED x 1/BW x 1/AT	
Exposure Route:	Dermal		
Receptor Age:	Adult		

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	6,032 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.06E-07	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	6.20E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium:	Soil	Intake Equation:	
Exposure Medium:	Soil	CDI = CS x IF	
Receptor Population:	Adult Trespasser	Intake Factor Equation:	
		IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT	
Exposure Route:	Ingestion		
Receptor Age:	Adult		

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	5.87E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	3.42E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium:	Soil	Intake Equation:	
Exposure Medium:	Air	EC=(CA x (ET/24hrs/day) x EF x ED)/AT	
Receptor Population:	Adult Trespasser		
Exposure Route:	Inhalation		
Receptor Age:	Adult		

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
ET	Exposure Time	hours/day	2	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	8.53E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	8.15E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	3.51E+01	1.12E-07	1.50E+00	1.68E-07	6.53E-07	3.00E-04	3.00E-02	2.18E-03
Barium	nm	1.85E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	9.46E-01	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	2.30E+00	--	--	--	1.43E-09	2.50E-05	1.00E-03	5.70E-05
Chromium (Total)	nm	5.19E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	9.35E+00	--	--	--	--	3.00E-04	--	--
Copper	n	2.33E+03	--	--	--	--	4.00E-02	--	--
Iron	nm	3.62E+04	--	--	--	--	7.00E-01	--	--
Lead	L	9.50E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.06E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	3.24E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	1.37E+02	--	--	--	--	8.00E-04	--	--
Selenium	n	1.19E+01	--	--	--	--	5.00E-03	--	--
Silver	n	3.67E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	--	--	--	--	--	1.00E-05	--	--
Vanadium	n	2.72E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.81E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	2.40E+00	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	1.20E+00	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	6.04E+00	--	--	--	4.86E-07	6.00E-02	1.30E-01	8.10E-06
Acenaphthylene	--	8.26E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.60E+01	--	--	--	2.90E-06	3.00E-01	1.30E-01	9.66E-06
Benzo(a)pyrene	c	5.07E+00	7.00E-08	1.00E+00	7.00E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	2.15E+00	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.04E+01	--	--	--	8.38E-07	1.00E-03	1.30E-01	8.38E-04
Fluoranthene	n	5.33E+01	--	--	--	4.29E-06	4.00E-02	1.30E-01	1.07E-04
Fluorene	n	2.43E+01	--	--	--	1.96E-06	4.00E-02	1.30E-01	4.90E-05
2-Methylnaphthalene	n	5.11E+00	--	--	--	4.12E-07	4.00E-03	1.30E-01	1.03E-04
Naphthalene	c*	3.80E+00	--	--	--	3.06E-07	2.00E-02	1.30E-01	1.53E-05
Phenanthrene	--	6.52E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	4.16E+01	--	--	--	3.35E-06	3.00E-02	1.30E-01	1.12E-04
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	2.01E+02	2.99E-06	2.00E+00	5.98E-06	1.74E-05	2.00E-05	1.40E-01	8.72E-01
Total					6.2E-06				8.8E-01

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	8.53E+03	--	--	--	2.92E-04	1.00E+00	2.92E-04
Antimony	n	8.15E+01	--	--	--	2.79E-06	4.00E-04	6.97E-03
Arsenic	cR	3.51E+01	1.24E-07	1.50E+00	1.86E-07	7.22E-07	3.00E-04	2.41E-03
Barium	nm	1.85E+02	--	--	--	6.35E-06	2.00E-01	3.17E-05
Beryllium	n	9.46E-01	--	--	--	3.24E-08	2.00E-03	1.62E-05
Cadmium (food, soil)	n	2.30E+00	--	--	--	7.88E-08	1.00E-03	7.88E-05
Chromium (Total)	nm	5.19E+01	--	--	--	1.78E-06	1.50E+00	1.19E-06
Cobalt	n	9.35E+00	--	--	--	3.20E-07	3.00E-04	1.07E-03
Copper	n	2.33E+03	--	--	--	7.99E-05	4.00E-02	2.00E-03
Iron	nm	3.62E+04	--	--	--	1.24E-03	7.00E-01	1.77E-03
Lead	L	9.50E+02	5.58E-06	8.50E-03	4.74E-08	--	--	--
Manganese	n	2.06E+02	--	--	--	7.06E-06	2.40E-02	2.94E-04
Mercury	ns	3.24E-01	--	--	--	1.11E-08	1.60E-04	6.93E-05
Nickel	n	1.37E+02	--	--	--	4.71E-06	2.00E-02	2.35E-04
Selenium	n	1.19E+01	--	--	--	4.08E-07	5.00E-03	8.15E-05
Silver	n	3.67E+00	--	--	--	1.26E-07	5.00E-03	2.51E-05
Thallium	n	--	--	--	--	--	1.00E-05	--
Vanadium	n	2.72E+01	--	--	--	9.33E-07	5.00E-03	1.87E-04
Zinc	nm	3.81E+02	--	--	--	1.31E-05	3.00E-01	4.35E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	2.40E+00	--	--	--	8.22E-08	8.00E-02	1.03E-06
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	1.20E+00	--	--	--	4.12E-08	2.00E-01	2.06E-07
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	6.04E+00	--	--	--	2.07E-07	6.00E-02	3.45E-06
Acenaphthylene	--	8.26E-01	--	--	--	--	--	--
Anthracene	nm	3.60E+01	--	--	--	1.23E-06	3.00E-01	4.11E-06
Benzo(a)pyrene	c	5.07E+00	2.97E-08	1.00E+00	2.97E-08	--	--	--
Benzo(g,h,i)perylene	--	2.15E+00	--	--	--	--	--	--
Dibenzofuran	n	1.04E+01	--	--	--	3.56E-07	1.00E-03	3.56E-04
Fluoranthene	n	5.33E+01	--	--	--	1.83E-06	4.00E-02	4.56E-05
Fluorene	n	2.43E+01	--	--	--	8.33E-07	4.00E-02	2.08E-05
2-Methylnaphthalene	n	5.11E+00	--	--	--	1.75E-07	4.00E-03	4.38E-05
Naphthalene	c*	3.80E+00	--	--	--	1.30E-07	2.00E-02	6.50E-06
Phenanthrene	--	6.52E+01	--	--	--	--	--	--
Pyrene	n	4.16E+01	--	--	--	1.43E-06	3.00E-02	4.75E-05
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	2.01E+02	1.18E-06	2.00E+00	2.36E-06	6.89E-06	2.00E-05	3.44E-01
Total					2.6E-06			3.6E-01

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	8.53E+03	2.64E-06	--	--	--	6.02E-09	5.00E-03	1.20E-06	3.24E+09	--	--	2.93E-04
Antimony	n	8.15E+01	2.52E-08	--	--	--	--	--	--	3.24E+09	--	--	6.97E-03
Arsenic	cR	3.51E+01	1.08E-08	4.25E-12	4.30E+00	1.83E-11	2.48E-11	1.50E-05	1.65E-06	3.24E+09	--	3.53E-07	4.58E-03
Barium	nm	1.85E+02	5.73E-08	--	--	--	1.31E-10	5.00E-04	2.62E-07	3.24E+09	--	--	3.20E-05
Beryllium	n	9.46E-01	2.92E-10	1.14E-13	2.40E+00	2.75E-13	6.67E-13	2.00E-05	3.34E-08	3.24E+09	--	2.75E-13	1.62E-05
Cadmium (food, soil)	n	2.30E+00	7.11E-10	2.78E-13	1.80E+00	5.01E-13	1.62E-12	1.00E-05	1.62E-07	3.24E+09	--	5.01E-13	1.36E-04
Chromium (Total)	nm	5.19E+01	1.60E-08	--	--	--	--	--	--	3.24E+09	--	--	1.19E-06
Cobalt	n	9.35E+00	2.89E-09	1.13E-12	9.00E+00	1.02E-11	6.60E-12	6.00E-06	1.10E-06	3.24E+09	--	1.02E-11	1.07E-03
Copper	n	2.33E+03	7.21E-07	--	--	--	--	--	--	3.24E+09	--	--	2.00E-03
Iron	nm	3.62E+04	1.12E-05	--	--	--	--	--	--	3.24E+09	--	--	1.77E-03
Lead	L	9.50E+02	2.94E-07	1.15E-10	1.20E-02	1.38E-12	--	--	--	3.24E+09	--	4.74E-08	--
Manganese	n	2.06E+02	6.37E-08	--	--	--	1.45E-10	5.00E-05	2.91E-06	3.24E+09	--	--	2.97E-04
Mercury	ns	3.24E-01	1.93E-05	--	--	--	4.40E-08	3.00E-04	1.47E-04	3.24E+09	1.68E+04	--	2.16E-04
Nickel	n	1.37E+02	4.24E-08	1.66E-11	2.60E-01	4.32E-12	9.69E-11	9.00E-05	1.08E-06	3.24E+09	--	4.32E-12	2.36E-04
Selenium	n	1.19E+01	3.68E-09	--	--	--	8.39E-12	2.00E-02	4.20E-10	3.24E+09	--	--	8.15E-05
Silver	n	3.67E+00	1.13E-09	--	--	--	--	--	--	3.24E+09	--	--	2.51E-05
Thallium	n	--	0.00E+00	--	--	--	--	--	--	3.24E+09	--	--	--
Vanadium	n	2.72E+01	8.41E-09	--	--	--	1.92E-11	1.00E-04	1.92E-07	3.24E+09	--	--	1.87E-04
Zinc	nm	3.81E+02	1.18E-07	--	--	--	--	--	--	3.24E+09	--	--	4.35E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	2.40E+00	7.95E-04	--	--	--	1.81E-06	5.00E+00	3.63E-07	3.24E+09	3.02E+03	--	1.39E-06
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	1.20E+00	2.19E-04	--	--	--	5.01E-07	1.00E-01	5.01E-06	3.24E+09	5.49E+03	--	5.21E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	6.04E+00	3.35E-05	--	--	--	--	--	--	3.24E+09	1.80E+05	--	1.15E-05
Acenaphthylene	--	8.26E-01	2.55E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.60E+01	5.36E-05	--	--	--	--	--	--	3.24E+09	6.71E+05	--	1.38E-05
Benzo(a)pyrene	c	5.07E+00	1.57E-09	6.13E-13	6.00E-01	3.68E-13	--	--	--	3.24E+09	--	9.97E-08	--
Benzo(g,h,i)perylene	--	2.15E+00	6.65E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.04E+01	3.21E-09	--	--	--	--	--	--	3.24E+09	--	--	1.19E-03
Fluoranthene	n	5.33E+01	1.65E-08	--	--	--	--	--	--	3.24E+09	--	--	1.53E-04
Fluorene	n	2.43E+01	6.76E-05	--	--	--	--	--	--	3.24E+09	3.60E+05	--	6.98E-05
2-Methylnaphthalene	n	5.11E+00	6.88E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	1.47E-04
Naphthalene	c*	3.80E+00	6.39E-05	2.50E-08	3.40E-02	8.50E-10	1.46E-07	3.00E-03	4.86E-05	3.24E+09	5.94E+04	8.50E-10	7.04E-05
Phenanthrene	--	6.52E+01	2.01E-08	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	4.16E+01	1.37E-05	--	--	--	--	--	--	3.24E+09	3.05E+06	--	1.59E-04
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	2.01E+02	2.95E-04	1.16E-07	5.70E-01	6.59E-08	--	--	--	3.24E+09	6.81E+05	8.41E-06	1.22E+00
Total						6.7E-08			2.1E-04			8.9E-06	1.2E+00

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	6,032 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.06E-07	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	6.20E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	5.87E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	3.42E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
ET	Exposure Time	hours/day	2	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	1.15E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	2.28E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.09E+02	3.47E-07	1.50E+00	5.20E-07	2.02E-06	3.00E-04	3.00E-02	6.74E-03
Barium	nm	4.61E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	8.53E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	7.69E+00	--	--	--	4.77E-09	2.50E-05	1.00E-03	1.91E-04
Chromium (Total)	nm	1.93E+03	--	--	--	--	1.95E-02	--	--
Cobalt	n	6.87E+01	--	--	--	--	3.00E-04	--	--
Copper	n	5.56E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	8.77E+04	--	--	--	--	7.00E-01	--	--
Lead	L	3.88E+03	--	8.50E-03	--	--	--	--	--
Manganese	n	2.00E+03	--	--	--	--	9.60E-04	--	--
Mercury	ns	4.89E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	2.97E+02	--	--	--	--	8.00E-04	--	--
Selenium	n	5.52E+01	--	--	--	--	5.00E-03	--	--
Silver	n	9.40E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	6.74E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	4.26E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.11E+03	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	7.66E+00	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	--	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	3.48E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.66E+00	--	--	--	1.33E-07	6.00E-02	1.30E-01	2.22E-06
Acenaphthylene	--	1.04E+00	--	--	--	--	--	1.30E-01	--
Anthracene	nm	1.45E+00	--	--	--	1.16E-07	3.00E-01	1.30E-01	3.88E-07
Benzo(a)pyrene	c	2.88E+00	3.98E-08	1.00E+00	3.98E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.52E+00	--	--	--	1.22E-07	1.00E-03	1.30E-01	1.22E-04
Fluoranthene	n	2.86E+00	--	--	--	2.31E-07	4.00E-02	1.30E-01	5.77E-06
Fluorene	n	2.90E+00	--	--	--	2.34E-07	4.00E-02	1.30E-01	5.84E-06
2-Methylnaphthalene	n	3.70E+00	--	--	--	2.98E-07	4.00E-03	1.30E-01	7.44E-05
Naphthalene	c*	2.41E+00	--	--	--	1.94E-07	2.00E-02	1.30E-01	9.72E-06
Phenanthrene	--	1.19E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	3.02E+00	--	--	--	2.44E-07	3.00E-02	1.30E-01	8.12E-06
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	3.54E+00	5.26E-08	2.00E+00	1.05E-07	3.07E-07	2.00E-05	1.40E-01	1.53E-02
Total					6.7E-07				2.3E-02

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	1.15E+04	--	--	--	3.93E-04	1.00E+00	3.93E-04
Antimony	n	2.28E+01	--	--	--	7.80E-07	4.00E-04	1.95E-03
Arsenic	cR	1.09E+02	3.83E-07	1.50E+00	5.75E-07	2.24E-06	3.00E-04	7.45E-03
Barium	nm	4.61E+02	--	--	--	1.58E-05	2.00E-01	7.90E-05
Beryllium	n	8.53E+00	--	--	--	2.92E-07	2.00E-03	1.46E-04
Cadmium (food, soil)	n	7.69E+00	--	--	--	2.63E-07	1.00E-03	2.63E-04
Chromium (Total)	nm	1.93E+03	--	--	--	6.60E-05	1.50E+00	4.40E-05
Cobalt	n	6.87E+01	--	--	--	2.35E-06	3.00E-04	7.84E-03
Copper	n	5.56E+02	--	--	--	1.90E-05	4.00E-02	4.76E-04
Iron	nm	8.77E+04	--	--	--	3.00E-03	7.00E-01	4.29E-03
Lead	L	3.88E+03	2.28E-05	8.50E-03	1.93E-07	--	--	--
Manganese	n	2.00E+03	--	--	--	6.86E-05	2.40E-02	2.86E-03
Mercury	ns	4.89E-01	--	--	--	1.67E-08	1.60E-04	1.05E-04
Nickel	n	2.97E+02	--	--	--	1.02E-05	2.00E-02	5.08E-04
Selenium	n	5.52E+01	--	--	--	1.89E-06	5.00E-03	3.78E-04
Silver	n	9.40E+00	--	--	--	3.22E-07	5.00E-03	6.44E-05
Thallium	n	6.74E+00	--	--	--	2.31E-07	1.00E-05	2.31E-02
Vanadium	n	4.26E+01	--	--	--	1.46E-06	5.00E-03	2.92E-04
Zinc	nm	3.11E+03	--	--	--	1.07E-04	3.00E-01	3.55E-04
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	7.66E+00	4.50E-08	1.60E+00	7.19E-08	2.62E-07	8.00E-04	3.28E-04
Toluene	ns	--	--	--	--	--	8.00E-02	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	3.48E-01	--	--	--	1.19E-08	2.00E-01	5.96E-08
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.66E+00	--	--	--	5.67E-08	6.00E-02	9.45E-07
Acenaphthylene	--	1.04E+00	--	--	--	--	--	--
Anthracene	nm	1.45E+00	--	--	--	4.95E-08	3.00E-01	1.65E-07
Benzo(a)pyrene	c	2.88E+00	1.69E-08	1.00E+00	1.69E-08	--	--	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	--
Dibenzofuran	n	1.52E+00	--	--	--	5.20E-08	1.00E-03	5.20E-05
Fluoranthene	n	2.86E+00	--	--	--	9.80E-08	4.00E-02	2.45E-06
Fluorene	n	2.90E+00	--	--	--	9.94E-08	4.00E-02	2.48E-06
2-Methylnaphthalene	n	3.70E+00	--	--	--	1.27E-07	4.00E-03	3.16E-05
Naphthalene	c*	2.41E+00	--	--	--	8.27E-08	2.00E-02	4.13E-06
Phenanthrene	--	1.19E+01	--	--	--	--	--	--
Pyrene	n	3.02E+00	--	--	--	1.04E-07	3.00E-02	3.45E-06
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	3.54E+00	2.08E-08	2.00E+00	4.15E-08	1.21E-07	2.00E-05	6.06E-03
Total					9.0E-07			5.7E-02

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	1.15E+04	3.54E-06	--	--	--	8.09E-09	5.00E-03	1.62E-06	3.24E+09	--	--	3.95E-04
Antimony	n	2.28E+01	7.03E-09	--	--	--	--	--	--	3.24E+09	--	--	1.95E-03
Arsenic	cR	1.09E+02	3.36E-08	1.32E-11	4.30E+00	5.66E-11	7.67E-11	1.50E-05	5.12E-06	3.24E+09	--	1.10E-06	1.42E-02
Barium	nm	4.61E+02	1.42E-07	--	--	--	3.25E-10	5.00E-04	6.51E-07	3.24E+09	--	--	7.96E-05
Beryllium	n	8.53E+00	2.64E-09	1.03E-12	2.40E+00	2.48E-12	6.02E-12	2.00E-05	3.01E-07	3.24E+09	--	2.48E-12	1.46E-04
Cadmium (food, soil)	n	7.69E+00	2.38E-09	9.30E-13	1.80E+00	1.67E-12	5.42E-12	1.00E-05	5.42E-07	3.24E+09	--	1.67E-12	4.55E-04
Chromium (Total)	nm	1.93E+03	5.95E-07	--	--	--	--	--	--	3.24E+09	--	--	4.40E-05
Cobalt	n	6.87E+01	2.12E-08	8.30E-12	9.00E+00	7.47E-11	4.84E-11	6.00E-06	8.07E-06	3.24E+09	--	7.47E-11	7.84E-03
Copper	n	5.56E+02	1.72E-07	--	--	--	--	--	--	3.24E+09	--	--	4.76E-04
Iron	nm	8.77E+04	2.71E-05	--	--	--	--	--	--	3.24E+09	--	--	4.29E-03
Lead	L	3.88E+03	1.20E-06	4.69E-10	1.20E-02	5.63E-12	--	--	--	3.24E+09	--	1.93E-07	--
Manganese	n	2.00E+03	6.18E-07	--	--	--	1.41E-09	5.00E-05	2.82E-05	3.24E+09	--	--	2.88E-03
Mercury	ns	4.89E-01	2.91E-05	--	--	--	6.64E-08	3.00E-04	2.21E-04	3.24E+09	1.68E+04	--	3.26E-04
Nickel	n	2.97E+02	9.17E-08	3.59E-11	2.60E-01	9.33E-12	2.09E-10	9.00E-05	2.33E-06	3.24E+09	--	9.33E-12	5.11E-04
Selenium	n	5.52E+01	1.70E-08	--	--	--	3.89E-11	2.00E-02	1.94E-09	3.24E+09	--	--	3.78E-04
Silver	n	9.40E+00	2.90E-09	--	--	--	--	--	--	3.24E+09	--	--	6.44E-05
Thallium	n	6.74E+00	2.08E-09	--	--	--	--	--	--	3.24E+09	--	--	2.31E-02
Vanadium	n	4.26E+01	1.32E-08	--	--	--	3.01E-11	1.00E-04	3.01E-07	3.24E+09	--	--	2.92E-04
Zinc	nm	3.11E+03	9.62E-07	--	--	--	--	--	--	3.24E+09	--	--	3.55E-04
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	7.66E+00	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	7.19E-08	3.28E-04
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	3.48E-01	6.34E-05	--	--	--	1.45E-07	1.00E-01	1.45E-06	3.24E+09	5.49E+03	--	1.51E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.66E+00	9.19E-06	--	--	--	--	--	--	3.24E+09	1.80E+05	--	3.17E-06
Acenaphthylene	--	1.04E+00	3.20E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	1.45E+00	2.16E-06	--	--	--	--	--	--	3.24E+09	6.71E+05	--	5.53E-07
Benzo(a)pyrene	c	2.88E+00	8.90E-10	3.48E-13	6.00E-01	2.09E-13	--	--	--	3.24E+09	--	5.67E-08	--
Benzo(g,h,i)perylene	--	1.78E+00	5.48E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.52E+00	4.69E-10	--	--	--	--	--	--	3.24E+09	--	--	1.74E-04
Fluoranthene	n	2.86E+00	8.84E-10	--	--	--	--	--	--	3.24E+09	--	--	8.22E-06
Fluorene	n	2.90E+00	8.06E-06	--	--	--	--	--	--	3.24E+09	3.60E+05	--	8.33E-06
2-Methylnaphthalene	n	3.70E+00	4.97E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	1.06E-04
Naphthalene	c*	2.41E+00	4.06E-05	1.59E-08	3.40E-02	5.41E-10	9.28E-08	3.00E-03	3.09E-05	3.24E+09	5.94E+04	5.41E-10	4.48E-05
Phenanthrene	--	1.19E+01	3.69E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	3.02E+00	9.92E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	1.16E-05
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	3.54E+00	5.19E-06	2.03E-09	5.70E-01	1.16E-09	--	--	--	3.24E+09	6.81E+05	1.48E-07	2.14E-02
Total						1.9E-09			3.0E-04			1.6E-06	8.0E-02

