Appendix D - Risk Calculation Worksheets

WORKSHEET 7.1 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 1

Scenario Timeframe: Current/Future

Medium: Overburden Groundwater

Exposure Medium: Groundwater

Exposure Route: Dermal (Bath)

Receptor: Resident Child

Chemical Constituent of Potential Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Dermal) (CW) mg/cm3	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) unitless	Absorbed Dose per Event (DAevent) mg/cm2-event	Permeability Coefficient Kp cm/hr	Lag Time Per Event tau hr/event	Time To Reach Steady-State t* hour	Permeability Ratio B	Exposure Time (ET) hours/day	Fraction Absorbed FA
Arsenic	1.47E+01	1.47E-05	3.98E-07	1.50E+00	5.98E-07	4.65E-06	3.00E-04	3.00E-04	1.55E-02	1.10E-08	1.00E-03				0.75	
Lead	8.01E+00	8.01E-06				2.53E-07				6.01E-10	1.00E-04				0.75	
1,1-Dichloroethene	1.64E+02	1.64E-04				1.16E-03	5.00E-02	5.00E-02	2.32E-02	2.75E-06	1.16E-02	3.66E-01	8.79E-01	4.38E-02	0.75	1.0
cis-1,2-Dichloroethene	2.57E+03	2.57E-03				1.21E-02	1.00E-02	1.00E-01	1.21E+00	2.86E-05	7.67E-03	3.66E-01	8.80E-01	2.90E-02	0.75	1.0
trans-1,2-Dichloroethene	1.24E+02	1.24E-04				5.83E-04	2.00E-02	2.00E-01	2.91E-02	1.38E-06	7.67E-03	3.66E-01	8.80E-01	2.90E-02	0.75	1.0
Methylene chloride	1.93E+02	1.93E-04	3.32E-05	7.50E-03	2.49E-07	3.87E-04	6.00E-02	6.00E-02	6.45E-03	9.17E-07	3.54E-03	3.14E-01	7.53E-01	1.26E-02	0.75	1.0
Tetrachloroethene	2.93E+03	2.93E-03	7.84E-03	5.40E-01	4.23E-03	9.15E-02	1.00E-02	1.00E-02	9.15E+00	2.17E-04	3.28E-02	8.91E-01	2.14E+00	1.62E-01	0.75	1.0
Trichloroethene	3.32E+03	3.32E-03	2.50E-03	4.00E-01	1.00E-03	2.92E-02	3.00E-04	3.00E-04	9.74E+01	6.92E-05	1.15E-02	5.72E-01	1.37E+00	5.08E-02	0.75	1.0
Vinyl Chloride	2.29E+02	2.29E-04	5.64E-05	1.50E+00	8.45E-05	6.57E-04	3.00E-03	3.00E-03	2.19E-01	1.56E-06	5.59E-03	2.35E-01	5.64E-01	1.70E-02	0.75	1.0
Bis(2-ethylhexyl)phthalate	7.12E+00	7.12E-06	4.80E-05	1.40E-02	6.72E-07	5.60E-04	2.00E-02	2.00E-02	2.80E-02	1.33E-06	2.42E-02	1.62E+01	3.90E+01	1.84E-01	0.75	0.8
Total					5.32E-03				1.08E+02							

WORKSHEET 7.2 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 1

Scenario Timeframe: Current/Future

Medium: Overburden Groundwater

Exposure Medium: Groundwater

Exposure Route: Dermal (Tap)

Receptor: Resident Child

Chemical Constituent of Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Dermal) (CW) mg/cm3	Dermally Absorbed Dos (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) unitless	Absorbed Dose per Event (DAevent) mg/cm2-event	Permeability Coefficient Kp cm/hr	Lag Time Per Event tau hr/event	Time To Reach Steady-State t* hour	Permeability Ratio B	Exposure Time (ET) hours/day	Fraction Absorbed FA
Arsenic	1.47E+01	1.47E-05	2.90E-08	1.50E+00	4.35E-08	3.38E-07	3.00E-04	3.00E-04	1.13E-03	1.47E-08	1.00E-03				1	
Lead	8.01E+00	8.01E-06				1.84E-08				8.01E-10	1.00E-04				1	
1,1-Dichloroethene	1.64E+02	1.64E-04				7.54E-05	5.00E-02	5.00E-02	1.51E-03	3.27E-06	1.16E-02	3.66E-01	8.79E-01	4.38E-02	1	1.0
cis-1,2-Dichloroethene	2.57E+03	2.57E-03				7.84E-04	1.00E-02	1.00E-01	7.84E-02	3.41E-05	7.67E-03	3.66E-01	8.80E-01	2.90E-02	1	1.0
trans-1,2-Dichloroethene	1.24E+02	1.24E-04				3.79E-05	2.00E-02	2.00E-01	1.89E-03	1.64E-06	7.67E-03	3.66E-01	8.80E-01	2.90E-02	1	1.0
Methylene chloride	1.93E+02	1.93E-04	2.19E-06	7.50E-03	1.64E-08	2.55E-05	6.00E-02	6.00E-02	4.26E-04	1.11E-06	3.54E-03	3.14E-01	7.53E-01	1.26E-02	1	1.0
Tetrachloroethene	2.93E+03	2.93E-03	4.94E-04	5.40E-01	2.67E-04	5.76E-03	1.00E-02	1.00E-02	5.76E-01	2.50E-04	3.28E-02	8.91E-01	2.14E+00	1.62E-01	1	1.0
Trichloroethene	3.32E+03	3.32E-03	1.58E-04	4.00E-01	6.31E-05	1.84E-03	3.00E-04	3.00E-04	6.13E+00	8.00E-05	1.15E-02	5.72E-01	1.37E+00	5.08E-02	1	1.0
Vinyl Chloride	2.29E+02	2.29E-04	3.70E-06	1.50E+00	5.54E-06	4.31E-05	3.00E-03	3.00E-03	1.44E-02	1.87E-06	5.59E-03	2.35E-01	5.64E-01	1.70E-02	1	1.0
Bis(2-ethylhexyl)phthalate	7.12E+00	7.12E-06	3.02E-06	1.40E-02	4.23E-08	3.53E-05	2.00E-02	2.00E-02	1.76E-03	1.53E-06	2.42E-02	1.62E+01	3.90E+01	1.84E-01	1	0.8
Total					3.35E-04				6.81E+00							