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	6,032 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.06E-07	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	6.20E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	5.87E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	3.42E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
ET	Exposure Time	hours/day	2	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	8.25E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	4.16E+00	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.27E+01	4.04E-08	1.50E+00	6.06E-08	2.36E-07	3.00E-04	3.00E-02	7.86E-04
Barium	nm	1.03E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	2.73E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	8.84E-01	--	--	--	5.48E-10	2.50E-05	1.00E-03	2.19E-05
Chromium (Total)	nm	4.37E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.13E+01	--	--	--	--	3.00E-04	--	--
Copper	n	1.66E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	3.11E+04	--	--	--	--	7.00E-01	--	--
Lead	L	2.34E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	4.88E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	7.31E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	1.84E+02	--	--	--	--	8.00E-04	--	--
Selenium	n	3.61E+00	--	--	--	--	5.00E-03	--	--
Silver	n	1.89E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	5.00E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	2.81E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	2.12E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	2.00E+00	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	--	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	8.70E-01	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	3.40E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.47E+00	--	--	--	1.19E-07	6.00E-02	1.30E-01	1.98E-06
Acenaphthylene	--	4.54E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.18E+00	--	--	--	2.57E-07	3.00E-01	1.30E-01	8.55E-07
Benzo(a)pyrene	c	3.25E+00	4.49E-08	1.00E+00	4.49E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.06E+00	--	--	--	8.53E-08	1.00E-03	1.30E-01	8.53E-05
Fluoranthene	n	1.29E+01	--	--	--	1.04E-06	4.00E-02	1.30E-01	2.59E-05
Fluorene	n	5.36E+00	--	--	--	4.32E-07	4.00E-02	1.30E-01	1.08E-05
2-Methylnaphthalene	n	2.04E+00	--	--	--	1.64E-07	4.00E-03	1.30E-01	4.10E-05
Naphthalene	c*	6.14E-01	--	--	--	4.95E-08	2.00E-02	1.30E-01	2.47E-06
Phenanthrene	--	1.10E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.02E+01	--	--	--	8.19E-07	3.00E-02	1.30E-01	2.73E-05
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	4.20E+01	6.24E-07	2.00E+00	1.25E-06	3.64E-06	2.00E-05	1.40E-01	1.82E-01
Total					1.4E-06				1.8E-01

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	8.25E+03	--	--	--	2.83E-04	1.00E+00	2.83E-04
Antimony	n	4.16E+00	--	--	--	1.42E-07	4.00E-04	3.56E-04
Arsenic	cR	1.27E+01	4.47E-08	1.50E+00	6.70E-08	2.61E-07	3.00E-04	8.68E-04
Barium	nm	1.03E+02	--	--	--	3.51E-06	2.00E-01	1.76E-05
Beryllium	n	2.73E+00	--	--	--	9.35E-08	2.00E-03	4.67E-05
Cadmium (food, soil)	n	8.84E-01	--	--	--	3.03E-08	1.00E-03	3.03E-05
Chromium (Total)	nm	4.37E+01	--	--	--	1.50E-06	1.50E+00	9.98E-07
Cobalt	n	1.13E+01	--	--	--	3.88E-07	3.00E-04	1.29E-03
Copper	n	1.66E+02	--	--	--	5.69E-06	4.00E-02	1.42E-04
Iron	nm	3.11E+04	--	--	--	1.06E-03	7.00E-01	1.52E-03
Lead	L	2.34E+02	1.37E-06	8.50E-03	1.17E-08	--	--	--
Manganese	n	4.88E+02	--	--	--	1.67E-05	2.40E-02	6.96E-04
Mercury	ns	7.31E-01	--	--	--	2.50E-08	1.60E-04	1.56E-04
Nickel	n	1.84E+02	--	--	--	6.30E-06	2.00E-02	3.15E-04
Selenium	n	3.61E+00	--	--	--	1.24E-07	5.00E-03	2.47E-05
Silver	n	1.89E+00	--	--	--	6.47E-08	5.00E-03	1.29E-05
Thallium	n	5.00E+00	--	--	--	1.71E-07	1.00E-05	1.71E-02
Vanadium	n	2.81E+01	--	--	--	9.63E-07	5.00E-03	1.93E-04
Zinc	nm	2.12E+02	--	--	--	7.25E-06	3.00E-01	2.42E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	2.00E+00	1.17E-08	5.40E-03	6.34E-11	6.85E-08	7.00E-02	9.78E-07
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	--	--	--	--	--	8.00E-02	--
Trichloroethene	c**	8.70E-01	5.11E-09	4.60E-02	2.35E-10	2.98E-08	5.00E-04	5.96E-05
Total Xylenes	ns	3.40E-01	--	--	--	1.16E-08	2.00E-01	5.82E-08
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.47E+00	--	--	--	5.05E-08	6.00E-02	8.41E-07
Acenaphthylene	--	4.54E-01	--	--	--	--	--	--
Anthracene	nm	3.18E+00	--	--	--	1.09E-07	3.00E-01	3.63E-07
Benzo(a)pyrene	c	3.25E+00	1.91E-08	1.00E+00	1.91E-08	--	--	--
Benzo(g,h,i)perylene	--	1.78E+00	--	--	--	--	--	--
Dibenzofuran	n	1.06E+00	--	--	--	3.63E-08	1.00E-03	3.63E-05
Fluoranthene	n	1.29E+01	--	--	--	4.41E-07	4.00E-02	1.10E-05
Fluorene	n	5.36E+00	--	--	--	1.84E-07	4.00E-02	4.59E-06
2-Methylnaphthalene	n	2.04E+00	--	--	--	6.98E-08	4.00E-03	1.74E-05
Naphthalene	c*	6.14E-01	--	--	--	2.10E-08	2.00E-02	1.05E-06
Phenanthrene	--	1.10E+01	--	--	--	--	--	--
Pyrene	n	1.02E+01	--	--	--	3.48E-07	3.00E-02	1.16E-05
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	4.20E+01	2.46E-07	2.00E+00	4.93E-07	1.44E-06	2.00E-05	7.19E-02
Total					5.9E-07			9.5E-02

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	8.25E+03	2.55E-06	--	--	--	5.82E-09	5.00E-03	1.16E-06	3.24E+09	--	--	2.84E-04
Antimony	n	4.16E+00	1.28E-09	--	--	--	--	--	--	3.24E+09	--	--	3.56E-04
Arsenic	cR	1.27E+01	3.92E-09	1.53E-12	4.30E+00	6.59E-12	8.94E-12	1.50E-05	5.96E-07	3.24E+09	--	1.28E-07	1.65E-03
Barium	nm	1.03E+02	3.17E-08	--	--	--	7.23E-11	5.00E-04	1.45E-07	3.24E+09	--	--	1.77E-05
Beryllium	n	2.73E+00	8.43E-10	3.30E-13	2.40E+00	7.92E-13	1.93E-12	2.00E-05	9.63E-08	3.24E+09	--	7.92E-13	4.68E-05
Cadmium (food, soil)	n	8.84E-01	2.73E-10	1.07E-13	1.80E+00	1.92E-13	6.24E-13	1.00E-05	6.24E-08	3.24E+09	--	1.92E-13	5.22E-05
Chromium (Total)	nm	4.37E+01	1.35E-08	--	--	--	--	--	--	3.24E+09	--	--	9.98E-07
Cobalt	n	1.13E+01	3.50E-09	1.37E-12	9.00E+00	1.23E-11	7.99E-12	6.00E-06	1.33E-06	3.24E+09	--	1.23E-11	1.29E-03
Copper	n	1.66E+02	5.13E-08	--	--	--	--	--	--	3.24E+09	--	--	1.42E-04
Iron	nm	3.11E+04	9.60E-06	--	--	--	--	--	--	3.24E+09	--	--	1.52E-03
Lead	L	2.34E+02	7.23E-08	2.83E-11	1.20E-02	3.40E-13	--	--	--	3.24E+09	--	1.17E-08	--
Manganese	n	4.88E+02	1.51E-07	--	--	--	3.44E-10	5.00E-05	6.88E-06	3.24E+09	--	--	7.03E-04
Mercury	ns	7.31E-01	4.35E-05	--	--	--	9.93E-08	3.00E-04	3.31E-04	3.24E+09	1.68E+04	--	4.88E-04
Nickel	n	1.84E+02	5.69E-08	2.23E-11	2.60E-01	5.79E-12	1.30E-10	9.00E-05	1.44E-06	3.24E+09	--	5.79E-12	3.17E-04
Selenium	n	3.61E+00	1.11E-09	--	--	--	2.54E-12	2.00E-02	1.27E-10	3.24E+09	--	--	2.47E-05
Silver	n	1.89E+00	5.83E-10	--	--	--	--	--	--	3.24E+09	--	--	1.29E-05
Thallium	n	5.00E+00	1.54E-09	--	--	--	--	--	--	3.24E+09	--	--	1.71E-02
Vanadium	n	2.81E+01	8.69E-09	--	--	--	1.98E-11	1.00E-04	1.98E-07	3.24E+09	--	--	1.93E-04
Zinc	nm	2.12E+02	6.54E-08	--	--	--	--	--	--	3.24E+09	--	--	2.42E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	2.00E+00	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	6.34E-11	9.78E-07
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	8.70E-01	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	2.35E-10	5.96E-05
Total Xylenes	ns	3.40E-01	6.20E-05	--	--	--	1.41E-07	1.00E-01	1.41E-06	3.24E+09	5.49E+03	--	1.47E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.47E+00	8.19E-06	--	--	--	--	--	--	3.24E+09	1.80E+05	--	2.82E-06
Acenaphthylene	--	4.54E-01	1.40E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.18E+00	4.75E-06	--	--	--	--	--	--	3.24E+09	6.71E+05	--	1.22E-06
Benzo(a)pyrene	c	3.25E+00	1.00E-09	3.93E-13	6.00E-01	2.36E-13	--	--	--	3.24E+09	--	6.40E-08	--
Benzo(g,h,i)perylene	--	1.78E+00	5.50E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.06E+00	3.27E-10	--	--	--	--	--	--	3.24E+09	--	--	1.22E-04
Fluoranthene	n	1.29E+01	3.98E-09	--	--	--	--	--	--	3.24E+09	--	--	3.69E-05
Fluorene	n	5.36E+00	1.49E-05	--	--	--	--	--	--	3.24E+09	3.60E+05	--	1.54E-05
2-Methylnaphthalene	n	2.04E+00	2.74E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	5.85E-05
Naphthalene	c*	6.14E-01	1.03E-05	4.05E-09	3.40E-02	1.38E-10	2.36E-08	3.00E-03	7.87E-06	3.24E+09	5.94E+04	1.38E-10	1.14E-05
Phenanthrene	--	1.10E+01	3.39E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.02E+01	3.34E-06	--	--	--	--	--	--	3.24E+09	3.05E+06	--	3.89E-05
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	4.20E+01	6.17E-05	2.41E-08	5.70E-01	1.38E-08	--	--	--	3.24E+09	6.81E+05	1.76E-06	2.54E-01
Total						1.4E-08			3.5E-04			2.0E-06	2.8E-01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	6,032 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.06E-07	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	6.20E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	5.87E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	3.42E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
ET	Exposure Time	hours/day	2	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	9.68E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	2.32E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.87E+01	5.97E-08	1.50E+00	8.95E-08	3.48E-07	3.00E-04	3.00E-02	1.16E-03
Barium	nm	2.10E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	7.24E-01	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	2.43E+00	--	--	--	1.51E-09	2.50E-05	1.00E-03	6.02E-05
Chromium (Total)	nm	3.12E+02	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.77E+01	--	--	--	--	3.00E-04	--	--
Copper	n	4.26E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	5.22E+04	--	--	--	--	7.00E-01	--	--
Lead	L	7.42E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.11E+03	--	--	--	--	9.60E-04	--	--
Mercury	ns	6.66E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	6.00E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	5.31E+00	--	--	--	--	5.00E-03	--	--
Silver	n	1.81E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	7.53E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	5.54E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.84E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	1.90E+00	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	4.33E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	4.71E-02	--	--	--	3.79E-09	6.00E-02	1.30E-01	6.32E-08
Acenaphthylene	--	1.68E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	3.06E-01	--	--	--	2.47E-08	3.00E-01	1.30E-01	8.22E-08
Benzo(a)pyrene	c	1.98E+00	2.74E-08	1.00E+00	2.74E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.25E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.17E-01	--	--	--	9.43E-09	1.00E-03	1.30E-01	9.43E-06
Fluoranthene	n	1.93E+00	--	--	--	1.56E-07	4.00E-02	1.30E-01	3.89E-06
Fluorene	n	6.32E-02	--	--	--	5.09E-09	4.00E-02	1.30E-01	1.27E-07
2-Methylnaphthalene	n	4.67E-01	--	--	--	3.76E-08	4.00E-03	1.30E-01	9.41E-06
Naphthalene	c*	3.18E-01	--	--	--	2.56E-08	2.00E-02	1.30E-01	1.28E-06
Phenanthrene	--	1.43E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.94E+00	--	--	--	1.56E-07	3.00E-02	1.30E-01	5.22E-06
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	2.39E+01	3.55E-07	2.00E+00	7.11E-07	2.07E-06	2.00E-05	1.40E-01	1.04E-01
Total					8.3E-07				1.0E-01

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	9.68E+03	--	--	--	3.32E-04	1.00E+00	3.32E-04
Antimony	n	2.32E+01	--	--	--	7.95E-07	4.00E-04	1.99E-03
Arsenic	cR	1.87E+01	6.60E-08	1.50E+00	9.90E-08	3.85E-07	3.00E-04	1.28E-03
Barium	nm	2.10E+02	--	--	--	7.18E-06	2.00E-01	3.59E-05
Beryllium	n	7.24E-01	--	--	--	2.48E-08	2.00E-03	1.24E-05
Cadmium (food, soil)	n	2.43E+00	--	--	--	8.32E-08	1.00E-03	8.32E-05
Chromium (Total)	nm	3.12E+02	--	--	--	1.07E-05	1.50E+00	7.12E-06
Cobalt	n	1.77E+01	--	--	--	6.06E-07	3.00E-04	2.02E-03
Copper	n	4.26E+02	--	--	--	1.46E-05	4.00E-02	3.65E-04
Iron	nm	5.22E+04	--	--	--	1.79E-03	7.00E-01	2.56E-03
Lead	L	7.42E+02	4.36E-06	8.50E-03	3.70E-08	--	--	--
Manganese	n	2.11E+03	--	--	--	7.22E-05	2.40E-02	3.01E-03
Mercury	ns	6.66E-01	--	--	--	2.28E-08	1.60E-04	1.43E-04
Nickel	n	6.00E+01	--	--	--	2.06E-06	2.00E-02	1.03E-04
Selenium	n	5.31E+00	--	--	--	1.82E-07	5.00E-03	3.64E-05
Silver	n	1.81E+00	--	--	--	6.21E-08	5.00E-03	1.24E-05
Thallium	n	7.53E+00	--	--	--	2.58E-07	1.00E-05	2.58E-02
Vanadium	n	5.54E+01	--	--	--	1.90E-06	5.00E-03	3.80E-04
Zinc	nm	3.84E+02	--	--	--	1.31E-05	3.00E-01	4.38E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	1.90E+00	--	--	--	6.51E-08	8.00E-02	8.13E-07
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	4.33E-01	--	--	--	1.48E-08	2.00E-01	7.41E-08
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	4.71E-02	--	--	--	1.61E-09	6.00E-02	2.69E-08
Acenaphthylene	--	1.68E-01	--	--	--	--	--	--
Anthracene	nm	3.06E-01	--	--	--	1.05E-08	3.00E-01	3.49E-08
Benzo(a)pyrene	c	1.98E+00	1.16E-08	1.00E+00	1.16E-08	--	--	--
Benzo(g,h,i)perylene	--	8.25E-01	--	--	--	--	--	--
Dibenzofuran	n	1.17E-01	--	--	--	4.01E-09	1.00E-03	4.01E-06
Fluoranthene	n	1.93E+00	--	--	--	6.62E-08	4.00E-02	1.65E-06
Fluorene	n	6.32E-02	--	--	--	2.16E-09	4.00E-02	5.41E-08
2-Methylnaphthalene	n	4.67E-01	--	--	--	1.60E-08	4.00E-03	4.00E-06
Naphthalene	c*	3.18E-01	--	--	--	1.09E-08	2.00E-02	5.45E-07
Phenanthrene	--	1.43E+00	--	--	--	--	--	--
Pyrene	n	1.94E+00	--	--	--	6.65E-08	3.00E-02	2.22E-06
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	2.39E+01	1.40E-07	2.00E+00	2.81E-07	8.18E-07	2.00E-05	4.09E-02
Total					4.3E-07			7.9E-02