WORKSHEET 7.3 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 1

Scenario Timeframe: Current/Future

Medium: Overburden Groundwater

Exposure Medium: Groundwater

Exposure Route: Dermal (Shower)

Receptor: Resident Adult

Chemical Constituent of Potential Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Dermal) (CW) mg/cm3	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) unitless	Absorbed Dose per Event (DAevent) mg/cm2-event	Permeability Coefficient Kp cm/hr	Lag Time Per Event tau hr/event	Time To Reach Steady-State t* hour	Permeability Ratio B	Exposure Time (ET) hours/day	Fraction Absorbed FA
Arsenic	1.47E+01	1.47E-05	7.24E-07	1.50E+00	1.09E-06	2.11E-06	3.00E-04	3.00E-04	7.04E-03	8.56E-09	1.00E-03				0.583	
Lead	8.01E+00	8.01E-06				1.15E-07				4.67E-10	1.00E-04				0.583	
1,1-Dichloroethene	1.64E+02	1.64E-04				5.99E-04	5.00E-02	5.00E-02	1.20E-02	2.43E-06	1.16E-02	3.66E-01	8.79E-01	4.38E-02	0.583	1.0
cis-1,2-Dichloroethene	2.57E+03	2.57E-03				6.22E-03	1.00E-02	1.00E-01	6.22E-01	2.52E-05	7.67E-03	3.66E-01	8.80E-01	2.90E-02	0.583	1.0
trans-1,2-Dichloroethene	1.24E+02	1.24E-04				3.00E-04	2.00E-02	2.00E-01	1.50E-02	1.22E-06	7.67E-03	3.66E-01	8.80E-01	2.90E-02	0.583	1.0
Methylene chloride	1.93E+02	1.93E-04	6.83E-05	7.50E-03	5.12E-07	1.99E-04	6.00E-02	6.00E-02	3.32E-03	8.08E-07	3.54E-03	3.14E-01	7.53E-01	1.26E-02	0.583	1.0
Tetrachloroethene	2.93E+03	2.93E-03	1.62E-02	5.40E-01	8.73E-03	4.71E-02	1.00E-02	1.00E-02	4.71E+00	1.91E-04	3.28E-02	8.91E-01	2.14E+00	1.62E-01	0.583	1.0
Trichloroethene	3.32E+03	3.32E-03	5.16E-03	4.00E-01	2.06E-03	1.51E-02	3.00E-04	3.00E-04	5.02E+01	6.11E-05	1.15E-02	5.72E-01	1.37E+00	5.08E-02	0.583	1.0
Vinyl Chloride	2.29E+02	2.29E-04	1.14E-04	1.50E+00	1.71E-04	3.32E-04	3.00E-03	3.00E-03	1.11E-01	1.35E-06	5.59E-03	2.35E-01	5.64E-01	1.70E-02	0.583	1.0
Bis(2-ethylhexyl)phthalate	7.12E+00	7.12E-06	9.89E-05	1.40E-02	1.39E-06	2.89E-04	2.00E-02	2.00E-02	1.44E-02	1.17E-06	2.42E-02	1.62E+01	3.90E+01	1.84E-01	0.583	0.8
Total					1.10E-02				5.57E+01							

WORKSHEET 7.4 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 1

Scenario Timeframe: Current/Future

Medium: Overburden Groundwater

Exposure Medium: Groundwater

Exposure Route: Dermal (Tap)

Receptor: Resident Adult

Chemical Constituent of Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Dermal) (CW) mg/cm3	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) unitless	Absorbed Dose per Event (DAevent) mg/cm2-event	Permeability Coefficient Kp cm/hr	Lag Time Per Event tau hr/event	Time To Reach Steady-State t* hour	Permeability Ratio B	Exposure Time (ET) hours/day	Fraction Absorbed FA
Arsenic	1.47E+01	1.47E-05	5.52E-08	1.50E+00	8.28E-08	1.61E-07	3.00E-04	3.00E-04	5.37E-04	1.47E-08	1.00E-03				1	
Lead	8.01E+00	8.01E-06				8.78E-09				8.01E-10	1.00E-04				1	
1,1-Dichloroethene	1.64E+02	1.64E-04				3.59E-05	5.00E-02	5.00E-02	7.18E-04	3.27E-06	1.16E-02	3.66E-01	8.79E-01	4.38E-02	1	1.0
cis-1,2-Dichloroethene	2.57E+03	2.57E-03				3.73E-04	1.00E-02	1.00E-01	3.73E-02	3.41E-05	7.67E-03	3.66E-01	8.80E-01	2.90E-02	1	1.0
trans-1,2-Dichloroethene	1.24E+02	1.24E-04				1.80E-05	2.00E-02	2.00E-01	9.01E-04	1.64E-06	7.67E-03	3.66E-01	8.80E-01	2.90E-02	1	1.0
Methylene chloride	1.93E+02	1.93E-04	4.17E-06	7.50E-03	3.13E-08	1.22E-05	6.00E-02	6.00E-02	2.03E-04	1.11E-06	3.54E-03	3.14E-01	7.53E-01	1.26E-02	1	1.0
Tetrachloroethene	2.93E+03	2.93E-03	9.41E-04	5.40E-01	5.08E-04	2.74E-03	1.00E-02	1.00E-02	2.74E-01	2.50E-04	3.28E-02	8.91E-01	2.14E+00	1.62E-01	1	1.0
Trichloroethene	3.32E+03	3.32E-03	3.00E-04	4.00E-01	1.20E-04	8.76E-04	3.00E-04	3.00E-04	2.92E+00	8.00E-05	1.15E-02	5.72E-01	1.37E+00	5.08E-02	1	1.0
Vinyl Chloride	2.29E+02	2.29E-04	7.04E-06	1.50E+00	1.06E-05	2.05E-05	3.00E-03	3.00E-03	6.84E-03	1.87E-06	5.59E-03	2.35E-01	5.64E-01	1.70E-02	1	1.0
Bis(2-ethylhexyl)phthalate	7.12E+00	7.12E-06	5.76E-06	1.40E-02	8.06E-08	1.68E-05	2.00E-02	2.00E-02	8.40E-04	1.53E-06	2.42E-02	1.62E+01	3.90E+01	1.84E-01	1	0.8
Total					6.39E-04				3.24E+00							

WORKSHEET 7.5 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 1

Scenario Timeframe: Current/Future

Medium: Overburden Groundwater

Exposure Medium: Groundwater

Exposure Route: Ingestion

Receptor: Resident Child

Chemical Constituent of Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Oral) (CW) mg/L	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) unitless
Arsenic	1.47E+01	1.47E-02	8.05E-05	1.50E+00	1.21E-04	9.39E-04	3.00E-04	3.00E-04	3.13E+00
Lead	8.01E+00	8.01E-03							
1,1-Dichloroethene	1.64E+02	1.64E-01				1.05E-02	5.00E-02	5.00E-02	2.10E-01
cis-1,2-Dichloroethene	2.57E+03	2.57E+00				1.65E-01	1.00E-02	1.00E-01	1.65E+01
trans-1,2-Dichloroethene	1.24E+02	1.24E-01				7.94E-03	2.00E-02	2.00E-01	3.97E-01
Methylene chloride	1.93E+02	1.93E-01	1.06E-03	7.50E-03	7.93E-06	1.23E-02	6.00E-02	6.00E-02	2.06E-01
Tetrachloroethene	2.93E+03	2.93E+00	1.61E-02	5.40E-01	8.67E-03	1.87E-01	1.00E-02	1.00E-02	1.87E+01
Trichloroethene	3.32E+03	3.32E+00	1.82E-02	4.00E-01	7.28E-03	2.12E-01	3.00E-04	3.00E-04	7.08E+02
Vinyl Chloride	2.29E+02	2.29E-01	1.26E-03	1.50E+00	1.88E-03	1.47E-02	3.00E-03	3.00E-03	4.88E+00
Bis(2-ethylhexyl)phthalate	7.12E+00	7.12E-03	3.90E-05	1.40E-02	5.46E-07	4.55E-04	2.00E-02	2.00E-02	2.28E-02
Total					1.80E-02				7.52E+02

WORKSHEET 7.6 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 1
Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Route: Ingestion
Receptor: Resident Adult