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	9.68E+03	2.99E-06	--	--	--	6.83E-09	5.00E-03	1.37E-06	3.24E+09	--	--	3.33E-04
Antimony	n	2.32E+01	7.17E-09	--	--	--	--	--	--	3.24E+09	--	--	1.99E-03
Arsenic	cR	1.87E+01	5.79E-09	2.26E-12	4.30E+00	9.74E-12	1.32E-11	1.50E-05	8.81E-07	3.24E+09	--	1.89E-07	2.44E-03
Barium	nm	2.10E+02	6.48E-08	--	--	--	1.48E-10	5.00E-04	2.96E-07	3.24E+09	--	--	3.62E-05
Beryllium	n	7.24E-01	2.24E-10	8.75E-14	2.40E+00	2.10E-13	5.11E-13	2.00E-05	2.55E-08	3.24E+09	--	2.10E-13	1.24E-05
Cadmium (food, soil)	n	2.43E+00	7.51E-10	2.94E-13	1.80E+00	5.29E-13	1.71E-12	1.00E-05	1.71E-07	3.24E+09	--	5.29E-13	1.44E-04
Chromium (Total)	nm	3.12E+02	9.63E-08	--	--	--	--	--	--	3.24E+09	--	--	7.12E-06
Cobalt	n	1.77E+01	5.47E-09	2.14E-12	9.00E+00	1.93E-11	1.25E-11	6.00E-06	2.08E-06	3.24E+09	--	1.93E-11	2.02E-03
Copper	n	4.26E+02	1.32E-07	--	--	--	--	--	--	3.24E+09	--	--	3.65E-04
Iron	nm	5.22E+04	1.61E-05	--	--	--	--	--	--	3.24E+09	--	--	2.56E-03
Lead	L	7.42E+02	2.29E-07	8.97E-11	1.20E-02	1.08E-12	--	--	--	3.24E+09	--	3.70E-08	--
Manganese	n	2.11E+03	6.52E-07	--	--	--	1.49E-09	5.00E-05	2.98E-05	3.24E+09	--	--	3.04E-03
Mercury	ns	6.66E-01	3.96E-05	--	--	--	9.05E-08	3.00E-04	3.02E-04	3.24E+09	1.68E+04	--	4.44E-04
Nickel	n	6.00E+01	1.85E-08	7.26E-12	2.60E-01	1.89E-12	4.23E-11	9.00E-05	4.70E-07	3.24E+09	--	1.89E-12	1.03E-04
Selenium	n	5.31E+00	1.64E-09	--	--	--	3.74E-12	2.00E-02	1.87E-10	3.24E+09	--	--	3.64E-05
Silver	n	1.81E+00	5.60E-10	--	--	--	--	--	--	3.24E+09	--	--	1.24E-05
Thallium	n	7.53E+00	2.33E-09	--	--	--	--	--	--	3.24E+09	--	--	2.58E-02
Vanadium	n	5.54E+01	1.71E-08	--	--	--	3.91E-11	1.00E-04	3.91E-07	3.24E+09	--	--	3.80E-04
Zinc	nm	3.84E+02	1.19E-07	--	--	--	--	--	--	3.24E+09	--	--	4.38E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	1.90E+00	6.29E-04	--	--	--	1.44E-06	5.00E+00	2.87E-07	3.24E+09	3.02E+03	--	1.10E-06
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	4.33E-01	7.89E-05	--	--	--	1.80E-07	1.00E-01	1.80E-06	3.24E+09	5.49E+03	--	1.88E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	4.71E-02	2.62E-07	--	--	--	--	--	--	3.24E+09	1.80E+05	--	9.01E-08
Acenaphthylene	--	1.68E-01	5.19E-11	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	3.06E-01	4.56E-07	--	--	--	--	--	--	3.24E+09	6.71E+05	--	1.17E-07
Benzo(a)pyrene	c	1.98E+00	6.13E-10	2.40E-13	6.00E-01	1.44E-13	--	--	--	3.24E+09	--	3.90E-08	--
Benzo(g,h,i)perylene	--	8.25E-01	2.55E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.17E-01	3.61E-11	--	--	--	--	--	--	3.24E+09	--	--	1.34E-05
Fluoranthene	n	1.93E+00	5.97E-10	--	--	--	--	--	--	3.24E+09	--	--	5.55E-06
Fluorene	n	6.32E-02	1.76E-07	--	--	--	--	--	--	3.24E+09	3.60E+05	--	1.81E-07
2-Methylnaphthalene	n	4.67E-01	6.29E-06	--	--	--	--	--	--	3.24E+09	7.43E+04	--	1.34E-05
Naphthalene	c*	3.18E-01	5.35E-06	2.10E-09	3.40E-02	7.12E-11	1.22E-08	3.00E-03	4.07E-06	3.24E+09	5.94E+04	7.12E-11	5.90E-06
Phenanthrene	--	1.43E+00	4.42E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.94E+00	6.37E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	7.43E-06
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	2.39E+01	3.51E-05	1.37E-08	5.70E-01	7.83E-09	--	--	--	3.24E+09	6.81E+05	9.99E-07	1.45E-01
Total						7.9E-09			3.4E-04			1.3E-06	1.8E-01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	6,032 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.06E-07	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	6.20E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	5.87E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	3.42E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
ET	Exposure Time	hours/day	2	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	2.78E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	9.14E+00	--	--	--	--	6.00E-05	--	--
Arsenic	cR	2.22E+01	7.08E-08	1.50E+00	1.06E-07	4.13E-07	3.00E-04	3.00E-02	1.38E-03
Barium	nm	2.24E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	1.27E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	1.21E+00	--	--	--	7.50E-10	2.50E-05	1.00E-03	3.00E-05
Chromium (Total)	nm	7.18E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.76E+01	--	--	--	--	3.00E-04	--	--
Copper	n	2.88E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	6.95E+04	--	--	--	--	7.00E-01	--	--
Lead	L	1.95E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	6.07E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	2.95E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	8.93E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	--	--	--	--	--	5.00E-03	--	--
Silver	n	6.26E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	9.29E+00	--	--	--	--	1.00E-05	--	--
Vanadium	n	6.95E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	3.30E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	--	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	2.20E+00	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.88E+00	--	--	--	1.51E-07	6.00E-02	1.30E-01	2.52E-06
Acenaphthylene	--	1.11E+01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	1.81E+01	--	--	--	1.46E-06	3.00E-01	1.30E-01	4.86E-06
Benzo(a)pyrene	c	2.16E+01	2.98E-07	1.00E+00	2.98E-07	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	1.98E+01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	1.53E+00	--	--	--	1.23E-07	1.00E-03	1.30E-01	1.23E-04
Fluoranthene	n	6.06E+01	--	--	--	4.89E-06	4.00E-02	1.30E-01	1.22E-04
Fluorene	n	3.58E+00	--	--	--	2.89E-07	4.00E-02	1.30E-01	7.21E-06
2-Methylnaphthalene	n	1.25E+00	--	--	--	1.01E-07	4.00E-03	1.30E-01	2.52E-05
Naphthalene	c*	9.92E-01	--	--	--	7.99E-08	2.00E-02	1.30E-01	4.00E-06
Phenanthrene	--	3.22E+01	--	--	--	--	--	1.30E-01	--
Pyrene	n	5.77E+01	--	--	--	4.65E-06	3.00E-02	1.30E-01	1.55E-04
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	1.91E+01	2.83E-07	2.00E+000	5.67E-07	1.65E-06	2.00E-05	1.40E-01	8.27E-02
Total					9.7E-07				8.5E-02

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	2.78E+04	--	--	--	9.51E-04	1.00E+00	9.51E-04
Antimony	n	9.14E+00	--	--	--	3.13E-07	4.00E-04	7.83E-04
Arsenic	cR	2.22E+01	7.82E-08	1.50E+00	1.17E-07	4.56E-07	3.00E-04	1.52E-03
Barium	nm	2.24E+02	--	--	--	7.68E-06	2.00E-01	3.84E-05
Beryllium	n	1.27E+00	--	--	--	4.34E-08	2.00E-03	2.17E-05
Cadmium (food, soil)	n	1.21E+00	--	--	--	4.14E-08	1.00E-03	4.14E-05
Chromium (Total)	nm	7.18E+01	--	--	--	2.46E-06	1.50E+00	1.64E-06
Cobalt	n	1.76E+01	--	--	--	6.01E-07	3.00E-04	2.00E-03
Copper	n	2.88E+02	--	--	--	9.87E-06	4.00E-02	2.47E-04
Iron	nm	6.95E+04	--	--	--	2.38E-03	7.00E-01	3.40E-03
Lead	L	1.95E+02	1.14E-06	8.50E-03	9.73E-09	--	--	--
Manganese	n	6.07E+02	--	--	--	2.08E-05	2.40E-02	8.67E-04
Mercury	ns	2.95E-01	--	--	--	1.01E-08	1.60E-04	6.31E-05
Nickel	n	8.93E+01	--	--	--	3.06E-06	2.00E-02	1.53E-04
Selenium	n	--	--	--	--	--	5.00E-03	--
Silver	n	6.26E+00	--	--	--	2.15E-07	5.00E-03	4.29E-05
Thallium	n	9.29E+00	--	--	--	3.18E-07	1.00E-05	3.18E-02
Vanadium	n	6.95E+01	--	--	--	2.38E-06	5.00E-03	4.76E-04
Zinc	nm	3.30E+02	--	--	--	1.13E-05	3.00E-01	3.77E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	8.00E-04	--
Toluene	ns	--	--	--	--	--	8.00E-02	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	2.20E+00	--	--	--	7.53E-08	2.00E-01	3.77E-07
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.88E+00	--	--	--	6.43E-08	6.00E-02	1.07E-06
Acenaphthylene	--	1.11E+01	--	--	--	--	--	--
Anthracene	nm	1.81E+01	--	--	--	6.20E-07	3.00E-01	2.07E-06
Benzo(a)pyrene	c	2.16E+01	1.27E-07	1.00E+00	1.27E-07	--	--	--
Benzo(g,h,i)perylene	--	1.98E+01	--	--	--	--	--	--
Dibenzofuran	n	1.53E+00	--	--	--	5.24E-08	1.00E-03	5.24E-05
Fluoranthene	n	6.06E+01	--	--	--	2.08E-06	4.00E-02	5.19E-05
Fluorene	n	3.58E+00	--	--	--	1.23E-07	4.00E-02	3.07E-06
2-Methylnaphthalene	n	1.25E+00	--	--	--	4.29E-08	4.00E-03	1.07E-05
Naphthalene	c*	9.92E-01	--	--	--	3.40E-08	2.00E-02	1.70E-06
Phenanthrene	--	3.22E+01	--	--	--	--	--	--
Pyrene	n	5.77E+01	--	--	--	1.98E-06	3.00E-02	6.59E-05
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	1.91E+01	1.12E-07	2.00E+00	2.24E-07	6.53E-07	2.00E-05	3.26E-02
Total					4.8E-07			7.5E-02

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	2.78E+04	8.58E-06	--	--	--	1.96E-08	5.00E-03	3.92E-06	3.24E+09	--	--	9.55E-04
Antimony	n	9.14E+00	2.82E-09	--	--	--	--	--	--	3.24E+09	--	--	7.83E-04
Arsenic	cR	2.22E+01	6.86E-09	2.69E-12	4.30E+00	1.15E-11	1.57E-11	1.50E-05	1.04E-06	3.24E+09	--	2.24E-07	2.90E-03
Barium	nm	2.24E+02	6.93E-08	--	--	--	1.58E-10	5.00E-04	3.17E-07	3.24E+09	--	--	3.87E-05
Beryllium	n	1.27E+00	3.91E-10	1.53E-13	2.40E+00	3.67E-13	8.93E-13	2.00E-05	4.46E-08	3.24E+09	--	3.67E-13	2.17E-05
Cadmium (food, soil)	n	1.21E+00	3.74E-10	1.46E-13	1.80E+00	2.63E-13	8.53E-13	1.00E-05	8.53E-08	3.24E+09	--	2.63E-13	7.15E-05
Chromium (Total)	nm	7.18E+01	2.22E-08	--	--	--	--	--	--	3.24E+09	--	--	1.64E-06
Cobalt	n	1.76E+01	5.42E-09	2.12E-12	9.00E+00	1.91E-11	1.24E-11	6.00E-06	2.06E-06	3.24E+09	--	1.91E-11	2.01E-03
Copper	n	2.88E+02	8.90E-08	--	--	--	--	--	--	3.24E+09	--	--	2.47E-04
Iron	nm	6.95E+04	2.15E-05	--	--	--	--	--	--	3.24E+09	--	--	3.40E-03
Lead	L	1.95E+02	6.02E-08	2.36E-11	1.20E-02	2.83E-13	--	--	--	3.24E+09	--	9.73E-09	--
Manganese	n	6.07E+02	1.88E-07	--	--	--	4.28E-10	5.00E-05	8.57E-06	3.24E+09	--	--	8.75E-04
Mercury	ns	2.95E-01	1.76E-05	--	--	--	4.01E-08	3.00E-04	1.34E-04	3.24E+09	1.68E+04	--	1.97E-04
Nickel	n	8.93E+01	2.76E-08	1.08E-11	2.60E-01	2.81E-12	6.30E-11	9.00E-05	7.00E-07	3.24E+09	--	2.81E-12	1.54E-04
Selenium	n	--	0.00E+00	--	--	--	--	2.00E-02	--	3.24E+09	--	--	--
Silver	n	6.26E+00	1.94E-09	--	--	--	--	--	--	3.24E+09	--	--	4.29E-05
Thallium	n	9.29E+00	2.87E-09	--	--	--	--	--	--	3.24E+09	--	--	3.18E-02
Vanadium	n	6.95E+01	2.15E-08	--	--	--	4.90E-11	1.00E-04	4.90E-07	3.24E+09	--	--	4.77E-04
Zinc	nm	3.30E+02	1.02E-07	--	--	--	--	--	--	3.24E+09	--	--	3.77E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	--	--
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	2.20E+00	4.01E-04	--	--	--	9.15E-07	1.00E-01	9.15E-06	3.24E+09	5.49E+03	--	9.53E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.88E+00	1.04E-05	--	--	--	--	--	--	3.24E+09	1.80E+05	--	3.59E-06
Acenaphthylene	--	1.11E+01	3.44E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	1.81E+01	2.70E-05	--	--	--	--	--	--	3.24E+09	6.71E+05	--	6.92E-06
Benzo(a)pyrene	c	2.16E+01	6.66E-09	2.61E-12	6.00E-01	1.56E-12	--	--	--	3.24E+09	--	4.24E-07	--
Benzo(g,h,i)perylene	--	1.98E+01	6.11E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	1.53E+00	4.73E-10	--	--	--	--	--	--	3.24E+09	--	--	1.76E-04
Fluoranthene	n	6.06E+01	1.87E-08	--	--	--	--	--	--	3.24E+09	--	--	1.74E-04
Fluorene	n	3.58E+00	9.95E-06	--	--	--	--	--	--	3.24E+09	3.60E+05	--	1.03E-05
2-Methylnaphthalene	n	1.25E+00	1.69E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	3.60E-05
Naphthalene	c*	9.92E-01	1.67E-05	6.54E-09	3.40E-02	2.22E-10	3.81E-08	3.00E-03	1.27E-05	3.24E+09	5.94E+04	2.22E-10	1.84E-05
Phenanthrene	--	3.22E+01	9.95E-09	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	5.77E+01	1.89E-05	--	--	--	--	--	--	3.24E+09	3.05E+06	--	2.21E-04
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	1.91E+01	2.80E-05	1.10E-08	5.70E-01	6.25E-09	--	--	--	3.24E+09	6.81E+05	7.97E-07	1.15E-01
Total						6.5E-09			1.7E-04			1.5E-06	1.6E-01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	6,032 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.06E-07	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	6.20E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Adult Trespasser
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	100	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	5.87E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	3.42E-08	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Adult Trespasser
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	10	EPA, 1991		
ED	Exposure Duration	years	12	EPA, 1991		
ET	Exposure Time	hours/day	2	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	4,380	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	1.02E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	5.81E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	3.79E+01	1.21E-07	1.50E+00	1.81E-07	7.04E-07	3.00E-04	3.00E-02	2.35E-03
Barium	nm	1.26E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	2.10E+00	--	--	--	--	1.40E-05	--	--
Cadmium (food, soil)	n	--	--	--	--	--	2.50E-05	1.00E-03	--
Chromium (Total)	nm	3.83E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	7.43E+00	--	--	--	--	3.00E-04	--	--
Copper	n	2.12E+02	--	--	--	--	4.00E-02	--	--
Iron	nm	3.69E+04	--	--	--	--	7.00E-01	--	--
Lead	L	3.49E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.30E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	3.37E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	3.06E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	1.02E+01	--	--	--	--	5.00E-03	--	--
Silver	n	3.76E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	--	--	--	--	--	1.00E-05	--	--
Vanadium	n	3.37E+01	--	--	--	--	1.30E-04	--	--
Zinc	nm	1.34E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	3.30E+02	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--	--
Hexachlorobenzene	c	1.50E+01	--	1.60E+00	--	--	8.00E-04	--	--
Toluene	ns	--	--	--	--	--	8.00E-02	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	4.70E-01	--	--	--	--	2.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.09E-01	--	--	--	8.78E-09	6.00E-02	1.30E-01	1.46E-07
Acenaphthylene	--	3.22E-01	--	--	--	--	--	1.30E-01	--
Anthracene	nm	5.08E-01	--	--	--	4.09E-08	3.00E-01	1.30E-01	1.36E-07
Benzo(a)pyrene	c	1.83E+00	2.52E-08	1.00E+00	2.52E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	8.37E-01	--	--	--	--	--	1.30E-01	--
Dibenzofuran	n	4.58E-01	--	--	--	3.69E-08	1.00E-03	1.30E-01	3.69E-05
Fluoranthene	n	1.99E+00	--	--	--	1.60E-07	4.00E-02	1.30E-01	4.01E-06
Fluorene	n	1.39E-01	--	--	--	1.12E-08	4.00E-02	1.30E-01	2.80E-07
2-Methylnaphthalene	n	1.15E+00	--	--	--	9.26E-08	4.00E-03	1.30E-01	2.32E-05
Naphthalene	c*	7.50E-01	--	--	--	6.04E-08	2.00E-02	1.30E-01	3.02E-06
Phenanthrene	--	2.11E+00	--	--	--	--	--	1.30E-01	--
Pyrene	n	1.75E+00	--	--	--	1.41E-07	3.00E-02	1.30E-01	4.69E-06
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	4.64E+03	6.90E-05	2.00E+00	1.38E-04	4.02E-04	2.00E-05	1.40E-01	2.01E+01
Total					1.4E-04				2.0E+01

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	1.02E+04	--	--	--	3.50E-04	1.00E+00	3.50E-04
Antimony	n	5.81E+01	--	--	--	1.99E-06	4.00E-04	4.98E-03
Arsenic	cR	3.79E+01	1.33E-07	1.50E+00	2.00E-07	7.78E-07	3.00E-04	2.59E-03
Barium	nm	1.26E+02	--	--	--	4.30E-06	2.00E-01	2.15E-05
Beryllium	n	2.10E+00	--	--	--	7.19E-08	2.00E-03	3.60E-05
Cadmium (food, soil)	n	--	--	--	--	--	1.00E-03	--
Chromium (Total)	nm	3.83E+01	--	--	--	1.31E-06	1.50E+00	8.74E-07
Cobalt	n	7.43E+00	--	--	--	2.54E-07	3.00E-04	8.48E-04
Copper	n	2.12E+02	--	--	--	7.27E-06	4.00E-02	1.82E-04
Iron	nm	3.69E+04	--	--	--	1.26E-03	7.00E-01	1.80E-03
Lead	L	3.49E+02	2.05E-06	8.50E-03	1.74E-08	--	--	--
Manganese	n	2.30E+02	--	--	--	7.88E-06	2.40E-02	3.28E-04
Mercury	ns	3.37E-01	--	--	--	1.15E-08	1.60E-04	7.21E-05
Nickel	n	3.06E+01	--	--	--	1.05E-06	2.00E-02	5.23E-05
Selenium	n	1.02E+01	--	--	--	3.49E-07	5.00E-03	6.99E-05
Silver	n	3.76E+00	--	--	--	1.29E-07	5.00E-03	2.58E-05
Thallium	n	--	--	--	--	--	1.00E-05	--
Vanadium	n	3.37E+01	--	--	--	1.15E-06	5.00E-03	2.30E-04
Zinc	nm	1.34E+02	--	--	--	4.59E-06	3.00E-01	1.53E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	3.30E+02	1.94E-06	5.40E-03	1.05E-08	1.13E-05	7.00E-02	1.61E-04
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-03	--
Ethylbenzene	c	--	--	1.10E-02	--	--	1.00E-01	--
Hexachlorobenzene	c	1.50E+01	8.81E-08	1.60E+00	1.41E-07	5.14E-07	8.00E-04	6.42E-04
Toluene	ns	--	--	--	--	--	8.00E-02	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	4.70E-01	--	--	--	1.61E-08	2.00E-01	8.05E-08
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.09E-01	--	--	--	3.73E-09	6.00E-02	6.22E-08
Acenaphthylene	--	3.22E-01	--	--	--	--	--	--
Anthracene	nm	5.08E-01	--	--	--	1.74E-08	3.00E-01	5.80E-08
Benzo(a)pyrene	c	1.83E+00	1.07E-08	1.00E+00	1.07E-08	--	--	--
Benzo(g,h,i)perylene	--	8.37E-01	--	--	--	--	--	--
Dibenzofuran	n	4.58E-01	--	--	--	1.57E-08	1.00E-03	1.57E-05
Fluoranthene	n	1.99E+00	--	--	--	6.82E-08	4.00E-02	1.70E-06
Fluorene	n	1.39E-01	--	--	--	4.76E-09	4.00E-02	1.19E-07
2-Methylnaphthalene	n	1.15E+00	--	--	--	3.94E-08	4.00E-03	9.85E-06
Naphthalene	c*	7.50E-01	--	--	--	2.57E-08	2.00E-02	1.28E-06
Phenanthrene	--	2.11E+00	--	--	--	--	--	--
Pyrene	n	1.75E+00	--	--	--	5.98E-08	3.00E-02	1.99E-06
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	4.64E+03	2.72E-05	2.00E+00	5.45E-05	1.59E-04	2.00E-05	7.94E+00
Total					5.5E-05			8.0E+00

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (chronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	1.02E+04	3.16E-06	--	--	--	7.21E-09	5.00E-03	1.44E-06	3.24E+09	--	--	3.51E-04
Antimony	n	5.81E+01	1.80E-08	--	--	--	--	--	--	3.24E+09	--	--	4.98E-03
Arsenic	cR	3.79E+01	1.17E-08	4.58E-12	4.30E+00	1.97E-11	2.67E-11	1.50E-05	1.78E-06	3.24E+09	--	3.81E-07	4.94E-03
Barium	nm	1.26E+02	3.88E-08	--	--	--	8.86E-11	5.00E-04	1.77E-07	3.24E+09	--	--	2.17E-05
Beryllium	n	2.10E+00	6.49E-10	2.54E-13	2.40E+00	6.09E-13	1.48E-12	2.00E-05	7.41E-08	3.24E+09	--	6.09E-13	3.60E-05
Cadmium (food, soil)	n	--	0.00E+00	--	1.80E+00	--	--	1.00E-05	--	3.24E+09	--	--	--
Chromium (Total)	nm	3.83E+01	1.18E-08	--	--	--	--	--	--	3.24E+09	--	--	8.74E-07
Cobalt	n	7.43E+00	2.30E-09	8.98E-13	9.00E+00	8.08E-12	5.24E-12	6.00E-06	8.73E-07	3.24E+09	--	8.08E-12	8.49E-04
Copper	n	2.12E+02	6.56E-08	--	--	--	--	--	--	3.24E+09	--	--	1.82E-04
Iron	nm	3.69E+04	1.14E-05	--	--	--	--	--	--	3.24E+09	--	--	1.80E-03
Lead	L	3.49E+02	1.08E-07	4.22E-11	1.20E-02	5.07E-13	--	--	--	3.24E+09	--	1.74E-08	--
Manganese	n	2.30E+02	7.11E-08	--	--	--	1.62E-10	5.00E-05	3.25E-06	3.24E+09	--	--	3.32E-04
Mercury	ns	3.37E-01	2.01E-05	--	--	--	4.58E-08	3.00E-04	1.53E-04	3.24E+09	1.68E+04	--	2.25E-04
Nickel	n	3.06E+01	9.44E-09	3.70E-12	2.60E-01	9.61E-13	2.16E-11	9.00E-05	2.40E-07	3.24E+09	--	9.61E-13	5.26E-05
Selenium	n	1.02E+01	3.15E-09	--	--	--	7.19E-12	2.00E-02	3.60E-10	3.24E+09	--	--	6.99E-05
Silver	n	3.76E+00	1.16E-09	--	--	--	--	--	--	3.24E+09	--	--	2.58E-05
Thallium	n	--	0.00E+00	--	--	--	--	--	--	3.24E+09	--	--	--
Vanadium	n	3.37E+01	1.04E-08	--	--	--	2.37E-11	1.00E-04	2.37E-07	3.24E+09	--	--	2.31E-04
Zinc	nm	1.34E+02	4.14E-08	--	--	--	--	--	--	3.24E+09	--	--	1.53E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	3.30E+02	--	--	1.10E-02	--	--	8.00E-01	--	3.24E+09	1.34E+04	1.05E-08	1.61E-04
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	3.24E+09	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	1.00E+00	--	3.24E+09	7.26E+03	--	--
Hexachlorobenzene	c	1.50E+01	--	--	4.60E-01	--	--	--	--	3.24E+09	8.71E+04	1.41E-07	6.42E-04
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	3.24E+09	3.02E+03	--	--
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	3.24E+09	2.05E+03	--	--
Total Xylenes	ns	4.70E-01	8.57E-05	--	--	--	1.96E-07	1.00E-01	1.96E-06	3.24E+09	5.49E+03	--	2.04E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.09E-01	6.06E-07	--	--	--	--	--	--	3.24E+09	1.80E+05	--	2.09E-07
Acenaphthylene	--	3.22E-01	9.95E-11	--	--	--	--	--	--	3.24E+09	--	--	--
Anthracene	nm	5.08E-01	7.57E-07	--	--	--	--	--	--	3.24E+09	6.71E+05	--	1.94E-07
Benzo(a)pyrene	c	1.83E+00	5.64E-10	2.21E-13	6.00E-01	1.33E-13	--	--	--	3.24E+09	--	3.60E-08	--
Benzo(g,h,i)perylene	--	8.37E-01	2.59E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Dibenzofuran	n	4.58E-01	1.41E-10	--	--	--	--	--	--	3.24E+09	--	--	5.26E-05
Fluoranthene	n	1.99E+00	6.15E-10	--	--	--	--	--	--	3.24E+09	--	--	5.71E-06
Fluorene	n	1.39E-01	3.86E-07	--	--	--	--	--	--	3.24E+09	3.60E+05	--	3.99E-07
2-Methylnaphthalene	n	1.15E+00	1.55E-05	--	--	--	--	--	--	3.24E+09	7.43E+04	--	3.30E-05
Naphthalene	c*	7.50E-01	1.26E-05	4.94E-09	3.40E-02	1.68E-10	2.88E-08	3.00E-03	9.61E-06	3.24E+09	5.94E+04	1.68E-10	1.39E-05
Phenanthrene	--	2.11E+00	6.51E-10	--	--	--	--	--	--	3.24E+09	--	--	--
Pyrene	n	1.75E+00	5.73E-07	--	--	--	--	--	--	3.24E+09	3.05E+06	--	6.68E-06
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	4.64E+03	6.81E-03	2.67E-06	5.70E-01	1.52E-06	--	--	--	3.24E+09	6.81E+05	1.94E-04	2.81E+01
Total						1.5E-06			1.7E-04			1.9E-04	2.8E+01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Excavation Worker
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.04E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	7.25E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Excavation Worker
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	330	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	3.23E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	2.26E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Excavation Worker
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	9.15E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	6.51E+02	--	--	--	--	6.00E-05	--	--
Arsenic	cR	2.83E+01	8.79E-09	1.50E+00	1.32E-08	6.15E-07	5.00E-03	3.00E-02	1.23E-04
Barium	nm	1.26E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	8.20E-01	--	--	--	--	3.50E-05	--	--
Cadmium (food, soil)	n	2.07E+00	--	--	--	1.50E-09	1.25E-05	1.00E-03	1.20E-04
Chromium (Total)	nm	9.67E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	9.67E+00	--	--	--	--	3.00E-03	--	--
Copper	n	2.65E+02	--	--	--	--	1.00E-02	--	--
Iron	nm	3.79E+04	--	--	--	--	7.00E-01	--	--
Lead	L	2.49E+03	--	8.50E-03	--	--	--	--	--
Manganese	n	4.79E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	4.15E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	3.17E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	3.58E+00	--	--	--	--	5.00E-03	--	--
Silver	n	2.59E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	3.99E+00	--	--	--	--	4.00E-05	--	--
Vanadium	n	3.42E+01	--	--	--	--	2.60E-04	--	--
Zinc	nm	3.15E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-02	--	--
Ethylbenzene	c	3.17E-01	--	1.10E-02	--	--	5.00E-02	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	1.00E-05	--	--
Toluene	ns	--	--	--	--	--	8.00E-01	--	--
Trichloroethene	c**	3.94E-01	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	8.41E-01	--	--	--	--	4.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	2.45E+00	--	--	--	2.31E-07	2.00E-01	1.30E-01	1.15E-06
Acenaphthylene	--	9.70E-01	--	--	--	--	--	--	--
Anthracene	nm	2.03E+00	--	--	--	1.91E-07	1.00E+00	1.30E-01	1.91E-07
Benzo(a)pyrene	c	4.72E+00	6.35E-09	1.00E+00	6.35E-09	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	1.99E+00	--	--	--	--	--	--	--
Dibenzofuran	n	2.25E+00	--	--	--	4.90E-08	4.00E-03	3.00E-02	1.22E-05
Fluoranthene	n	4.83E+00	--	--	--	4.55E-07	1.00E-01	1.30E-01	4.55E-06
Fluorene	n	5.18E+00	--	--	--	4.88E-07	4.00E-01	1.30E-01	1.22E-06
2-Methylnaphthalene	n	3.06E+01	--	--	--	2.88E-06	4.00E-03	1.30E-01	7.20E-04
Naphthalene	c*	4.68E+00	--	--	--	4.41E-07	6.00E-01	1.30E-01	7.35E-07
Phenanthrene	--	1.15E+01	--	--	--	--	--	--	--
Pyrene	n	4.69E+00	--	--	--	4.42E-07	3.00E-01	1.30E-01	1.47E-06
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	8.58E+00	1.24E-08	2.00E+00	2.49E-08	8.71E-07	3.00E-05	1.40E-01	2.90E-02
Total					4.4E-08				3.0E-02

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	9.15E+03	--	--	--	2.07E-03	1.00E+00	2.07E-03
Antimony	n	6.51E+02	--	--	--	1.47E-04	4.00E-04	3.68E-01
Arsenic	cR	2.83E+01	5.48E-08	1.50E+00	8.22E-08	3.84E-06	5.00E-03	7.68E-04
Barium	nm	1.26E+02	--	--	--	2.85E-05	2.00E-01	1.43E-04
Beryllium	n	8.20E-01	--	--	--	1.85E-07	5.00E-03	3.71E-05
Cadmium (food, soil)	n	2.07E+00	--	--	--	4.69E-07	5.00E-04	9.38E-04
Chromium (Total)	nm	9.67E+01	--	--	--	2.19E-05	1.50E+00	1.46E-05
Cobalt	n	9.67E+00	--	--	--	2.18E-06	3.00E-03	7.28E-04
Copper	n	2.65E+02	--	--	--	5.98E-05	1.00E-02	5.98E-03
Iron	nm	3.79E+04	--	--	--	8.56E-03	7.00E-01	1.22E-02
Lead	L	2.49E+03	8.03E-06	8.50E-03	6.83E-08	--	--	--
Manganese	n	4.79E+02	--	--	--	1.08E-04	2.40E-02	4.51E-03
Mercury	ns	4.15E-01	--	--	--	9.38E-08	1.60E-04	5.86E-04
Nickel	n	3.17E+01	--	--	--	7.16E-06	2.00E-02	3.58E-04
Selenium	n	3.58E+00	--	--	--	8.10E-07	5.00E-03	1.62E-04
Silver	n	2.59E+00	--	--	--	5.86E-07	5.00E-03	1.17E-04
Thallium	n	3.99E+00	--	--	--	9.01E-07	4.00E-05	2.25E-02
Vanadium	n	3.42E+01	--	--	--	7.74E-06	1.00E-02	7.74E-04
Zinc	nm	3.15E+02	--	--	--	7.12E-05	3.00E-01	2.37E-04
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-02	--
Ethylbenzene	c	3.17E-01	1.02E-09	1.10E-02	1.13E-11	7.17E-08	5.00E-02	1.43E-06
Hexachlorobenzene	c	--	--	1.60E+00	--	--	1.00E-05	--
Toluene	ns	--	--	--	--	--	8.00E-01	--
Trichloroethene	c**	3.94E-01	1.27E-09	4.60E-02	5.85E-11	8.91E-08	5.00E-04	1.78E-04
Total Xylenes	ns	8.41E-01	--	--	--	1.90E-07	4.00E-01	4.75E-07
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	2.45E+00	--	--	--	5.53E-07	2.00E-01	2.77E-06
Acenaphthylene	--	9.70E-01	--	--	--	--	--	--
Anthracene	nm	2.03E+00	--	--	--	4.59E-07	1.00E+00	4.59E-07
Benzo(a)pyrene	c	4.72E+00	1.52E-08	1.00E+00	1.52E-08	--	--	--
Benzo(g,h,i)perylene	--	1.99E+00	--	--	--	--	--	--
Dibenzofuran	n	2.25E+00	--	--	--	5.09E-07	4.00E-03	1.27E-04
Fluoranthene	n	4.83E+00	--	--	--	1.09E-06	1.00E-01	1.09E-05
Fluorene	n	5.18E+00	--	--	--	1.17E-06	4.00E-01	2.93E-06
2-Methylnaphthalene	n	3.06E+01	--	--	--	6.91E-06	4.00E-03	1.73E-03
Naphthalene	c*	4.68E+00	--	--	--	1.06E-06	6.00E-01	1.76E-06
Phenanthrene	--	1.15E+01	--	--	--	--	--	--
Pyrene	n	4.69E+00	--	--	--	1.06E-06	3.00E-01	3.54E-06
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	8.58E+00	2.77E-08	2.00E+00	5.54E-08	1.94E-06	3.00E-05	6.47E-02
Total					2.2E-07			4.9E-01

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (subchronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	9.15E+03	9.32E-04	--	--	--	1.70E-05	5.00E-03	3.41E-03	9.82E+06	--	--	5.47E-03
Antimony	n	6.51E+02	6.63E-05	--	--	--	--	--	--	9.82E+06	--	--	3.68E-01
Arsenic	cR	2.83E+01	2.88E-06	7.52E-10	4.30E+00	3.23E-09	5.26E-08	1.50E-05	3.51E-03	9.82E+06	--	9.87E-08	4.40E-03
Barium	nm	1.26E+02	1.28E-05	--	--	--	2.35E-07	5.00E-03	4.69E-05	9.82E+06	--	--	1.89E-04
Beryllium	n	8.20E-01	8.35E-08	2.18E-11	2.40E+00	5.23E-11	1.53E-09	2.00E-05	7.63E-05	9.82E+06	--	5.23E-11	1.13E-04
Cadmium (food, soil)	n	2.07E+00	2.11E-07	5.51E-11	1.80E+00	9.92E-11	3.86E-09	1.00E-05	3.86E-04	9.82E+06	--	9.92E-11	1.44E-03
Chromium (Total)	nm	9.67E+01	9.84E-06	--	--	--	1.80E-07	5.00E-03	3.60E-05	9.82E+06	--	--	5.05E-05
Cobalt	n	9.67E+00	9.84E-07	2.57E-10	9.00E+00	2.31E-09	1.80E-08	2.00E-05	8.99E-04	9.82E+06	--	2.31E-09	1.63E-03
Copper	n	2.65E+02	2.69E-05	--	--	--	--	--	--	9.82E+06	--	--	5.98E-03
Iron	nm	3.79E+04	3.86E-03	--	--	--	--	--	--	9.82E+06	--	--	1.22E-02
Lead	L	2.49E+03	2.53E-04	6.61E-08	1.20E-02	7.93E-10	--	--	--	9.82E+06	--	6.91E-08	--
Manganese	n	4.79E+02	4.88E-05	--	--	--	8.91E-07	5.00E-05	1.78E-02	9.82E+06	--	--	2.23E-02
Mercury	ns	4.15E-01	2.47E-05	--	--	--	4.52E-07	3.00E-04	1.51E-03	9.82E+06	1.68E+04	--	2.09E-03
Nickel	n	3.17E+01	3.23E-06	8.42E-10	2.60E-01	2.19E-10	5.89E-08	2.00E-04	2.95E-04	9.82E+06	--	2.19E-10	6.53E-04
Selenium	n	3.58E+00	3.65E-07	--	--	--	6.67E-09	2.00E-02	3.33E-07	9.82E+06	--	--	1.62E-04
Silver	n	2.59E+00	2.64E-07	--	--	--	--	--	--	9.82E+06	--	--	1.17E-04
Thallium	n	3.99E+00	4.06E-07	--	--	--	--	--	--	9.82E+06	--	--	2.25E-02
Vanadium	n	3.42E+01	3.49E-06	--	--	--	6.37E-08	1.00E-04	6.37E-04	9.82E+06	--	--	1.41E-03
Zinc	nm	3.15E+02	3.21E-05	--	--	--	--	--	--	9.82E+06	--	--	2.37E-04
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	1.20E+00	--	9.82E+06	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	9.82E+06	2.06E+03	--	--
Ethylbenzene	c	3.17E-01	--	--	2.50E-03	--	--	9.00E+00	--	9.82E+06	7.26E+03	1.13E-11	1.43E-06
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	9.82E+06	8.71E+04	--	--
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	9.82E+06	3.02E+03	--	--
Trichloroethene	c**	3.94E-01	--	--	4.10E-03	--	--	2.00E-03	--	9.82E+06	2.05E+03	5.85E-11	1.78E-04
Total Xylenes	ns	8.41E-01	1.53E-04	--	--	--	2.80E-06	4.00E-01	7.00E-06	9.82E+06	5.49E+03	--	7.48E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	2.45E+00	1.38E-05	--	--	--	--	--	--	9.82E+06	1.80E+05	--	3.92E-06
Acenaphthylene	--	9.70E-01	9.88E-08	--	--	--	--	--	--	9.82E+06	--	--	--
Anthracene	nm	2.03E+00	3.24E-06	--	--	--	--	--	--	9.82E+06	6.71E+05	--	6.51E-07
Benzo(a)pyrene	c	4.72E+00	4.81E-07	1.25E-10	6.00E-01	7.52E-11	--	--	--	9.82E+06	--	2.17E-08	--
Benzo(g,h,i)perylene	--	1.99E+00	2.03E-07	--	--	--	--	--	--	9.82E+06	--	--	--
Dibenzofuran	n	2.25E+00	2.29E-07	--	--	--	--	--	--	9.82E+06	--	--	1.39E-04
Fluoranthene	n	4.83E+00	4.92E-07	--	--	--	--	--	--	9.82E+06	--	--	1.55E-05
Fluorene	n	5.18E+00	1.49E-05	--	--	--	--	--	--	9.82E+06	3.60E+05	--	4.15E-06
2-Methylnaphthalene	n	3.06E+01	4.15E-04	--	--	--	--	--	--	9.82E+06	7.43E+04	--	2.45E-03
Naphthalene	c*	4.68E+00	7.93E-05	2.07E-08	3.40E-02	7.03E-10	1.45E-06	3.00E-03	4.83E-04	9.82E+06	5.94E+04	7.03E-10	4.85E-04
Phenanthrene	--	1.15E+01	1.17E-06	--	--	--	--	--	--	9.82E+06	--	--	--
Pyrene	n	4.69E+00	2.02E-06	--	--	--	--	--	--	9.82E+06	3.05E+06	--	5.01E-06
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	8.58E+00	1.35E-05	3.52E-09	5.70E-01	2.00E-09	--	--	--	9.82E+06	6.81E+05	8.23E-08	9.37E-02
Total						9.5E-09			2.9E-02			2.8E-07	5.5E-01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Excavation Worker
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.04E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	7.25E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Excavation Worker
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	330	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	3.23E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	2.26E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Excavation Worker
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	9.49E+03	--	--	--	--	1.00E+00	--	--
Antimony	n	1.42E+02	--	--	--	--	6.00E-05	--	--
Arsenic	cR	3.23E+01	1.00E-08	1.50E+00	1.50E-08	7.02E-07	5.00E-03	3.00E-02	1.40E-04
Barium	nm	1.55E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	9.85E-01	--	--	--	--	3.50E-05	--	--
Cadmium (food, soil)	n	5.44E+00	--	--	--	3.94E-09	1.25E-05	1.00E-03	3.15E-04
Chromium (Total)	nm	4.74E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	8.75E+00	--	--	--	--	3.00E-03	--	--
Copper	n	1.73E+03	--	--	--	--	1.00E-02	--	--
Iron	nm	3.48E+04	--	--	--	--	7.00E-01	--	--
Lead	L	1.40E+03	--	8.50E-03	--	--	--	--	--
Manganese	n	2.10E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	2.98E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	1.03E+02	--	--	--	--	8.00E-04	--	--
Selenium	n	1.19E+01	--	--	--	--	5.00E-03	--	--
Silver	n	3.21E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	8.29E+00	--	--	--	--	4.00E-05	--	--
Vanadium	n	2.54E+01	--	--	--	--	2.60E-04	--	--
Zinc	nm	5.49E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-02	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	5.00E-02	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	1.00E-05	--	--
Toluene	ns	--	--	--	--	--	8.00E-01	--	--
Trichloroethene	c**	2.40E+00	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	1.10E+00	--	--	--	--	4.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	4.90E+01	--	--	--	4.62E-06	2.00E-01	1.30E-01	2.31E-05
Acenaphthylene	--	5.68E-01	--	--	--	--	--	--	--
Anthracene	nm	2.52E+01	--	--	--	2.37E-06	1.00E+00	1.30E-01	2.37E-06
Benzo(a)pyrene	c	4.04E+00	5.43E-09	1.00E+00	5.43E-09	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	2.27E+00	--	--	--	--	--	--	--
Dibenzofuran	n	7.51E+00	--	--	--	1.63E-07	4.00E-03	3.00E-02	4.08E-05
Fluoranthene	n	3.73E+01	--	--	--	3.51E-06	1.00E-01	1.30E-01	3.51E-05
Fluorene	n	1.70E+01	--	--	--	1.60E-06	4.00E-01	1.30E-01	3.99E-06
2-Methylnaphthalene	n	9.47E+00	--	--	--	8.92E-07	4.00E-03	1.30E-01	2.23E-04
Naphthalene	c*	6.13E+00	--	--	--	5.77E-07	6.00E-01	1.30E-01	9.62E-07
Phenanthrene	--	4.61E+01	--	--	--	--	--	--	--
Pyrene	n	2.93E+01	--	--	--	2.76E-06	3.00E-01	1.30E-01	9.19E-06
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	1.30E+02	1.89E-07	2.00E+000	3.77E-07	1.32E-05	3.00E-05	1.40E-01	4.40E-01
Total					4.0E-07				4.4E-01