Chemical Constituent of Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Oral) (CW) mg/L	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) unitless
Arsenic	1.47E+01	1.47E-02	1.38E-04	1.50E+00	2.07E-04	4.02E-04	3.00E-04	3.00E-04	1.34E+00
Lead	8.01E+00	8.01E-03							
1,1-Dichloroethene	1.64E+02	1.64E-01				4.50E-03	5.00E-02	5.00E-02	9.01E-02
cis-1,2-Dichloroethene	2.57E+03	2.57E+00				7.05E-02	1.00E-02	1.00E-01	7.05E+00
trans-1,2-Dichloroethene	1.24E+02	1.24E-01				3.40E-03	2.00E-02	2.00E-01	1.70E-01
Methylene chloride	1.93E+02	1.93E-01	1.81E-03	7.50E-03	1.36E-05	5.28E-03	6.00E-02	6.00E-02	8.81E-02
Tetrachloroethene	2.93E+03	2.93E+00	2.75E-02	5.40E-01	1.49E-02	8.03E-02	1.00E-02	1.00E-02	8.03E+00
Trichloroethene	3.32E+03	3.32E+00	3.12E-02	4.00E-01	1.25E-02	9.10E-02	3.00E-04	3.00E-04	3.03E+02
Vinyl Chloride	2.29E+02	2.29E-01	2.15E-03	1.50E+00	3.23E-03	6.28E-03	3.00E-03	3.00E-03	2.09E+00
Bis(2-ethylhexyl)phthalate	7.12E+00	7.12E-03	6.69E-05	1.40E-02	9.36E-07	1.95E-04	2.00E-02	2.00E-02	9.75E-03
Total					3.08E-02				3.22E+02

WORKSHEET 7.7 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 1

Scenario Timeframe: Current/Future

Medium: Overburden Groundwater

Exposure Medium: Indoor Air - Vapors

Exposure Route: Inhalation (Bath)

Receptor: Resident Child

Chemical Constituent of Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) unitless	Henry's Law H' L-water/L-air
Arsenic	1.47E+01			1.50E+01					0	
Lead	8.01E+00								0	
1,1-Dichloroethene	1.64E+02	1.76E+02				3.06E+00	5.70E-02	5.70E-02	5.36E+01	1.07E+00
cis-1,2-Dichloroethene	2.57E+03	4.30E+02				7.47E+00	1.00E-01	1.00E-01	7.47E+01	1.67E-01
trans-1,2-Dichloroethene	1.24E+02	4.78E+01				8.31E-01	2.00E-03	2.00E-03	4.16E+02	3.85E-01
Methylene chloride	1.93E+02	1.73E+01	2.58E-02	1.60E-03	4.13E-05	3.01E-01	8.60E-01	8.60E-01	3.50E-01	8.98E-02
Tetrachloroethene	2.93E+03	2.21E+03	3.29E+00	2.10E-02	6.91E-02	3.84E+01	1.00E-02	1.00E-02	3.84E+03	7.54E-01
Trichloroethene	3.32E+03	1.40E+03	2.09E+00	4.00E-01	8.35E-01	2.44E+01	1.00E-02	1.00E-02	2.44E+03	4.22E-01
Vinyl Chloride	2.29E+02	2.54E+02	3.79E-01	3.10E-02	1.18E-02	4.42E+00	2.90E-02	2.90E-02	1.52E+02	1.11E+00
Bis(2-ethylhexyl)phthalate	7.12E+00	2.98E-05								4.18E-06
Total					9.16E-01				6.97E+03	

WORKSHEET 7.8 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 1

Scenario Timeframe: Current/Future

Medium: Groundwater

Exposure Medium: Indoor Air - Vapors

Exposure Route: Inhalation (Shower)

Receptor: Resident Adult

Chemical Constituent of Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) unitless	Henry's Law H' L-water/L-air
Arsenic	1.47E+01			1.50E+01					0	
Lead	8.01E+00								0	
1,1-Dichloroethene	1.64E+02	1.76E+02				7.72E-01	5.70E-02	5.70E-02	13.55156043	1.07
cis-1,2-Dichloroethene	2.57E+03	4.30E+02				1.89E+00	1.00E-01	1.00E-01	18.87875239	0.167
trans-1,2-Dichloroethene	1.24E+02	4.78E+01				2.10E-01	2.00E-03	2.00E-03	105.0701213	0.385
Methylene chloride	1.93E+02	1.73E+01	2.61E-02	1.60E-03	4.17E-05	7.61E-02	8.60E-01	8.60E-01	0.088467395	0.0898
Tetrachloroethene	2.93E+03	2.21E+03	3.33E+00	2.10E-02	6.98E-02	9.70E+00	1.00E-02	1.00E-02	970.1194134	0.754
Trichloroethene	3.32E+03	1.40E+03	2.11E+00	4.00E-01	8.45E-01	6.16E+00	1.00E-02	1.00E-02	615.8661479	0.422
Vinyl Chloride	2.29E+02	2.54E+02	3.83E-01	3.10E-02	1.19E-02	1.12E+00	2.90E-02	2.90E-02	38.53805394	1.11
Bis(2-ethylhexyl)phthalate	7.12E+00	2.98E-05								4.18E-06
Total					9.26E-01				1.76E+03	

WORKSHEET 7.9 CALCULATION OF RISK
Westinghouse Electric Co. Hematite Site

EPC Set: 1
Scenario Timeframe: Current/Future
Medium: Overburden Groundwater
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Resident Child