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	9.49E+03	--	--	--	2.15E-03	1.00E+00	2.15E-03
Antimony	n	1.42E+02	--	--	--	3.21E-05	4.00E-04	8.02E-02
Arsenic	cR	3.23E+01	6.25E-08	1.50E+00	9.38E-08	4.38E-06	5.00E-03	8.75E-04
Barium	nm	1.55E+02	--	--	--	3.49E-05	2.00E-01	1.75E-04
Beryllium	n	9.85E-01	--	--	--	2.23E-07	5.00E-03	4.45E-05
Cadmium (food, soil)	n	5.44E+00	--	--	--	1.23E-06	5.00E-04	2.46E-03
Chromium (Total)	nm	4.74E+01	--	--	--	1.07E-05	1.50E+00	7.14E-06
Cobalt	n	8.75E+00	--	--	--	1.98E-06	3.00E-03	6.59E-04
Copper	n	1.73E+03	--	--	--	3.92E-04	1.00E-02	3.92E-02
Iron	nm	3.48E+04	--	--	--	7.87E-03	7.00E-01	1.12E-02
Lead	L	1.40E+03	4.53E-06	8.50E-03	3.85E-08	--	--	--
Manganese	n	2.10E+02	--	--	--	4.75E-05	2.40E-02	1.98E-03
Mercury	ns	2.98E-01	--	--	--	6.74E-08	1.60E-04	4.21E-04
Nickel	n	1.03E+02	--	--	--	2.33E-05	2.00E-02	1.16E-03
Selenium	n	1.19E+01	--	--	--	2.69E-06	5.00E-03	5.38E-04
Silver	n	3.21E+00	--	--	--	7.25E-07	5.00E-03	1.45E-04
Thallium	n	8.29E+00	--	--	--	1.87E-06	4.00E-05	4.68E-02
Vanadium	n	2.54E+01	--	--	--	5.74E-06	1.00E-02	5.74E-04
Zinc	nm	5.49E+02	--	--	--	1.24E-04	3.00E-01	4.14E-04
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-02	--
Ethylbenzene	c	--	--	1.10E-02	--	--	5.00E-02	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	1.00E-05	--
Toluene	ns	--	--	--	--	--	8.00E-01	--
Trichloroethene	c**	2.40E+00	7.75E-09	4.60E-02	3.56E-10	5.42E-07	5.00E-04	1.08E-03
Total Xylenes	ns	1.10E+00	--	--	--	2.49E-07	4.00E-01	6.22E-07
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	4.90E+01	--	--	--	1.11E-05	2.00E-01	5.54E-05
Acenaphthylene	--	5.68E-01	--	--	--	--	--	--
Anthracene	nm	2.52E+01	--	--	--	5.69E-06	1.00E+00	5.69E-06
Benzo(a)pyrene	c	4.04E+00	1.30E-08	1.00E+00	1.30E-08	--	--	--
Benzo(g,h,i)perylene	--	2.27E+00	--	--	--	--	--	--
Dibenzofuran	n	7.51E+00	--	--	--	1.70E-06	4.00E-03	4.24E-04
Fluoranthene	n	3.73E+01	--	--	--	8.42E-06	1.00E-01	8.42E-05
Fluorene	n	1.70E+01	--	--	--	3.83E-06	4.00E-01	9.58E-06
2-Methylnaphthalene	n	9.47E+00	--	--	--	2.14E-06	4.00E-03	5.35E-04
Naphthalene	c*	6.13E+00	--	--	--	1.38E-06	6.00E-01	2.31E-06
Phenanthrene	--	4.61E+01	--	--	--	--	--	--
Pyrene	n	2.93E+01	--	--	--	6.61E-06	3.00E-01	2.20E-05
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	1.30E+02	4.20E-07	2.00E+00	8.41E-07	2.94E-05	3.00E-05	9.81E-01
Total					9.9E-07			1.2E+00

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (subchronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	9.49E+03	9.67E-04	--	--	--	1.77E-05	5.00E-03	3.53E-03	9.82E+06	--	--	5.68E-03
Antimony	n	1.42E+02	1.45E-05	--	--	--	--	--	--	9.82E+06	--	--	8.02E-02
Arsenic	cR	3.23E+01	3.29E-06	8.57E-10	4.30E+00	3.69E-09	6.00E-08	1.50E-05	4.00E-03	9.82E+06	--	1.13E-07	5.02E-03
Barium	nm	1.55E+02	1.57E-05	--	--	--	2.87E-07	5.00E-03	5.75E-05	9.82E+06	--	--	2.32E-04
Beryllium	n	9.85E-01	1.00E-07	2.62E-11	2.40E+00	6.28E-11	1.83E-09	2.00E-05	9.16E-05	9.82E+06	--	6.28E-11	1.36E-04
Cadmium (food, soil)	n	5.44E+00	5.54E-07	1.45E-10	1.80E+00	2.60E-10	1.01E-08	1.00E-05	1.01E-03	9.82E+06	--	2.60E-10	3.79E-03
Chromium (Total)	nm	4.74E+01	4.82E-06	--	--	--	8.81E-08	5.00E-03	1.76E-05	9.82E+06	--	--	2.48E-05
Cobalt	n	8.75E+00	8.91E-07	2.32E-10	9.00E+00	2.09E-09	1.63E-08	2.00E-05	8.13E-04	9.82E+06	--	2.09E-09	1.47E-03
Copper	n	1.73E+03	1.76E-04	--	--	--	--	--	--	9.82E+06	--	--	3.92E-02
Iron	nm	3.48E+04	3.55E-03	--	--	--	--	--	--	9.82E+06	--	--	1.12E-02
Lead	L	1.40E+03	1.43E-04	3.73E-08	1.20E-02	4.47E-10	--	--	--	9.82E+06	--	3.90E-08	--
Manganese	n	2.10E+02	2.14E-05	--	--	--	3.91E-07	5.00E-05	7.82E-03	9.82E+06	--	--	9.80E-03
Mercury	ns	2.98E-01	1.78E-05	--	--	--	3.24E-07	3.00E-04	1.08E-03	9.82E+06	1.68E+04	--	1.50E-03
Nickel	n	1.03E+02	1.05E-05	2.73E-09	2.60E-01	7.11E-10	1.91E-07	2.00E-04	9.57E-04	9.82E+06	--	7.11E-10	2.12E-03
Selenium	n	1.19E+01	1.21E-06	--	--	--	2.21E-08	2.00E-02	1.11E-06	9.82E+06	--	--	5.39E-04
Silver	n	3.21E+00	3.27E-07	--	--	--	--	--	--	9.82E+06	--	--	1.45E-04
Thallium	n	8.29E+00	8.44E-07	--	--	--	--	--	--	9.82E+06	--	--	4.68E-02
Vanadium	n	2.54E+01	2.58E-06	--	--	--	4.72E-08	1.00E-04	4.72E-04	9.82E+06	--	--	1.05E-03
Zinc	nm	5.49E+02	5.59E-05	--	--	--	--	--	--	9.82E+06	--	--	4.14E-04
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	1.20E+00	--	9.82E+06	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	9.82E+06	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	9.00E+00	--	9.82E+06	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	9.82E+06	8.71E+04	--	--
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	9.82E+06	3.02E+03	--	--
Trichloroethene	c**	2.40E+00	--	--	4.10E-03	--	--	2.00E-03	--	9.82E+06	2.05E+03	3.56E-10	1.08E-03
Total Xylenes	ns	1.10E+00	2.01E-04	--	--	--	3.67E-06	4.00E-01	9.17E-06	9.82E+06	5.49E+03	--	9.79E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	4.90E+01	2.77E-04	--	--	--	--	--	--	9.82E+06	1.80E+05	--	7.85E-05
Acenaphthylene	--	5.68E-01	5.78E-08	--	--	--	--	--	--	9.82E+06	--	--	--
Anthracene	nm	2.52E+01	4.01E-05	--	--	--	--	--	--	9.82E+06	6.71E+05	--	8.06E-06
Benzo(a)pyrene	c	4.04E+00	4.11E-07	1.07E-10	6.00E-01	6.44E-11	--	--	--	9.82E+06	--	1.85E-08	--
Benzo(g,h,i)perylene	--	2.27E+00	2.31E-07	--	--	--	--	--	--	9.82E+06	--	--	--
Dibenzofuran	n	7.51E+00	7.65E-07	--	--	--	--	--	--	9.82E+06	--	--	4.65E-04
Fluoranthene	n	3.73E+01	3.79E-06	--	--	--	--	--	--	9.82E+06	--	--	1.19E-04
Fluorene	n	1.70E+01	4.88E-05	--	--	--	--	--	--	9.82E+06	3.60E+05	--	1.36E-05
2-Methylnaphthalene	n	9.47E+00	1.28E-04	--	--	--	--	--	--	9.82E+06	7.43E+04	--	7.58E-04
Naphthalene	c*	6.13E+00	1.04E-04	2.71E-08	3.40E-02	9.20E-10	1.89E-06	3.00E-03	6.32E-04	9.82E+06	5.94E+04	9.20E-10	6.35E-04
Phenanthrene	--	4.61E+01	4.69E-06	--	--	--	--	--	--	9.82E+06	--	--	--
Pyrene	n	2.93E+01	1.26E-05	--	--	--	--	--	--	9.82E+06	3.05E+06	--	3.12E-05
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	1.30E+02	2.04E-04	5.33E-08	5.70E-01	3.04E-08	--	--	--	9.82E+06	6.81E+05	1.25E-06	1.42E+00
Total						3.9E-08			2.0E-02			1.4E-06	1.6E+00

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Excavation Worker
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.04E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	7.25E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Excavation Worker
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	330	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	3.23E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	2.26E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Excavation Worker
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1.2)			
EF	Exposure Frequency	days/year	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	1.11E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	1.98E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.45E+02	4.49E-08	1.50E+00	6.74E-08	3.14E-06	5.00E-03	3.00E-02	6.29E-04
Barium	nm	3.89E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	8.53E+00	--	--	--	--	3.50E-05	--	--
Cadmium (food, soil)	n	7.87E+00	--	--	--	5.70E-09	1.25E-05	1.00E-03	4.56E-04
Chromium (Total)	nm	1.68E+03	--	--	--	--	1.95E-02	--	--
Cobalt	n	7.12E+01	--	--	--	--	3.00E-03	--	--
Copper	n	6.01E+02	--	--	--	--	1.00E-02	--	--
Iron	nm	9.21E+04	--	--	--	--	7.00E-01	--	--
Lead	L	3.05E+03	--	8.50E-03	--	--	--	--	--
Manganese	n	1.91E+03	--	--	--	--	9.60E-04	--	--
Mercury	ns	4.36E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	3.04E+02	--	--	--	--	8.00E-04	--	--
Selenium	n	2.73E+02	--	--	--	--	5.00E-03	--	--
Silver	n	9.29E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	6.50E+00	--	--	--	--	4.00E-05	--	--
Vanadium	n	4.07E+01	--	--	--	--	2.60E-04	--	--
Zinc	nm	3.10E+03	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-02	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	5.00E-02	--	--
Hexachlorobenzene	c	9.18E+00	--	1.60E+00	--	--	1.00E-05	--	--
Toluene	ns	--	--	--	--	--	8.00E-01	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	3.21E-01	--	--	--	--	4.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.29E+00	--	--	--	1.22E-07	2.00E-01	1.30E-01	6.09E-07
Acenaphthylene	--	7.93E-01	--	--	--	--	--	--	--
Anthracene	nm	1.16E+00	--	--	--	1.09E-07	1.00E+00	1.30E-01	1.09E-07
Benzo(a)pyrene	c	2.55E+00	3.43E-09	1.00E+00	3.43E-09	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	1.54E+00	--	--	--	--	--	--	--
Dibenzofuran	n	1.23E+00	--	--	--	2.68E-08	4.00E-03	3.00E-02	6.69E-06
Fluoranthene	n	2.44E+00	--	--	--	2.30E-07	1.00E-01	1.30E-01	2.30E-06
Fluorene	n	2.24E+00	--	--	--	2.11E-07	4.00E-01	1.30E-01	5.26E-07
2-Methylnaphthalene	n	2.93E+00	--	--	--	2.76E-07	4.00E-03	1.30E-01	6.89E-05
Naphthalene	c*	1.94E+00	--	--	--	1.83E-07	6.00E-01	1.30E-01	3.05E-07
Phenanthrene	--	9.21E+00	--	--	--	--	--	--	--
Pyrene	n	2.54E+00	--	--	--	2.39E-07	3.00E-01	1.30E-01	7.97E-07
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	2.53E+00	3.67E-09	2.00E+00	7.34E-09	2.57E-07	3.00E-05	1.40E-01	8.56E-03
Total					7.8E-08				9.7E-03

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	1.11E+04	--	--	--	2.51E-03	1.00E+00	2.51E-03
Antimony	n	1.98E+01	--	--	--	4.47E-06	4.00E-04	1.12E-02
Arsenic	cR	1.45E+02	2.80E-07	1.50E+00	4.20E-07	1.96E-05	5.00E-03	3.92E-03
Barium	nm	3.89E+02	--	--	--	8.80E-05	2.00E-01	4.40E-04
Beryllium	n	8.53E+00	--	--	--	1.93E-06	5.00E-03	3.86E-04
Cadmium (food, soil)	n	7.87E+00	--	--	--	1.78E-06	5.00E-04	3.56E-03
Chromium (Total)	nm	1.68E+03	--	--	--	3.80E-04	1.50E+00	2.53E-04
Cobalt	n	7.12E+01	--	--	--	1.61E-05	3.00E-03	5.36E-03
Copper	n	6.01E+02	--	--	--	1.36E-04	1.00E-02	1.36E-02
Iron	nm	9.21E+04	--	--	--	2.08E-02	7.00E-01	2.97E-02
Lead	L	3.05E+03	9.86E-06	8.50E-03	8.38E-08	--	--	--
Manganese	n	1.91E+03	--	--	--	4.33E-04	2.40E-02	1.80E-02
Mercury	ns	4.36E-01	--	--	--	9.85E-08	1.60E-04	6.16E-04
Nickel	n	3.04E+02	--	--	--	6.87E-05	2.00E-02	3.44E-03
Selenium	n	2.73E+02	--	--	--	6.18E-05	5.00E-03	1.24E-02
Silver	n	9.29E+00	--	--	--	2.10E-06	5.00E-03	4.20E-04
Thallium	n	6.50E+00	--	--	--	1.47E-06	4.00E-05	3.67E-02
Vanadium	n	4.07E+01	--	--	--	9.21E-06	1.00E-02	9.21E-04
Zinc	nm	3.10E+03	--	--	--	7.00E-04	3.00E-01	2.33E-03
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-02	--
Ethylbenzene	c	--	--	1.10E-02	--	--	5.00E-02	--
Hexachlorobenzene	c	9.18E+00	2.96E-08	1.60E+00	4.74E-08	2.08E-06	1.00E-05	2.08E-01
Toluene	ns	--	--	--	--	--	8.00E-01	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	3.21E-01	--	--	--	7.26E-08	4.00E-01	1.81E-07
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.29E+00	--	--	--	2.92E-07	2.00E-01	1.46E-06
Acenaphthylene	--	7.93E-01	--	--	--	--	--	--
Anthracene	nm	1.16E+00	--	--	--	2.61E-07	1.00E+00	2.61E-07
Benzo(a)pyrene	c	2.55E+00	8.24E-09	1.00E+00	8.24E-09	--	--	--
Benzo(g,h,i)perylene	--	1.54E+00	--	--	--	--	--	--
Dibenzofuran	n	1.23E+00	--	--	--	2.78E-07	4.00E-03	6.96E-05
Fluoranthene	n	2.44E+00	--	--	--	5.51E-07	1.00E-01	5.51E-06
Fluorene	n	2.24E+00	--	--	--	5.05E-07	4.00E-01	1.26E-06
2-Methylnaphthalene	n	2.93E+00	--	--	--	6.61E-07	4.00E-03	1.65E-04
Naphthalene	c*	1.94E+00	--	--	--	4.39E-07	6.00E-01	7.32E-07
Phenanthrene	--	9.21E+00	--	--	--	--	--	--
Pyrene	n	2.54E+00	--	--	--	5.73E-07	3.00E-01	1.91E-06
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	2.53E+00	8.18E-09	2.00E+00	1.64E-08	5.72E-07	3.00E-05	1.91E-02
Total					5.8E-07			3.7E-01