Chemical Constituent of Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Canc Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) unitless	Volatization Factor VF (mg/m3-air)/ (mg/L-water)
Arsenic	1.91E+01			1.50E+01					0	
Lead	1.07E+01								0	
1,1-Dichloroethene	2.20E+02	1.52E-04				1.97E-05	5.70E-02	5.70E-02	3.45E-04	6.91E-04
cis-1,2-Dichloroethene	3.70E+03	1.61E-03				2.08E-04	1.00E-01	1.00E-01	2.08E-03	4.36E-04
trans-1,2-Dichloroethene	1.54E+02	7.32E-05				9.44E-06	2.00E-03	2.00E-03	4.72E-03	4.75E-04
Methylene chloride	2.63E+02	1.10E-04	1.22E-06	1.60E-03	1.95E-09	1.42E-05	8.60E-01	8.60E-01	1.65E-05	4.19E-04
Tetrachloroethene	4.19E+03	2.35E-03	2.60E-05	2.10E-02	5.45E-07	3.03E-04	1.00E-02	1.00E-02	3.03E-02	5.60E-04
Trichloroethene	3.74E+03	1.85E-03	2.04E-05	4.00E-01	8.18E-06	2.39E-04	1.00E-02	1.00E-02	2.39E-02	4.94E-04
Vinyl Chloride	2.75E+02	2.08E-04	2.30E-06	3.10E-02	7.14E-08	2.69E-05	2.90E-02	2.90E-02	9.26E-04	7.58E-04
Bis(2-ethylhexyl)phthalate	7.12E+00	2.54E-06							0	3.57E-04
Total					8.80E-06				6.22E-02	

WORKSHEET 7.10 CALCULATION OF RISK
Westinghouse Electric Co. Hematite Site

EPC Set: 1
Scenario Timeframe: Current/Future
Medium: Overburden Groundwater
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Resident Adult

Chemical Constituent of Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	halation Canc Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) unitless	Volatization Factor VF (mg/m3-air)/ (mg/L-water)
Arsenic	1.91E+01			1.50E+01					0	
Lead	1.07E+01								0	
1,1-Dichloroethene	2.20E+02	1.52E-04				3.47E-06	5.70E-02	5.70E-02	6.10E-05	6.91E-04
cis-1,2-Dichloroethene	3.70E+03	1.61E-03				3.68E-05	1.00E-01	1.00E-01	3.68E-04	4.36E-04
trans-1,2-Dichloroethene	1.54E+02	7.32E-05				1.67E-06	2.00E-03	2.00E-03	8.35E-04	4.75E-04
Methylene chloride	2.63E+02	1.10E-04	8.60E-07	1.60E-03	1.38E-09	2.51E-06	8.60E-01	8.60E-01	2.92E-06	4.19E-04
Tetrachloroethene	4.19E+03	2.35E-03	1.84E-05	2.10E-02	3.86E-07	5.36E-05	1.00E-02	1.00E-02	5.36E-03	5.60E-04
Trichloroethene	3.74E+03	1.85E-03	1.45E-05	4.00E-01	5.78E-06	4.22E-05	1.00E-02	1.00E-02	4.22E-03	4.94E-04
Vinyl Chloride	2.75E+02	2.08E-04	1.63E-06	3.10E-02	5.05E-08	4.75E-06	2.90E-02	2.90E-02	1.64E-04	7.58E-04
Bis(2-ethylhexyl)phthalate	7.12E+00	2.54E-06							0	3.57E-04
Total					6.22E-06				1.10E-02	

WORKSHEET 7.11 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 1
Scenario Timeframe: Current/Future
Medium: Overburden Groundwater
Exposure Medium: Groundwater
Exposure Route: Dermal
Receptor: Com. & Ind. Worker

Chemical Constituent of Potential Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Dermal) (CW) mg/cm3	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) unitless	Absorbed Dose per Event (DAevent) mg/cm2-event	Permeability Coefficient Kp cm/hr	Lag Time Per Event tau hr/event	Time To Reach Steady-State t* hour	Permeability Ratio B	Exposure Time (ET) hours/day	Fraction Absorbed FA
Arsenic	1.47E+01	1.47E-05	4.11E-08	1.50E+00	6.16E-08	1.15E-07	3.00E-04	3.00E-04	3.83E-04	1.47E-08	1.00E-03				1	
Lead	8.01E+00	8.01E-06				6.27E-09				8.01E-10	1.00E-04				1	
1,1-Dichloroethene	1.64E+02	1.64E-04				2.56E-05	5.00E-02		5.13E-04	3.27E-06	1.16E-02	3.66E-01	8.79E-01	4.38E-02	1	1.0
cis-1,2-Dichloroethene	2.57E+03	2.57E-03				2.67E-04	1.00E-02	5.00E-02	2.67E-02	3.41E-05	7.67E-03	3.66E-01	8.80E-01	2.90E-02	1	1.0
trans-1,2-Dichloroethene	1.24E+02	1.24E-04				1.29E-05	2.00E-02	1.00E-01	6.44E-04	1.64E-06	7.67E-03	3.66E-01	8.80E-01	2.90E-02	1	1.0
Methylene chloride	1.93E+02	1.93E-04	3.10E-06	7.50E-03	2.33E-08	8.69E-06	6.00E-02	2.00E-01	1.45E-04	1.11E-06	3.54E-03	3.14E-01	7.53E-01	1.26E-02	1	1.0
Tetrachloroethene	2.93E+03	2.93E-03	7.00E-04	5.40E-01	3.78E-04	1.96E-03	1.00E-02	6.00E-02	1.96E-01	2.50E-04	3.28E-02	8.91E-01	2.14E+00	1.62E-01	1	1.0
Trichloroethene	3.32E+03	3.32E-03	2.24E-04	4.00E-01	8.94E-05	6.26E-04	3.00E-04	1.00E-02	2.09E+00	8.00E-05	1.15E-02	5.72E-01	1.37E+00	5.08E-02	1	1.0
Vinyl chloride	2.29E+02	2.29E-04	5.24E-06	7.20E-01	3.77E-06	1.47E-05	3.00E-03	3.00E-03	4.89E-03	1.87E-06	5.59E-03	2.35E-01	5.64E-01	1.70E-02	1	1.0
Bis(2-ethylhexyl)phthalate	7.12E+00	7.12E-06	4.29E-06	1.40E-02	6.00E-08	1.20E-05	2.00E-02	2.00E-02	6.00E-04	1.53E-06	2.42E-02	1.62E+01	3.90E+01	1.84E-01	1	0.8
Total					4.71E-04				2.32E+00							

WORKSHEET 7.12 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 1
Scenario Timeframe: Current/Future
Medium: Overburden Groundwater
Exposure Medium: Groundwater
Exposure Route: Ingestion
Receptor: Com. & Ind. Worker

Chemical Constituent of Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Oral) (CW) mg/L	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) unitless
Arsenic	1.47E+01	1.47E-02	5.13E-05	1.50E+00	7.70E-05	1.44E-04	3.00E-04	3.00E-04	4.79E-01
Lead	8.01E+00	8.01E-03							
1,1-Dichloroethene	1.64E+02	1.64E-01				1.61E-03	5.00E-02	5.00E-02	3.22E-02
cis-1,2-Dichloroethene	2.57E+03	2.57E+00				2.52E-02	1.00E-02	1.00E-01	2.52E+00
trans-1,2-Dichloroethene	1.24E+02	1.24E-01				1.22E-03	2.00E-02	2.00E-01	6.08E-02
Methylene chloride	1.93E+02	1.93E-01	6.74E-04	7.50E-03	5.06E-06	1.89E-03	6.00E-02	6.00E-02	3.15E-02
Tetrachloroethene	2.93E+03	2.93E+00	1.02E-02	5.40E-01	5.53E-03	2.87E-02	1.00E-02	1.00E-02	2.87E+00
Trichloroethene	3.32E+03	3.32E+00	1.16E-02	4.00E-01	4.64E-03	3.25E-02	3.00E-04	3.00E-04	1.08E+02
Vinyl chloride	2.29E+02	2.29E-01	8.01E-04	7.20E-01	5.77E-04	2.24E-03	3.00E-03	3.00E-03	7.48E-01
Bis(2-ethylhexyl)phthalate	7.12E+00	7.12E-03	2.49E-05	1.40E-02	3.48E-07	6.97E-05	2.00E-02	2.00E-02	3.48E-03
Total					1.08E-02				1.15E+02

WORKSHEET 7.13 CALCULATION OF RISK
Westinghouse Electric Co. Hematite Site

EPC Set: 1
Scenario Timeframe: Current/Future
Medium: Overburden Groundwater
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Com. & Ind. Worker

Chemical Constituent of Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	halation Canc Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) unitless	Volatization Factor VF (mg/m3-air)/ (mg/L-water)
Arsenic	1.91E+01			1.50E+01					0	
Lead	1.07E+01								0	
1,1-Dichloroethene	2.20E+02	1.52E-04				1.86E-06	5.70E-02	5.70E-02	3.27E-05	6.91E-04
cis-1,2-Dichloroethene	3.70E+03	1.61E-03				1.97E-05	1.00E-01	1.00E-01	1.97E-04	4.36E-04
trans-1,2-Dichloroethene	1.54E+02	7.32E-05				8.95E-07	2.00E-03	2.00E-03	4.47E-04	4.75E-04
Methylene chloride	2.63E+02	1.10E-04	4.80E-07	1.60E-03	7.68E-10	1.34E-06	8.60E-01	8.60E-01	1.56E-06	4.19E-04
Tetrachloroethene	4.19E+03	2.35E-03	1.02E-05	2.10E-02	2.15E-07	2.87E-05	1.00E-02	1.00E-02	2.87E-03	5.60E-04
Trichloroethene	3.74E+03	1.85E-03	8.07E-06	4.00E-01	3.23E-06	2.26E-05	1.00E-02	1.00E-02	2.26E-03	4.94E-04
Vinyl Chloride	2.75E+02	2.08E-04	9.09E-07	1.50E-02	1.36E-08	2.54E-06	2.90E-02	2.90E-02	8.77E-05	7.58E-04
Bis(2-ethylhexyl)phthalate	7.12E+00	2.54E-06							0	3.57E-04
Total					3.46E-06				5.90E-03	

WORKSHEET 7.14 CALCULATION OF RISK
Westinghouse Electric Co. Hematite Site

EPC Set: 1
Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Route: Dermal
Receptor: Construction Worker