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (subchronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	1.11E+04	1.13E-03	--	--	--	2.06E-05	5.00E-03	4.13E-03	9.82E+06	--	--	6.64E-03
Antimony	n	1.98E+01	2.01E-06	--	--	--	--	--	--	9.82E+06	--	--	1.12E-02
Arsenic	cR	1.45E+02	1.47E-05	3.84E-09	4.30E+00	1.65E-08	2.69E-07	1.50E-05	1.79E-02	9.82E+06	--	5.04E-07	2.25E-02
Barium	nm	3.89E+02	3.96E-05	--	--	--	7.24E-07	5.00E-03	1.45E-04	9.82E+06	--	--	5.85E-04
Beryllium	n	8.53E+00	8.69E-07	2.27E-10	2.40E+00	5.44E-10	1.59E-08	2.00E-05	7.93E-04	9.82E+06	--	5.44E-10	1.18E-03
Cadmium (food, soil)	n	7.87E+00	8.01E-07	2.09E-10	1.80E+00	3.76E-10	1.46E-08	1.00E-05	1.46E-03	9.82E+06	--	3.76E-10	5.48E-03
Chromium (Total)	nm	1.68E+03	1.71E-04	--	--	--	3.12E-06	5.00E-03	6.25E-04	9.82E+06	--	--	8.78E-04
Cobalt	n	7.12E+01	7.25E-06	1.89E-09	9.00E+00	1.70E-08	1.32E-07	2.00E-05	6.62E-03	9.82E+06	--	1.70E-08	1.20E-02
Copper	n	6.01E+02	6.12E-05	--	--	--	--	--	--	9.82E+06	--	--	1.36E-02
Iron	nm	9.21E+04	9.38E-03	--	--	--	--	--	--	9.82E+06	--	--	2.97E-02
Lead	L	3.05E+03	3.11E-04	8.11E-08	1.20E-02	9.73E-10	--	--	--	9.82E+06	--	8.48E-08	--
Manganese	n	1.91E+03	1.95E-04	--	--	--	3.56E-06	5.00E-05	7.12E-02	9.82E+06	--	--	8.92E-02
Mercury	ns	4.36E-01	2.60E-05	--	--	--	4.75E-07	3.00E-04	1.58E-03	9.82E+06	1.68E+04	--	2.20E-03
Nickel	n	3.04E+02	3.10E-05	8.08E-09	2.60E-01	2.10E-09	5.66E-07	2.00E-04	2.83E-03	9.82E+06	--	2.10E-09	6.26E-03
Selenium	n	2.73E+02	2.78E-05	--	--	--	5.09E-07	2.00E-02	2.54E-05	9.82E+06	--	--	1.24E-02
Silver	n	9.29E+00	9.46E-07	--	--	--	--	--	--	9.82E+06	--	--	4.20E-04
Thallium	n	6.50E+00	6.62E-07	--	--	--	--	--	--	9.82E+06	--	--	3.67E-02
Vanadium	n	4.07E+01	4.15E-06	--	--	--	7.58E-08	1.00E-04	7.58E-04	9.82E+06	--	--	1.68E-03
Zinc	nm	3.10E+03	3.16E-04	--	--	--	--	--	--	9.82E+06	--	--	2.33E-03
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	1.20E+00	--	9.82E+06	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	9.82E+06	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	9.00E+00	--	9.82E+06	7.26E+03	--	--
Hexachlorobenzene	c	9.18E+00	--	--	4.60E-01	--	--	--	--	9.82E+06	8.71E+04	4.74E-08	2.08E-01
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	9.82E+06	3.02E+03	--	--
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	9.82E+06	2.05E+03	--	--
Total Xylenes	ns	3.21E-01	5.85E-05	--	--	--	1.07E-06	4.00E-01	2.67E-06	9.82E+06	5.49E+03	--	2.85E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.29E+00	7.32E-06	--	--	--	--	--	--	9.82E+06	1.80E+05	--	2.07E-06
Acenaphthylene	--	7.93E-01	8.08E-08	--	--	--	--	--	--	9.82E+06	--	--	--
Anthracene	nm	1.16E+00	1.84E-06	--	--	--	--	--	--	9.82E+06	6.71E+05	--	3.70E-07
Benzo(a)pyrene	c	2.55E+00	2.60E-07	6.78E-11	6.00E-01	4.07E-11	--	--	--	9.82E+06	--	1.17E-08	--
Benzo(g,h,i)perylene	--	1.54E+00	1.57E-07	--	--	--	--	--	--	9.82E+06	--	--	--
Dibenzofuran	n	1.23E+00	1.25E-07	--	--	--	--	--	--	9.82E+06	--	--	7.63E-05
Fluoranthene	n	2.44E+00	2.48E-07	--	--	--	--	--	--	9.82E+06	--	--	7.81E-06
Fluorene	n	2.24E+00	6.44E-06	--	--	--	--	--	--	9.82E+06	3.60E+05	--	1.79E-06
2-Methylnaphthalene	n	2.93E+00	3.97E-05	--	--	--	--	--	--	9.82E+06	7.43E+04	--	2.34E-04
Naphthalene	c*	1.94E+00	3.29E-05	8.59E-09	3.40E-02	2.92E-10	6.01E-07	3.00E-03	2.00E-04	9.82E+06	5.94E+04	2.92E-10	2.01E-04
Phenanthrene	--	9.21E+00	9.37E-07	--	--	--	--	--	--	9.82E+06	--	--	--
Pyrene	n	2.54E+00	1.09E-06	--	--	--	--	--	--	9.82E+06	3.05E+06	--	2.71E-06
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	2.53E+00	3.98E-06	1.04E-09	5.70E-01	5.91E-10	--	--	--	9.82E+06	6.81E+05	2.43E-08	2.76E-02
Total						3.8E-08			1.1E-01			6.9E-07	4.9E-01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Excavation Worker
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.04E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	7.25E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Excavation Worker
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	330	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	3.23E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	2.26E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Excavation Worker
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	1.01E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	2.25E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.00E+01	3.11E-09	1.50E+00	4.66E-09	2.18E-07	5.00E-03	3.00E-02	4.35E-05
Barium	nm	8.40E+01	--	--	--	--	1.40E-02	--	--
Beryllium	n	7.10E-01	--	--	--	--	3.50E-05	--	--
Cadmium (food, soil)	n	7.85E-01	--	--	--	5.69E-10	1.25E-05	1.00E-03	4.55E-05
Chromium (Total)	nm	3.37E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	8.96E+00	--	--	--	--	3.00E-03	--	--
Copper	n	2.26E+02	--	--	--	--	1.00E-02	--	--
Iron	nm	2.66E+04	--	--	--	--	7.00E-01	--	--
Lead	L	2.61E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	3.88E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	1.70E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	1.23E+02	--	--	--	--	8.00E-04	--	--
Selenium	n	3.02E+00	--	--	--	--	5.00E-03	--	--
Silver	n	1.45E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	4.33E+00	--	--	--	--	4.00E-05	--	--
Vanadium	n	2.60E+01	--	--	--	--	2.60E-04	--	--
Zinc	nm	2.10E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	8.16E-01	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-02	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	5.00E-02	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	1.00E-05	--	--
Toluene	ns	--	--	--	--	--	8.00E-01	--	--
Trichloroethene	c**	8.70E-01	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	3.40E-01	--	--	--	--	4.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.96E+00	--	--	--	1.84E-07	2.00E-01	1.30E-01	9.22E-07
Acenaphthylene	--	3.18E-01	--	--	--	--	--	--	--
Anthracene	nm	2.13E+00	--	--	--	2.00E-07	1.00E+00	1.30E-01	2.00E-07
Benzo(a)pyrene	c	1.62E+00	2.18E-09	1.00E+00	2.18E-09	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	1.15E+00	--	--	--	--	--	--	--
Dibenzofuran	n	2.36E-01	--	--	--	5.13E-09	4.00E-03	3.00E-02	1.28E-06
Fluoranthene	n	8.17E+00	--	--	--	7.70E-07	1.00E-01	1.30E-01	7.70E-06
Fluorene	n	1.28E+00	--	--	--	1.21E-07	4.00E-01	1.30E-01	3.01E-07
2-Methylnaphthalene	n	1.44E+00	--	--	--	1.36E-07	4.00E-03	1.30E-01	3.40E-05
Naphthalene	c*	3.85E-01	--	--	--	3.63E-08	6.00E-01	1.30E-01	6.05E-08
Phenanthrene	--	7.54E+00	--	--	--	--	--	--	--
Pyrene	n	6.49E+00	--	--	--	6.11E-07	3.00E-01	1.30E-01	2.04E-06
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	3.33E+01	4.83E-08	2.00E+000	9.66E-08	3.38E-06	3.00E-05	1.40E-01	1.13E-01
Total					1.0E-07				1.1E-01

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	1.01E+04	--	--	--	2.29E-03	1.00E+00	2.29E-03
Antimony	n	2.25E+01	--	--	--	5.08E-06	4.00E-04	1.27E-02
Arsenic	cR	1.00E+01	1.94E-08	1.50E+00	2.91E-08	1.36E-06	5.00E-03	2.72E-04
Barium	nm	8.40E+01	--	--	--	1.90E-05	2.00E-01	9.50E-05
Beryllium	n	7.10E-01	--	--	--	1.60E-07	5.00E-03	3.21E-05
Cadmium (food, soil)	n	7.85E-01	--	--	--	1.77E-07	5.00E-04	3.55E-04
Chromium (Total)	nm	3.37E+01	--	--	--	7.62E-06	1.50E+00	5.08E-06
Cobalt	n	8.96E+00	--	--	--	2.03E-06	3.00E-03	6.75E-04
Copper	n	2.26E+02	--	--	--	5.12E-05	1.00E-02	5.12E-03
Iron	nm	2.66E+04	--	--	--	6.02E-03	7.00E-01	8.60E-03
Lead	L	2.61E+02	8.42E-07	8.50E-03	7.16E-09	--	--	--
Manganese	n	3.88E+02	--	--	--	8.76E-05	2.40E-02	3.65E-03
Mercury	ns	1.70E-01	--	--	--	3.84E-08	1.60E-04	2.40E-04
Nickel	n	1.23E+02	--	--	--	2.77E-05	2.00E-02	1.39E-03
Selenium	n	3.02E+00	--	--	--	6.83E-07	5.00E-03	1.37E-04
Silver	n	1.45E+00	--	--	--	3.28E-07	5.00E-03	6.56E-05
Thallium	n	4.33E+00	--	--	--	9.78E-07	4.00E-05	2.45E-02
Vanadium	n	2.60E+01	--	--	--	5.89E-06	1.00E-02	5.89E-04
Zinc	nm	2.10E+02	--	--	--	4.75E-05	3.00E-01	1.58E-04
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	8.16E-01	2.63E-09	5.40E-03	1.42E-11	1.84E-07	7.00E-02	2.63E-06
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-02	--
Ethylbenzene	c	--	--	1.10E-02	--	--	5.00E-02	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	1.00E-05	--
Toluene	ns	--	--	--	--	--	8.00E-01	--
Trichloroethene	c**	8.70E-01	2.81E-09	4.60E-02	1.29E-10	1.97E-07	5.00E-04	3.93E-04
Total Xylenes	ns	3.40E-01	--	--	--	7.68E-08	4.00E-01	1.92E-07
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.96E+00	--	--	--	4.43E-07	2.00E-01	2.21E-06
Acenaphthylene	--	3.18E-01	--	--	--	--	--	--
Anthracene	nm	2.13E+00	--	--	--	4.80E-07	1.00E+00	4.80E-07
Benzo(a)pyrene	c	1.62E+00	5.24E-09	1.00E+00	5.24E-09	--	--	--
Benzo(g,h,i)perylene	--	1.15E+00	--	--	--	--	--	--
Dibenzofuran	n	2.36E-01	--	--	--	5.33E-08	4.00E-03	1.33E-05
Fluoranthene	n	8.17E+00	--	--	--	1.85E-06	1.00E-01	1.85E-05
Fluorene	n	1.28E+00	--	--	--	2.89E-07	4.00E-01	7.23E-07
2-Methylnaphthalene	n	1.44E+00	--	--	--	3.26E-07	4.00E-03	8.15E-05
Naphthalene	c*	3.85E-01	--	--	--	8.70E-08	6.00E-01	1.45E-07
Phenanthrene	--	7.54E+00	--	--	--	--	--	--
Pyrene	n	6.49E+00	--	--	--	1.47E-06	3.00E-01	4.89E-06
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	3.33E+01	1.08E-07	2.00E+00	2.15E-07	7.53E-06	3.00E-05	2.51E-01
Total					2.6E-07			3.1E-01

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (subchronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	1.01E+04	1.03E-03	--	--	--	1.88E-05	5.00E-03	3.77E-03	9.82E+06	--	--	6.05E-03
Antimony	n	2.25E+01	2.29E-06	--	--	--	--	--	--	9.82E+06	--	--	1.27E-02
Arsenic	cR	1.00E+01	1.02E-06	2.66E-10	4.30E+00	1.14E-09	1.86E-08	1.50E-05	1.24E-03	9.82E+06	--	3.49E-08	1.56E-03
Barium	nm	8.40E+01	8.56E-06	--	--	--	1.56E-07	5.00E-03	3.13E-05	9.82E+06	--	--	1.26E-04
Beryllium	n	7.10E-01	7.23E-08	1.89E-11	2.40E+00	4.53E-11	1.32E-09	2.00E-05	6.60E-05	9.82E+06	--	4.53E-11	9.81E-05
Cadmium (food, soil)	n	7.85E-01	7.99E-08	2.09E-11	1.80E+00	3.75E-11	1.46E-09	1.00E-05	1.46E-04	9.82E+06	--	3.75E-11	5.46E-04
Chromium (Total)	nm	3.37E+01	3.43E-06	--	--	--	6.27E-08	5.00E-03	1.25E-05	9.82E+06	--	--	1.76E-05
Cobalt	n	8.96E+00	9.13E-07	2.38E-10	9.00E+00	2.14E-09	1.67E-08	2.00E-05	8.33E-04	9.82E+06	--	2.14E-09	1.51E-03
Copper	n	2.26E+02	2.30E-05	--	--	--	--	--	--	9.82E+06	--	--	5.12E-03
Iron	nm	2.66E+04	2.71E-03	--	--	--	--	--	--	9.82E+06	--	--	8.60E-03
Lead	L	2.61E+02	2.66E-05	6.93E-09	1.20E-02	8.32E-11	--	--	--	9.82E+06	--	7.24E-09	--
Manganese	n	3.88E+02	3.95E-05	--	--	--	7.21E-07	5.00E-05	1.44E-02	9.82E+06	--	--	1.81E-02
Mercury	ns	1.70E-01	1.01E-05	--	--	--	1.85E-07	3.00E-04	6.17E-04	9.82E+06	1.68E+04	--	8.57E-04
Nickel	n	1.23E+02	1.25E-05	3.26E-09	2.60E-01	8.48E-10	2.28E-07	2.00E-04	1.14E-03	9.82E+06	--	8.48E-10	2.53E-03
Selenium	n	3.02E+00	3.08E-07	--	--	--	5.62E-09	2.00E-02	2.81E-07	9.82E+06	--	--	1.37E-04
Silver	n	1.45E+00	1.48E-07	--	--	--	--	--	--	9.82E+06	--	--	6.56E-05
Thallium	n	4.33E+00	4.41E-07	--	--	--	--	--	--	9.82E+06	--	--	2.45E-02
Vanadium	n	2.60E+01	2.65E-06	6.93E-09	1.20E-02	8.32E-11	4.84E-08	1.00E-04	4.84E-04	9.82E+06	--	--	1.07E-03
Zinc	nm	2.10E+02	2.14E-05	--	--	--	--	--	--	9.82E+06	--	--	1.58E-04
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	8.16E-01	--	--	1.10E-02	--	--	1.20E+00	--	9.82E+06	1.34E+04	1.42E-11	2.63E-06
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	9.82E+06	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	9.00E+00	--	9.82E+06	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	9.82E+06	8.71E+04	--	--
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	9.82E+06	3.02E+03	--	--
Trichloroethene	c**	8.70E-01	--	--	4.10E-03	--	--	2.00E-03	--	9.82E+06	2.05E+03	1.29E-10	3.93E-04
Total Xylenes	ns	3.40E-01	6.20E-05	--	--	--	1.13E-06	4.00E-01	2.83E-06	9.82E+06	5.49E+03	--	3.02E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.96E+00	1.11E-05	--	--	--	--	--	--	9.82E+06	1.80E+05	--	3.14E-06
Acenaphthylene	--	3.18E-01	3.24E-08	--	--	--	--	--	--	9.82E+06	--	--	--
Anthracene	nm	2.13E+00	3.38E-06	--	--	--	--	--	--	9.82E+06	6.71E+05	--	6.81E-07
Benzo(a)pyrene	c	1.62E+00	1.65E-07	4.31E-11	6.00E-01	2.59E-11	--	--	--	9.82E+06	--	7.45E-09	--
Benzo(g,h,i)perylene	--	1.15E+00	1.17E-07	--	--	--	--	--	--	9.82E+06	--	--	--
Dibenzofuran	n	2.36E-01	2.40E-08	--	--	--	--	--	--	9.82E+06	--	--	1.46E-05
Fluoranthene	n	8.17E+00	8.32E-07	--	--	--	--	--	--	9.82E+06	--	--	2.62E-05
Fluorene	n	1.28E+00	3.69E-06	--	--	--	--	--	--	9.82E+06	3.60E+05	--	1.02E-06
2-Methylnaphthalene	n	1.44E+00	1.96E-05	--	--	--	--	--	--	9.82E+06	7.43E+04	--	1.15E-04
Naphthalene	c*	3.85E-01	6.52E-06	1.70E-09	3.40E-02	5.78E-11	1.19E-07	3.00E-03	3.97E-05	9.82E+06	5.94E+04	5.78E-11	3.99E-05
Phenanthrene	--	7.54E+00	7.67E-07	--	--	--	--	--	--	9.82E+06	--	--	--
Pyrene	n	6.49E+00	2.79E-06	--	--	--	--	--	--	9.82E+06	3.05E+06	--	6.93E-06
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	3.33E+01	5.23E-05	1.37E-08	5.70E-01	7.78E-09	--	--	--	9.82E+06	6.81E+05	3.20E-07	3.64E-01
Total						1.2E-08			2.3E-02			3.7E-07	4.5E-01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Excavation Worker
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.04E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	7.25E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Excavation Worker
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	330	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	3.23E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	2.26E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Excavation Worker
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET/24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	1.08E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	7.37E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	1.79E+01	5.55E-09	1.50E+00	8.32E-09	3.88E-07	5.00E-03	3.00E-02	7.77E-05
Barium	nm	5.44E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	6.90E-01	--	--	--	--	3.50E-05	--	--
Cadmium (food, soil)	n	1.98E+00	--	--	--	1.44E-09	1.25E-05	1.00E-03	1.15E-04
Chromium (Total)	nm	1.85E+02	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.10E+01	--	--	--	--	3.00E-03	--	--
Copper	n	2.29E+03	--	--	--	--	1.00E-02	--	--
Iron	nm	4.33E+04	--	--	--	--	7.00E-01	--	--
Lead	L	5.54E+03	--	8.50E-03	--	--	--	--	--
Manganese	n	1.28E+03	--	--	--	--	9.60E-04	--	--
Mercury	ns	4.69E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	4.60E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	2.88E+00	--	--	--	--	5.00E-03	--	--
Silver	n	2.99E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	6.06E+00	--	--	--	--	4.00E-05	--	--
Vanadium	n	4.06E+01	--	--	--	--	2.60E-04	--	--
Zinc	nm	1.01E+03	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	2.10E+01	--	--	--	--	2.00E-02	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	5.00E-02	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	1.00E-05	--	--
Toluene	ns	2.20E+00	--	--	--	--	8.00E-01	--	--
Trichloroethene	c**	4.80E+01	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	3.92E-01	--	--	--	--	4.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.00E-01	--	--	--	9.42E-09	2.00E-01	1.30E-01	4.71E-08
Acenaphthylene	--	1.41E-01	--	--	--	--	--	--	--
Anthracene	nm	2.13E-01	--	--	--	2.01E-08	1.00E+00	1.30E-01	2.01E-08
Benzo(a)pyrene	c	1.25E+00	1.69E-09	1.00E+00	1.69E-09	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	3.78E-01	--	--	--	--	--	--	--
Dibenzofuran	n	1.72E+00	--	--	--	3.74E-08	4.00E-03	3.00E-02	9.36E-06
Fluoranthene	n	1.24E+00	--	--	--	1.17E-07	1.00E-01	1.30E-01	1.17E-06
Fluorene	n	1.87E-01	--	--	--	1.76E-08	4.00E-01	1.30E-01	4.40E-08
2-Methylnaphthalene	n	4.39E-01	--	--	--	4.14E-08	4.00E-03	1.30E-01	1.03E-05
Naphthalene	c*	3.14E-01	--	--	--	2.96E-08	6.00E-01	1.30E-01	4.93E-08
Phenanthrene	--	1.02E+00	--	--	--	--	--	--	--
Pyrene	n	1.24E+00	--	--	--	1.17E-07	3.00E-01	1.30E-01	3.90E-07
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	3.15E+01	4.56E-08	2.00E+000	9.12E-08	3.19E-06	3.00E-05	1.40E-01	1.06E-01
Total					1.0E-07				1.1E-01