Chemical Constituent of Potential Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Dermal) (CW) mg/cm3	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) unitless	Absorbed Dose per Event (DAevent) mg/cm2-event	Permeability Coefficient Kp cm/hr	Lag Time Per Event tau hr/event	Time To Reach Steady-State t* hour	Permeability Ratio B	Exposure Time (ET) hours/day	Fraction Absorbed FA
Arsenic	1.47E+01	1.47E-05	6.10E-09	1.50E+00	9.15E-09	4.27E-07	3.00E-04	3.00E-04	1.42E-03	1.47E-08	1.00E-03				1	1.0
Lead	8.01E+00	8.01E-06				2.33E-08				8.01E-10	1.00E-04				1	1.0
1,1-Dichloroethene	1.64E+02	1.64E-04				9.52E-05	5.00E-02	5.00E-02	1.90E-03	3.27E-06	1.16E-02	3.66E-01	8.79E-01	4.38E-02	1	1.0
cis-1,2-Dichloroethene	2.57E+03	2.57E-03				9.90E-04	1.00E-02	1.00E-01	9.90E-03	3.41E-05	7.67E-03	3.66E-01	8.80E-01	2.90E-02	1	1.0
trans-1,2-Dichloroethene	1.24E+02	1.24E-04				4.78E-05	2.00E-02	2.00E-01	2.39E-04	1.64E-06	7.67E-03	3.66E-01	8.80E-01	2.90E-02	1	1.0
Methylene chloride	1.93E+02	1.93E-04	4.61E-07	7.50E-03	3.46E-09	3.22E-05	6.00E-02	6.00E-02	5.37E-04	1.11E-06	3.54E-03	3.14E-01	7.53E-01	1.26E-02	1	1.0
Tetrachloroethene	2.93E+03	2.93E-03	1.04E-04	5.40E-01	5.61E-05	7.28E-03	1.00E-02	1.00E-02	7.28E-01	2.50E-04	3.28E-02	8.91E-01	2.14E+00	1.62E-01	1	1.0
Trichloroethene	3.32E+03	3.32E-03	3.32E-05	4.00E-01	1.33E-05	2.32E-03	3.00E-04	3.00E-04	7.75E+00	8.00E-05	1.15E-02	5.72E-01	1.37E+00	5.08E-02	1	1.0
Vinyl chloride	2.29E+02	2.29E-04	7.78E-07	7.20E-01	5.60E-07	5.44E-05	3.00E-03	3.00E-03	1.81E-02	1.87E-06	5.59E-03	2.35E-01	5.64E-01	1.70E-02	1	1.0
Bis(2-ethylhexyl)phthalate	7.12E+00	7.12E-06	6.36E-07	1.40E-02	8.91E-09	4.45E-05	2.00E-02	2.00E-02	2.23E-03	1.53E-06	2.42E-02	1.62E+01	3.90E+01	1.84E-01	1	0.8
Total					7.00E-05				8.51E+00							

WORKSHEET 7.15 CALCULATION OF RISK
Westinghouse Electric Co. Hematite Site

EPC Set: 1
Scenario Timeframe: Current/Future
Medium: Overburden Groundwater
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Construction Worker

Chemical Constituents of Potential Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) unitless
Arsenic	1.47E+01			1.50E+01					0
Lead	8.01E+00								0
1,1-Dichloroethene	1.64E+02	1.14E-04				1.50E-05	5.70E-02	5.70E-02	2.63E-04
cis-1,2-Dichloroethene	2.57E+03	1.12E-03				1.48E-04	1.00E-01	1.00E-01	1.48E-03
trans-1,2-Dichloroethene	1.24E+02	5.90E-05				7.79E-06	2.00E-03	2.00E-03	3.90E-03
Methylene chloride	1.93E+02	8.07E-05	1.52E-07	1.60E-03	2.44E-10	1.07E-05	8.60E-01	8.60E-01	1.24E-05
Tetrachloroethene	2.93E+03	1.64E-03	3.09E-06	2.10E-02	6.50E-08	2.17E-04	1.00E-02	1.00E-02	2.17E-02
Trichloroethene	3.32E+03	1.64E-03	3.10E-06	4.00E-01	1.24E-06	2.17E-04	1.00E-02	1.00E-02	2.17E-02
Vinyl chloride	2.29E+02	1.74E-04	3.28E-07	1.50E-02	4.92E-09	2.29E-05	2.90E-02	2.90E-02	7.91E-04
Bis(2-ethylhexyl)phthalate	7.12E+00	2.54E-06							0
Total					1.31E-06				4.98E-02

WORKSHEET 7.16 CALCULATION OF RISK
Westinghouse Electric Co. Hematite Site

EPC Set: 1
Scenario Timeframe: Future
Medium: Overburden Groundwater
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Recreational Child