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	1.08E+04	--	--	--	2.44E-03	1.00E+00	2.44E-03
Antimony	n	7.37E+01	--	--	--	1.67E-05	4.00E-04	4.17E-02
Arsenic	cR	1.79E+01	3.46E-08	1.50E+00	5.19E-08	2.42E-06	5.00E-03	4.84E-04
Barium	nm	5.44E+02	--	--	--	1.23E-04	2.00E-01	6.14E-04
Beryllium	n	6.90E-01	--	--	--	1.56E-07	5.00E-03	3.12E-05
Cadmium (food, soil)	n	1.98E+00	--	--	--	4.48E-07	5.00E-04	8.96E-04
Chromium (Total)	nm	1.85E+02	--	--	--	4.18E-05	1.50E+00	2.79E-05
Cobalt	n	1.10E+01	--	--	--	2.49E-06	3.00E-03	8.29E-04
Copper	n	2.29E+03	--	--	--	5.18E-04	1.00E-02	5.18E-02
Iron	nm	4.33E+04	--	--	--	9.78E-03	7.00E-01	1.40E-02
Lead	L	5.54E+03	1.79E-05	8.50E-03	1.52E-07	--	--	--
Manganese	n	1.28E+03	--	--	--	2.89E-04	2.40E-02	1.21E-02
Mercury	ns	4.69E-01	--	--	--	1.06E-07	1.60E-04	6.63E-04
Nickel	n	4.60E+01	--	--	--	1.04E-05	2.00E-02	5.20E-04
Selenium	n	2.88E+00	--	--	--	6.51E-07	5.00E-03	1.30E-04
Silver	n	2.99E+00	--	--	--	6.76E-07	5.00E-03	1.35E-04
Thallium	n	6.06E+00	--	--	--	1.37E-06	4.00E-05	3.42E-02
Vanadium	n	4.06E+01	--	--	--	9.19E-06	1.00E-02	9.19E-04
Zinc	nm	1.01E+03	--	--	--	2.29E-04	3.00E-01	7.62E-04
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	2.10E+01	--	--	--	4.75E-06	2.00E-02	2.37E-04
Ethylbenzene	c	--	--	1.10E-02	--	--	5.00E-02	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	1.00E-05	--
Toluene	ns	2.20E+00	--	--	--	4.97E-07	8.00E-01	6.22E-07
Trichloroethene	c**	4.80E+01	1.55E-07	4.60E-02	7.13E-09	1.08E-05	5.00E-04	2.17E-02
Total Xylenes	ns	3.92E-01	--	--	--	8.86E-08	4.00E-01	2.22E-07
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.00E-01	--	--	--	2.26E-08	2.00E-01	1.13E-07
Acenaphthylene	--	1.41E-01	--	--	--	--	--	--
Anthracene	nm	2.13E-01	--	--	--	4.81E-08	1.00E+00	4.81E-08
Benzo(a)pyrene	c	1.25E+00	4.05E-09	1.00E+00	4.05E-09	--	--	--
Benzo(g,h,i)perylene	--	3.78E-01	--	--	--	--	--	--
Dibenzofuran	n	1.72E+00	--	--	--	3.89E-07	4.00E-03	9.73E-05
Fluoranthene	n	1.24E+00	--	--	--	2.81E-07	1.00E-01	2.81E-06
Fluorene	n	1.87E-01	--	--	--	4.23E-08	4.00E-01	1.06E-07
2-Methylnaphthalene	n	4.39E-01	--	--	--	9.92E-08	4.00E-03	2.48E-05
Naphthalene	c*	3.14E-01	--	--	--	7.10E-08	6.00E-01	1.18E-07
Phenanthrene	--	1.02E+00	--	--	--	--	--	--
Pyrene	n	1.24E+00	--	--	--	2.81E-07	3.00E-01	9.37E-07
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	3.15E+01	1.02E-07	2.00E+00	2.03E-07	7.11E-06	3.00E-05	2.37E-01
Total					4.2E-07			4.2E-01

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (subchronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	1.08E+04	1.10E-03	--	--	--	2.01E-05	5.00E-03	4.02E-03	9.82E+06	--	--	6.46E-03
Antimony	n	7.37E+01	7.51E-06	--	--	--	--	--	--	9.82E+06	--	--	4.17E-02
Arsenic	cR	1.79E+01	1.82E-06	4.75E-10	4.30E+00	2.04E-09	3.32E-08	1.50E-05	2.21E-03	9.82E+06	--	6.23E-08	2.78E-03
Barium	nm	5.44E+02	5.53E-05	--	--	--	1.01E-06	5.00E-03	2.02E-04	9.82E+06	--	--	8.16E-04
Beryllium	n	6.90E-01	7.03E-08	1.83E-11	2.40E+00	4.40E-11	1.28E-09	2.00E-05	6.42E-05	9.82E+06	--	4.40E-11	9.54E-05
Cadmium (food, soil)	n	1.98E+00	2.02E-07	5.27E-11	1.80E+00	9.48E-11	3.69E-09	1.00E-05	3.69E-04	9.82E+06	--	9.48E-11	1.38E-03
Chromium (Total)	nm	1.85E+02	1.88E-05	--	--	--	3.44E-07	5.00E-03	6.89E-05	9.82E+06	--	--	9.67E-05
Cobalt	n	1.10E+01	1.12E-06	2.92E-10	9.00E+00	2.63E-09	2.05E-08	2.00E-05	1.02E-03	9.82E+06	--	2.63E-09	1.85E-03
Copper	n	2.29E+03	2.33E-04	--	--	--	--	--	--	9.82E+06	--	--	5.18E-02
Iron	nm	4.33E+04	4.40E-03	--	--	--	--	--	--	9.82E+06	--	--	1.40E-02
Lead	L	5.54E+03	5.64E-04	1.47E-07	1.20E-02	1.77E-09	--	--	--	9.82E+06	--	1.54E-07	--
Manganese	n	1.28E+03	1.30E-04	--	--	--	2.38E-06	5.00E-05	4.76E-02	9.82E+06	--	--	5.97E-02
Mercury	ns	4.69E-01	2.80E-05	--	--	--	5.11E-07	3.00E-04	1.70E-03	9.82E+06	1.68E+04	--	2.36E-03
Nickel	n	4.60E+01	4.68E-06	1.22E-09	2.60E-01	3.18E-10	8.55E-08	2.00E-04	4.28E-04	9.82E+06	--	3.18E-10	9.47E-04
Selenium	n	2.88E+00	2.93E-07	--	--	--	5.35E-09	2.00E-02	2.68E-07	9.82E+06	--	--	1.30E-04
Silver	n	2.99E+00	3.04E-07	--	--	--	--	--	--	9.82E+06	--	--	1.35E-04
Thallium	n	6.06E+00	6.17E-07	--	--	--	--	--	--	9.82E+06	--	--	3.42E-02
Vanadium	n	4.06E+01	4.14E-06	--	--	--	7.56E-08	1.00E-04	7.56E-04	9.82E+06	--	--	1.67E-03
Zinc	nm	1.01E+03	1.03E-04	--	--	--	--	--	--	9.82E+06	--	--	7.62E-04
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	1.20E+00	--	9.82E+06	1.34E+04	--	--
cis-1,2-Dichloroethene	n	2.10E+01	--	--	--	--	--	--	--	9.82E+06	2.06E+03	--	2.37E-04
Ethylbenzene	c	--	--	--	2.50E-03	--	--	9.00E+00	--	9.82E+06	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	9.82E+06	8.71E+04	--	--
Toluene	ns	2.20E+00	7.29E-04	--	--	--	1.33E-05	5.00E+00	2.66E-06	9.82E+06	3.02E+03	--	3.28E-06
Trichloroethene	c**	4.80E+01	--	--	4.10E-03	--	--	2.00E-03	--	9.82E+06	2.05E+03	7.13E-09	2.17E-02
Total Xylenes	ns	3.92E-01	7.15E-05	--	--	--	1.31E-06	4.00E-01	3.26E-06	9.82E+06	5.49E+03	--	3.49E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.00E-01	5.66E-07	--	--	--	--	--	--	9.82E+06	1.80E+05	--	1.60E-07
Acenaphthylene	--	1.41E-01	1.44E-08	--	--	--	--	--	--	9.82E+06	--	--	--
Anthracene	nm	2.13E-01	3.39E-07	--	--	--	--	--	--	9.82E+06	6.71E+05	--	6.82E-08
Benzo(a)pyrene	c	1.25E+00	1.28E-07	3.33E-11	6.00E-01	2.00E-11	--	--	--	9.82E+06	--	5.76E-09	--
Benzo(g,h,i)perylene	--	3.78E-01	3.85E-08	--	--	--	--	--	--	9.82E+06	--	--	--
Dibenzofuran	n	1.72E+00	1.75E-07	--	--	--	--	--	--	9.82E+06	--	--	1.07E-04
Fluoranthene	n	1.24E+00	1.27E-07	--	--	--	--	--	--	9.82E+06	--	--	3.98E-06
Fluorene	n	1.87E-01	5.38E-07	--	--	--	--	--	--	9.82E+06	3.60E+05	--	1.50E-07
2-Methylnaphthalene	n	4.39E-01	5.95E-06	--	--	--	--	--	--	9.82E+06	7.43E+04	--	3.51E-05
Naphthalene	c*	3.14E-01	5.32E-06	1.39E-09	3.40E-02	4.72E-11	9.71E-08	3.00E-03	3.24E-05	9.82E+06	5.94E+04	4.72E-11	3.25E-05
Phenanthrene	--	1.02E+00	1.04E-07	--	--	--	--	--	--	9.82E+06	--	--	--
Pyrene	n	1.24E+00	5.34E-07	--	--	--	--	--	--	9.82E+06	3.05E+06	--	1.33E-06
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	3.15E+01	4.94E-05	1.29E-08	5.70E-01	7.35E-09	--	--	--	9.82E+06	6.81E+05	3.02E-07	3.43E-01
Total						1.4E-08			5.9E-02			5.3E-07	5.9E-01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Excavation Worker
Exposure Route: Dermal
Receptor Age: Adult

Intake Equation:
DAD=CS x ABS x IF
Intake Factor Equation:
IF=SA x CF x AF x EF x ED x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.04E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	7.25E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Soil
Receptor Population: Excavation Worker
Exposure Route: Ingestion
Receptor Age: Adult

Intake Equation:
CDI = CS x IF
Intake Factor Equation:
IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	330	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	3.23E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	2.26E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium: Soil
Exposure Medium: Air
Receptor Population: Excavation Worker
Exposure Route: Inhalation
Receptor Age: Adult

Intake Equation:
EC=(CA x (ET24hrs/day) x EF x ED)/AT

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m*3	(1,2)			
EF	Exposure Frequency	days/year	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	2.46E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	6.56E+00	--	--	--	--	6.00E-05	--	--
Arsenic	cR	2.28E+01	7.08E-09	1.50E+00	1.06E-08	4.96E-07	5.00E-03	3.00E-02	9.91E-05
Barium	nm	2.15E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	1.18E+00	--	--	--	--	3.50E-05	--	--
Cadmium (food, soil)	n	1.21E+00	--	--	--	8.77E-10	1.25E-05	1.00E-03	7.02E-05
Chromium (Total)	nm	7.27E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	1.74E+01	--	--	--	--	3.00E-03	--	--
Copper	n	2.95E+02	--	--	--	--	1.00E-02	--	--
Iron	nm	6.57E+04	--	--	--	--	7.00E-01	--	--
Lead	L	2.28E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	5.85E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	2.74E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	8.76E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	6.90E+00	--	--	--	--	5.00E-03	--	--
Silver	n	5.69E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	9.29E+00	--	--	--	--	4.00E-05	--	--
Vanadium	n	6.55E+01	--	--	--	--	2.60E-04	--	--
Zinc	nm	3.17E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-02	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	5.00E-02	--	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	1.00E-05	--	--
Toluene	ns	--	--	--	--	--	8.00E-01	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	2.20E+00	--	--	--	--	4.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	2.02E+01	--	--	--	1.91E-06	2.00E-01	1.30E-01	9.53E-06
Acenaphthylene	--	4.16E+00	--	--	--	--	--	--	--
Anthracene	nm	2.54E+01	--	--	--	2.39E-06	1.00E+00	1.30E-01	2.39E-06
Benzo(a)pyrene	c	1.95E+01	2.63E-08	1.00E+00	2.63E-08	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	6.65E+00	--	--	--	--	--	--	--
Dibenzofuran	n	1.73E+01	--	--	--	3.76E-07	4.00E-03	3.00E-02	9.41E-05
Fluoranthene	n	6.60E+01	--	--	--	6.21E-06	1.00E-01	1.30E-01	6.21E-05
Fluorene	n	2.62E+01	--	--	--	2.47E-06	4.00E-01	1.30E-01	6.17E-06
2-Methylnaphthalene	n	4.18E+01	--	--	--	3.93E-06	4.00E-03	1.30E-01	9.83E-04
Naphthalene	c*	4.16E+01	--	--	--	3.91E-06	6.00E-01	1.30E-01	6.52E-06
Phenanthrene	--	7.84E+01	--	--	--	--	--	--	--
Pyrene	n	5.84E+01	--	--	--	5.50E-06	3.00E-01	1.30E-01	1.83E-05
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	1.92E+01	2.79E-08	2.00E+00	5.57E-08	1.95E-06	3.00E-05	1.40E-01	6.50E-02
Total					9.3E-08				6.6E-02

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	2.46E+04	--	--	--	5.55E-03	1.00E+00	5.55E-03
Antimony	n	6.56E+00	--	--	--	1.48E-06	4.00E-04	3.71E-03
Arsenic	cR	2.28E+01	4.42E-08	1.50E+00	6.63E-08	3.09E-06	5.00E-03	6.18E-04
Barium	nm	2.15E+02	--	--	--	4.87E-05	2.00E-01	2.43E-04
Beryllium	n	1.18E+00	--	--	--	2.67E-07	5.00E-03	5.34E-05
Cadmium (food, soil)	n	1.21E+00	--	--	--	2.73E-07	5.00E-04	5.47E-04
Chromium (Total)	nm	7.27E+01	--	--	--	1.64E-05	1.50E+00	1.10E-05
Cobalt	n	1.74E+01	--	--	--	3.94E-06	3.00E-03	1.31E-03
Copper	n	2.95E+02	--	--	--	6.67E-05	1.00E-02	6.67E-03
Iron	nm	6.57E+04	--	--	--	1.48E-02	7.00E-01	2.12E-02
Lead	L	2.28E+02	7.37E-07	8.50E-03	6.26E-09	--	--	--
Manganese	n	5.85E+02	--	--	--	1.32E-04	2.40E-02	5.51E-03
Mercury	ns	2.74E-01	--	--	--	6.19E-08	1.60E-04	3.87E-04
Nickel	n	8.76E+01	--	--	--	1.98E-05	2.00E-02	9.90E-04
Selenium	n	6.90E+00	--	--	--	1.56E-06	5.00E-03	3.12E-04
Silver	n	5.69E+00	--	--	--	1.29E-06	5.00E-03	2.57E-04
Thallium	n	9.29E+00	--	--	--	2.10E-06	4.00E-05	5.25E-02
Vanadium	n	6.55E+01	--	--	--	1.48E-05	1.00E-02	1.48E-03
Zinc	nm	3.17E+02	--	--	--	7.15E-05	3.00E-01	2.38E-04
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	--	--	5.40E-03	--	--	7.00E-02	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-02	--
Ethylbenzene	c	--	--	1.10E-02	--	--	5.00E-02	--
Hexachlorobenzene	c	--	--	1.60E+00	--	--	1.00E-05	--
Toluene	ns	--	--	--	--	--	8.00E-01	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	2.20E+00	--	--	--	4.97E-07	4.00E-01	1.24E-06
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	2.02E+01	--	--	--	4.57E-06	2.00E-01	2.29E-05
Acenaphthylene	--	4.16E+00	--	--	--	--	--	--
Anthracene	nm	2.54E+01	--	--	--	5.75E-06	1.00E+00	5.75E-06
Benzo(a)pyrene	c	1.95E+01	6.30E-08	1.00E+00	6.30E-08	--	--	--
Benzo(g,h,i)perylene	--	6.65E+00	--	--	--	--	--	--
Dibenzofuran	n	1.73E+01	--	--	--	3.91E-06	4.00E-03	9.78E-04
Fluoranthene	n	6.60E+01	--	--	--	1.49E-05	1.00E-01	1.49E-04
Fluorene	n	2.62E+01	--	--	--	5.92E-06	4.00E-01	1.48E-05
2-Methylnaphthalene	n	4.18E+01	--	--	--	9.44E-06	4.00E-03	2.36E-03
Naphthalene	c*	4.16E+01	--	--	--	9.39E-06	6.00E-01	1.57E-05
Phenanthrene	--	7.84E+01	--	--	--	--	--	--
Pyrene	n	5.84E+01	--	--	--	1.32E-05	3.00E-01	4.40E-05
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	1.92E+01	6.21E-08	2.00E+00	1.24E-07	4.35E-06	3.00E-05	1.45E-01
Total					2.6E-07			2.5E-01

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (subchronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	2.46E+04	2.50E-03	--	--	--	4.57E-05	5.00E-03	9.14E-03	9.82E+06	--	--	1.47E-02
Antimony	n	6.56E+00	6.68E-07	--	--	--	--	--	--	9.82E+06	--	--	3.71E-03
Arsenic	cR	2.28E+01	2.32E-06	6.06E-10	4.30E+00	2.61E-09	4.24E-08	1.50E-05	2.83E-03	9.82E+06	--	7.95E-08	3.54E-03
Barium	nm	2.15E+02	2.19E-05	--	--	--	4.00E-07	5.00E-03	8.01E-05	9.82E+06	--	--	3.23E-04
Beryllium	n	1.18E+00	1.20E-07	3.14E-11	2.40E+00	7.53E-11	2.20E-09	2.00E-05	1.10E-04	9.82E+06	--	7.53E-11	1.63E-04
Cadmium (food, soil)	n	1.21E+00	1.23E-07	3.22E-11	1.80E+00	5.79E-11	2.25E-09	1.00E-05	2.25E-04	9.82E+06	--	5.79E-11	8.42E-04
Chromium (Total)	nm	7.27E+01	7.40E-06	--	--	--	1.35E-07	5.00E-03	2.70E-05	9.82E+06	--	--	3.80E-05
Cobalt	n	1.74E+01	1.77E-06	4.63E-10	9.00E+00	4.17E-09	3.24E-08	2.00E-05	1.62E-03	9.82E+06	--	4.17E-09	2.93E-03
Copper	n	2.95E+02	3.01E-05	--	--	--	--	--	--	9.82E+06	--	--	6.67E-03
Iron	nm	6.57E+04	6.69E-03	--	--	--	--	--	--	9.82E+06	--	--	2.12E-02
Lead	L	2.28E+02	2.32E-05	6.06E-09	1.20E-02	7.27E-11	--	--	--	9.82E+06	--	6.33E-09	--
Manganese	n	5.85E+02	5.96E-05	--	--	--	1.09E-06	5.00E-05	2.18E-02	9.82E+06	--	--	2.73E-02
Mercury	ns	2.74E-01	1.63E-05	--	--	--	2.98E-07	3.00E-04	9.94E-04	9.82E+06	1.68E+04	--	1.38E-03
Nickel	n	8.76E+01	8.92E-06	2.33E-09	2.60E-01	6.05E-10	1.63E-07	2.00E-04	8.15E-04	9.82E+06	--	6.05E-10	1.80E-03
Selenium	n	6.90E+00	7.03E-07	--	--	--	1.28E-08	2.00E-02	6.42E-07	9.82E+06	--	--	3.13E-04
Silver	n	5.69E+00	5.79E-07	--	--	--	--	--	--	9.82E+06	--	--	2.57E-04
Thallium	n	9.29E+00	9.46E-07	--	--	--	--	--	--	9.82E+06	--	--	5.25E-02
Vanadium	n	6.55E+01	6.67E-06	--	--	--	1.22E-07	1.00E-04	1.22E-03	9.82E+06	--	--	2.70E-03
Zinc	nm	3.17E+02	3.22E-05	--	--	--	--	--	--	9.82E+06	--	--	2.38E-04
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	--	--	--	1.10E-02	--	--	1.20E+00	--	9.82E+06	1.34E+04	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	9.82E+06	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	9.00E+00	--	9.82E+06	7.26E+03	--	--
Hexachlorobenzene	c	--	--	--	4.60E-01	--	--	--	--	9.82E+06	8.71E+04	--	--
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	9.82E+06	3.02E+03	--	--
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	9.82E+06	2.05E+03	--	--
Total Xylenes	ns	2.20E+00	4.01E-04	--	--	--	7.33E-06	4.00E-01	1.83E-05	9.82E+06	5.49E+03	--	1.96E-05
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	2.02E+01	1.14E-04	--	--	--	--	--	--	9.82E+06	1.80E+05	--	3.24E-05
Acenaphthylene	--	4.16E+00	4.24E-07	--	--	--	--	--	--	9.82E+06	--	--	--
Anthracene	nm	2.54E+01	4.05E-05	--	--	--	--	--	--	9.82E+06	6.71E+05	--	8.14E-06
Benzo(a)pyrene	c	1.95E+01	1.99E-06	5.18E-10	6.00E-01	3.11E-10	--	--	--	9.82E+06	--	8.96E-08	--
Benzo(g,h,i)perylene	--	6.65E+00	6.77E-07	--	--	--	--	--	--	9.82E+06	--	--	--
Dibenzofuran	n	1.73E+01	1.76E-06	--	--	--	--	--	--	9.82E+06	--	--	1.07E-03
Fluoranthene	n	6.60E+01	6.72E-06	--	--	--	--	--	--	9.82E+06	--	--	2.11E-04
Fluorene	n	2.62E+01	7.55E-05	--	--	--	--	--	--	9.82E+06	3.60E+05	--	2.10E-05
2-Methylnaphthalene	n	4.18E+01	5.66E-04	--	--	--	--	--	--	9.82E+06	7.43E+04	--	3.34E-03
Naphthalene	c*	4.16E+01	7.04E-04	1.84E-07	3.40E-02	6.24E-09	1.29E-05	3.00E-03	4.28E-03	9.82E+06	5.94E+04	6.24E-09	4.31E-03
Phenanthrene	--	7.84E+01	7.99E-06	--	--	--	--	--	--	9.82E+06	--	--	--
Pyrene	n	5.84E+01	2.51E-05	--	--	--	--	--	--	9.82E+06	3.05E+06	--	6.24E-05
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	1.92E+01	3.02E-05	7.88E-09	5.70E-01	4.49E-09	--	--	--	9.82E+06	6.81E+05	1.84E-07	2.10E-01
Total						1.9E-08			4.3E-02			3.7E-07	3.6E-01

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium:	Soil	Intake Equation:	
Exposure Medium:	Soil	DAD=CS x ABS x IF	
Receptor Population:	Excavation Worker	Intake Factor Equation:	
		IF=SA x CF x AF x EF x ED x 1/BW x 1/AT	
Exposure Route:	Dermal		
Receptor Age:	Adult		

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
DAD	Dermally Absorbed Dose	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
AF	Soil to Skin Adherence Factor	mg/cm^2	0.3	EPA, 2011		
ABS	Absorption Factor	unitless	Chemical Specific (1)	EPA, 1995 and EPA, 2001		
SA	Skin Surface Area Available for Contact	cm2/day	3,527 (2)	EPA, 2011		
EF	Exposure Frequency	days/years	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		
IF-C	Intake Factor (Cancer)	days^-1	1.04E-08	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	7.25E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR DAILY INTAKE CALCULATIONS
Amtrak, Wilmington Delaware

Medium:	Soil	Intake Equation:	
Exposure Medium:	Soil	CDI = CS x IF	
Receptor Population:	Excavation Worker	Intake Factor Equation:	
		IF= IR-S x FI x EF x ED x CF x 1/BW x 1/AT	
Exposure Route:	Ingestion		
Receptor Age:	Adult		

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CDI	Chronic Daily Intake	mg/kg-day				
CS	Chemical Concentration in Soil	mg/kg				
CF	Conversion Factor	kg/mg	1E-06			
IR-S	Ingestion Rate - Soil	mg/day	330	EPA,1991		
FI	Fraction Ingested from source	unitless	1	EPA, 2001		
EF	Exposure Frequency	days/years	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
BW	Body Weight	kg	80	EPA, 2011		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		
BIO	Bioavailability of Arsenic	unitless	0.6	EPA		
IF-C	Intake Factor (Cancer)	days^-1	3.23E-09	calculated		
IF-N	Intake Factor (Non-cancer)	days^-1	2.26E-07	calculated		

See Table 3A - 3C for exposure assumptions and exposure varibles.

VALUES USED FOR INHALATION EXPOSURE CALCULATIONS
Amtrak, Wilmington Delaware

Medium:	Soil	Intake Equation:	
Exposure Medium:	Air	EC=(CA x (ET/24hrs/day) x EF x ED)/AT	
Receptor Population:	Excavation Worker		
Exposure Route:	Inhalation		
Receptor Age:	Adult		

Parameter Code	Parameter Definition	Units	Default Value	Rationale/ Reference	User Defined Value	Rationale/ Reference
CA	Chemical Concentration in Air	mg/m^3	(1,2)			
EF	Exposure Frequency	days/year	20	EPA, 1991		
ED	Exposure Duration	years	1	EPA, 1991		
ET	Exposure Time	hours/day	8	EPA, 1991		
AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989		
AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989		

See Table 3A - 3C for exposure assumptions and exposure varibles.

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Dermal) (CW) mg/kg	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) Dermal unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Absorption Factor (ABS)	Hazard Quotient (DADn/RfDd) Dermal unitless
Inorganics									
Aluminum	nm	1.02E+04	--	--	--	--	1.00E+00	--	--
Antimony	n	4.84E+01	--	--	--	--	6.00E-05	--	--
Arsenic	cR	3.42E+01	1.06E-08	1.50E+00	1.60E-08	7.44E-07	5.00E-03	3.00E-02	1.49E-04
Barium	nm	1.17E+02	--	--	--	--	1.40E-02	--	--
Beryllium	n	2.10E+00	--	--	--	--	3.50E-05	--	--
Cadmium (food, soil)	n	--	--	--	--	--	1.25E-05	1.00E-03	--
Chromium (Total)	nm	3.56E+01	--	--	--	--	1.95E-02	--	--
Cobalt	n	6.97E+00	--	--	--	--	3.00E-03	--	--
Copper	n	1.93E+02	--	--	--	--	1.00E-02	--	--
Iron	nm	3.48E+04	--	--	--	--	7.00E-01	--	--
Lead	L	3.14E+02	--	8.50E-03	--	--	--	--	--
Manganese	n	2.17E+02	--	--	--	--	9.60E-04	--	--
Mercury	ns	2.39E-01	--	--	--	--	1.60E-04	--	--
Nickel	n	2.81E+01	--	--	--	--	8.00E-04	--	--
Selenium	n	1.02E+01	--	--	--	--	5.00E-03	--	--
Silver	n	3.42E+00	--	--	--	--	2.00E-04	--	--
Thallium	n	--	--	--	--	--	4.00E-05	--	--
Vanadium	n	3.20E+01	--	--	--	--	2.60E-04	--	--
Zinc	nm	1.22E+02	--	--	--	--	3.00E-01	--	--
Volatile Organic Compounds (VOCs)									
1,4-Dichlorobenzene (para)	c	3.30E+02	--	5.40E-03	--	--	7.00E-02	--	--
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-02	--	--
Ethylbenzene	c	--	--	1.10E-02	--	--	5.00E-02	--	--
Hexachlorobenzene	c	1.50E+01	--	1.60E+00	--	--	1.00E-05	--	--
Toluene	ns	--	--	--	--	--	8.00E-01	--	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--	--
Total Xylenes	ns	4.70E-01	--	--	--	--	4.00E-01	--	--
Semivolatile Organic Compounds (SVOCs)									
Acenaphthene	n	1.01E-01	--	--	--	9.52E-09	2.00E-01	1.30E-01	4.76E-08
Acenaphthylene	--	5.60E-01	--	--	--	--	--	--	--
Anthracene	nm	3.85E-01	--	--	--	3.63E-08	1.00E+00	1.30E-01	3.63E-08
Benzo(a)pyrene	c	1.59E+00	2.13E-09	1.00E+00	2.13E-09	--	--	1.30E-01	--
Benzo(g,h,i)perylene	--	7.35E-01	--	--	--	--	--	--	--
Dibenzofuran	n	4.00E-01	--	--	--	8.70E-09	4.00E-03	3.00E-02	2.17E-06
Fluoranthene	n	1.85E+00	--	--	--	1.74E-07	1.00E-01	1.30E-01	1.74E-06
Fluorene	n	1.20E-01	--	--	--	1.13E-08	4.00E-01	1.30E-01	2.83E-08
2-Methylnaphthalene	n	9.99E-01	--	--	--	9.41E-08	4.00E-03	1.30E-01	2.35E-05
Naphthalene	c*	6.43E-01	--	--	--	6.06E-08	6.00E-01	1.30E-01	1.01E-07
Phenanthrene	--	1.95E+00	--	--	--	--	--	--	--
Pyrene	n	1.64E+00	--	--	--	1.55E-07	3.00E-01	1.30E-01	5.16E-07
Total Polychlorinated Biphenyls (PCBs)									
Total PCBs	c*	3.49E+03	5.05E-06	2.00E+00	1.01E-05	3.54E-04	3.00E-05	1.40E-01	1.18E+01
Total					1.0E-05				1.2E+01

Chemical of Potential Concern	Cancer Classification	Exposure Point Concentration (Oral) (CS) mg/kg	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) Oral unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Inorganics								
Aluminum	nm	1.02E+04	--	--	--	2.31E-03	1.00E+00	2.31E-03
Antimony	n	4.84E+01	--	--	--	1.09E-05	4.00E-04	2.73E-02
Arsenic	cR	3.42E+01	6.63E-08	1.50E+00	9.95E-08	4.64E-06	5.00E-03	9.29E-04
Barium	nm	1.17E+02	--	--	--	2.65E-05	2.00E-01	1.33E-04
Beryllium	n	2.10E+00	--	--	--	4.75E-07	5.00E-03	9.49E-05
Cadmium (food, soil)	n	--	--	--	--	--	5.00E-04	--
Chromium (Total)	nm	3.56E+01	--	--	--	8.05E-06	1.50E+00	5.36E-06
Cobalt	n	6.97E+00	--	--	--	1.58E-06	3.00E-03	5.25E-04
Copper	n	1.93E+02	--	--	--	4.37E-05	1.00E-02	4.37E-03
Iron	nm	3.48E+04	--	--	--	7.86E-03	7.00E-01	1.12E-02
Lead	L	3.14E+02	1.02E-06	8.50E-03	8.63E-09	--	--	--
Manganese	n	2.17E+02	--	--	--	4.91E-05	2.40E-02	2.05E-03
Mercury	ns	2.39E-01	--	--	--	5.40E-08	1.60E-04	3.38E-04
Nickel	n	2.81E+01	--	--	--	6.34E-06	2.00E-02	3.17E-04
Selenium	n	1.02E+01	--	--	--	2.31E-06	5.00E-03	4.61E-04
Silver	n	3.42E+00	--	--	--	7.73E-07	5.00E-03	1.55E-04
Thallium	n	--	--	--	--	--	4.00E-05	--
Vanadium	n	3.20E+01	--	--	--	7.23E-06	1.00E-02	7.23E-04
Zinc	nm	1.22E+02	--	--	--	2.75E-05	3.00E-01	9.15E-05
Volatile Organic Compounds (VOCs)								
1,4-Dichlorobenzene (para)	c	3.30E+02	1.07E-06	5.40E-03	5.75E-09	7.46E-05	7.00E-02	1.07E-03
cis-1,2-Dichloroethene	n	--	--	--	--	--	2.00E-02	--
Ethylbenzene	c	--	--	1.10E-02	--	--	5.00E-02	--
Hexachlorobenzene	c	1.50E+01	4.84E-08	1.60E+00	7.75E-08	3.39E-06	1.00E-05	3.39E-01
Toluene	ns	--	--	--	--	--	8.00E-01	--
Trichloroethene	c**	--	--	4.60E-02	--	--	5.00E-04	--
Total Xylenes	ns	4.70E-01	--	--	--	1.06E-07	4.00E-01	2.66E-07
Semivolatile Organic Compounds (SVOCs)								
Acenaphthene	n	1.01E-01	--	--	--	2.28E-08	2.00E-01	1.14E-07
Acenaphthylene	--	5.60E-01	--	--	--	--	--	--
Anthracene	nm	3.85E-01	--	--	--	8.70E-08	1.00E+00	8.70E-08
Benzo(a)pyrene	c	1.59E+00	5.12E-09	1.00E+00	5.12E-09	--	--	--
Benzo(g,h,i)perylene	--	7.35E-01	--	--	--	--	--	--
Dibenzofuran	n	4.00E-01	--	--	--	9.04E-08	4.00E-03	2.26E-05
Fluoranthene	n	1.85E+00	--	--	--	4.17E-07	1.00E-01	4.17E-06
Fluorene	n	1.20E-01	--	--	--	2.71E-08	4.00E-01	6.78E-08
2-Methylnaphthalene	n	9.99E-01	--	--	--	2.26E-07	4.00E-03	5.65E-05
Naphthalene	c*	6.43E-01	--	--	--	1.45E-07	6.00E-01	2.42E-07
Phenanthrene	--	1.95E+00	--	--	--	--	--	--
Pyrene	n	1.64E+00	--	--	--	3.72E-07	3.00E-01	1.24E-06
Total Polychlorinated Biphenyls (PCBs)								
Total PCBs	c*	3.49E+03	1.13E-05	2.00E+00	2.25E-05	7.88E-04	3.00E-05	2.63E+01
Total					2.3E-05			2.7E+01

Chemical of Potential Concern	Cancer Classification	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Exposure Concentration EC cancer mg/m3	Inhalation Unit Risk IUR $(mg/m^3)^{-1}$	Cancer Risk (EPC*IUR) unitless	Exposure Concentration EC noncancer mg/m3	Inhalation Reference Concentration (subchronic) RfCi mg/m^3	Hazard Quotient (EC/RfCi) unitless	Particulate Emission Factor (PEF) m3/kg	Volatilization Factor (VF) m3/kg	Total Cancer Risk	Total Hazard Quotient
Inorganics													
Aluminum	nm	1.02E+04	1.04E-03	--	--	--	1.90E-05	5.00E-03	3.80E-03	9.82E+06	--	--	6.10E-03
Antimony	n	4.84E+01	4.93E-06	--	--	--	--	--	--	9.82E+06	--	--	2.73E-02
Arsenic	cR	3.42E+01	3.49E-06	9.10E-10	4.30E+00	3.91E-09	6.37E-08	1.50E-05	4.25E-03	9.82E+06	--	1.19E-07	5.32E-03
Barium	nm	1.17E+02	1.20E-05	--	--	--	2.18E-07	5.00E-03	4.37E-05	9.82E+06	--	--	1.76E-04
Beryllium	n	2.10E+00	2.14E-07	5.58E-11	2.40E+00	1.34E-10	3.91E-09	2.00E-05	1.95E-04	9.82E+06	--	1.34E-10	2.90E-04
Cadmium (food, soil)	n	--	0.00E+00	--	1.80E+00	--	--	1.00E-05	--	9.82E+06	--	--	--
Chromium (Total)	nm	3.56E+01	3.63E-06	--	--	--	6.62E-08	5.00E-03	1.32E-05	9.82E+06	--	--	1.86E-05
Cobalt	n	6.97E+00	7.10E-07	1.85E-10	9.00E+00	1.67E-09	1.30E-08	2.00E-05	6.48E-04	9.82E+06	--	1.67E-09	1.17E-03
Copper	n	1.93E+02	1.97E-05	--	--	--	--	--	--	9.82E+06	--	--	4.37E-03
Iron	nm	3.48E+04	3.54E-03	--	--	--	--	--	--	9.82E+06	--	--	1.12E-02
Lead	L	3.14E+02	3.20E-05	8.35E-09	1.20E-02	1.00E-10	--	--	--	9.82E+06	--	8.73E-09	--
Manganese	n	2.17E+02	2.21E-05	--	--	--	4.04E-07	5.00E-05	8.08E-03	9.82E+06	--	--	1.01E-02
Mercury	ns	2.39E-01	1.42E-05	--	--	--	2.60E-07	3.00E-04	8.67E-04	9.82E+06	1.68E+04	--	1.21E-03
Nickel	n	2.81E+01	2.86E-06	7.45E-10	2.60E-01	1.94E-10	5.22E-08	2.00E-04	2.61E-04	9.82E+06	--	1.94E-10	5.78E-04
Selenium	n	1.02E+01	1.04E-06	--	--	--	1.90E-08	2.00E-02	9.49E-07	9.82E+06	--	--	4.62E-04
Silver	n	3.42E+00	3.48E-07	--	--	--	--	--	--	9.82E+06	--	--	1.55E-04
Thallium	n	--	0.00E+00	--	--	--	--	--	--	9.82E+06	--	--	--
Vanadium	n	3.20E+01	3.26E-06	--	--	--	5.95E-08	1.00E-04	5.95E-04	9.82E+06	--	--	1.32E-03
Zinc	nm	1.22E+02	1.24E-05	--	--	--	--	--	--	9.82E+06	--	--	9.15E-05
Volatile Organic Compounds (VOCs)													
1,4-Dichlorobenzene (para)	c	3.30E+02	--	--	1.10E-02	--	--	1.20E+00	--	9.82E+06	1.34E+04	5.75E-09	1.07E-03
cis-1,2-Dichloroethene	n	--	--	--	--	--	--	--	--	9.82E+06	2.06E+03	--	--
Ethylbenzene	c	--	--	--	2.50E-03	--	--	9.00E+00	--	9.82E+06	7.26E+03	--	--
Hexachlorobenzene	c	1.50E+01	--	--	4.60E-01	--	--	--	--	9.82E+06	8.71E+04	7.75E-08	3.39E-01
Toluene	ns	--	0.00E+00	--	--	--	--	5.00E+00	--	9.82E+06	3.02E+03	--	--
Trichloroethene	c**	--	--	--	4.10E-03	--	--	2.00E-03	--	9.82E+06	2.05E+03	--	--
Total Xylenes	ns	4.70E-01	8.57E-05	--	--	--	1.57E-06	4.00E-01	3.91E-06	9.82E+06	5.49E+03	--	4.18E-06
Semivolatile Organic Compounds (SVOCs)													
Acenaphthene	n	1.01E-01	5.71E-07	--	--	--	--	--	--	9.82E+06	1.80E+05	--	1.62E-07
Acenaphthylene	--	5.60E-01	5.70E-08	--	--	--	--	--	--	9.82E+06	--	--	--
Anthracene	nm	3.85E-01	6.13E-07	--	--	--	--	--	--	9.82E+06	6.71E+05	--	1.23E-07
Benzo(a)pyrene	c	1.59E+00	1.62E-07	4.21E-11	6.00E-01	2.53E-11	--	--	--	9.82E+06	--	7.28E-09	--
Benzo(g,h,i)perylene	--	7.35E-01	7.48E-08	--	--	--	--	--	--	9.82E+06	--	--	--
Dibenzofuran	n	4.00E-01	4.07E-08	--	--	--	--	--	--	9.82E+06	--	--	2.48E-05
Fluoranthene	n	1.85E+00	1.88E-07	--	--	--	--	--	--	9.82E+06	--	--	5.91E-06
Fluorene	n	1.20E-01	3.46E-07	--	--	--	--	--	--	9.82E+06	3.60E+05	--	9.61E-08
2-Methylnaphthalene	n	9.99E-01	1.35E-05	--	--	--	--	--	--	9.82E+06	7.43E+04	--	8.00E-05
Naphthalene	c*	6.43E-01	1.09E-05	2.84E-09	3.40E-02	9.66E-11	1.99E-07	3.00E-03	6.63E-05	9.82E+06	5.94E+04	9.66E-11	6.66E-05
Phenanthrene	--	1.95E+00	1.98E-07	--	--	--	--	--	--	9.82E+06	--	--	--
Pyrene	n	1.64E+00	7.06E-07	--	--	--	--	--	--	9.82E+06	3.05E+06	--	1.75E-06
Total Polychlorinated Biphenyls (PCBs)													
Total PCBs	c*	3.49E+03	5.47E-03	1.43E-06	5.70E-01	8.14E-07	--	--	--	9.82E+06	6.81E+05	3.34E-05	3.80E+01
Total						8.2E-07			1.9E-02			3.4E-05	3.8E+01