Chemical Constituents of Potential Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) unitless
Arsenic	1.47E+01			1.50E+01					0
Lead	8.01E+00								0
1,1-Dichloroethene	1.64E+02	1.14E-04				1.22E-06	5.70E-02	5.70E-02	2.13E-05
cis-1,2-Dichloroethene	2.57E+03	1.12E-03				1.20E-05	1.00E-01	1.00E-01	1.20E-04
trans-1,2-Dichloroethene	1.24E+02	5.90E-05				6.32E-07	2.00E-03	2.00E-03	3.16E-04
Methylene chloride	1.93E+02	8.07E-05	7.41E-08	1.60E-03	1.19E-10	8.65E-07	8.60E-01	8.60E-01	1.01E-06
Tetrachloroethene	2.93E+03	1.64E-03	1.51E-06	2.10E-02	3.16E-08	1.76E-05	1.00E-02	1.00E-02	1.76E-03
Trichloroethene	3.32E+03	1.64E-03	1.51E-06	4.00E-01	6.03E-07	1.76E-05	1.00E-02	1.00E-02	1.76E-03
Vinyl chloride	2.29E+02	1.74E-04	1.60E-07	3.10E-02	4.95E-09	1.86E-06	2.90E-02	2.90E-02	6.42E-05
Bis(2-ethylhexyl)phthalate	7.12E+00	2.54E-06							0
Total					6.40E-07				4.04E-03

WORKSHEET 7.17 CALCULATION OF RISK
Westinghouse Electric Co. Hematite Site

EPC Set: 1
Scenario Timeframe: Future
Medium: Overburden Groundwater
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Recreational Adult

Chemical Constituents of Potential Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) unitless
Arsenic	1.47E+01			1.50E+01					0
Lead	8.01E+00								0
1,1-Dichloroethene	1.64E+02	1.14E-04				1.00E-06	5.70E-02	5.70E-02	1.75E-05
cis-1,2-Dichloroethene	2.57E+03	1.12E-03				9.89E-06	1.00E-01	1.00E-01	9.89E-05
trans-1,2-Dichloroethene	1.24E+02	5.90E-05				5.19E-07	2.00E-03	2.00E-03	2.60E-04
Methylene chloride	1.93E+02	8.07E-05	2.44E-07	1.60E-03	3.90E-10	7.11E-07	8.60E-01	8.60E-01	8.27E-07
Tetrachloroethene	2.93E+03	1.64E-03	4.95E-06	2.10E-02	1.04E-07	1.44E-05	1.00E-02	1.00E-02	1.44E-03
Trichloroethene	3.32E+03	1.64E-03	4.96E-06	4.00E-01	1.98E-06	1.45E-05	1.00E-02	1.00E-02	1.45E-03
Vinyl chloride	2.29E+02	1.74E-04	5.24E-07	3.10E-02	1.63E-08	1.53E-06	2.90E-02	2.90E-02	5.27E-05
Bis(2-ethylhexyl)phthalate	7.12E+00	2.54E-06							0
Total					2.10E-06				3.32E-03

WORKSHEET 7.18 CALCULATION OF RISK
Westinghouse Electric Co. Hematite Site

EPC Set: 1
Scenario Timeframe: Current/Future
Medium: Overburden Groundwater
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Visistor/Tresspasser

Chemical Constituents of Potential Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) unitless
Arsenic	1.47E+01			1.50E+01					0
Lead	8.01E+00								0
1,1-Dichloroethene	1.64E+02	1.14E-04				1.78E-07	5.70E-02	5.70E-02	3.12E-06
cis-1,2-Dichloroethene	2.57E+03	1.12E-03				1.76E-06	1.00E-01	1.00E-01	1.76E-05
trans-1,2-Dichloroethene	1.24E+02	5.90E-05				9.23E-08	2.00E-03	2.00E-03	4.62E-05
Methylene chloride	1.93E+02	8.07E-05	4.33E-08	1.60E-03	6.93E-11	1.26E-07	8.60E-01	8.60E-01	1.47E-07
Tetrachloroethene	2.93E+03	1.64E-03	8.80E-07	2.10E-02	1.85E-08	2.57E-06	1.00E-02	1.00E-02	2.57E-04
Trichloroethene	3.32E+03	1.64E-03	8.81E-07	4.00E-01	3.52E-07	2.57E-06	1.00E-02	1.00E-02	2.57E-04
Vinyl chloride	2.29E+02	1.74E-04	9.32E-08	3.10E-02	2.89E-09	2.72E-07	2.90E-02	2.90E-02	9.37E-06
Bis(2-ethylhexyl)phthalate	7.12E+00	2.54E-06							0
Total					3.74E-07				5.90E-04

WORKSHEET 7.19 CALCULATION OF RISK
Westinghouse Electric Co. Hematite Site

EPC Set: 1
Scenario Timeframe: Current/Future
Medium: Overburden Groundwater
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Agricultural Worker

Chemical Constituents of Potential Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) unitless
Arsenic	1.47E+01			1.50E+01					0
Lead	8.01E+00								0
1,1-Dichloroethene	1.64E+02	1.14E-04				1.50E-05	5.70E-02	5.70E-02	2.63E-04
cis-1,2-Dichloroethene	2.57E+03	1.12E-03				1.48E-04	1.00E-01	1.00E-01	1.48E-03
trans-1,2-Dichloroethene	1.24E+02	5.90E-05				7.79E-06	2.00E-03	2.00E-03	3.90E-03
Methylene chloride	1.93E+02	8.07E-05	4.57E-06	1.60E-03	7.31E-09	1.07E-05	8.60E-01	8.60E-01	1.24E-05
Tetrachloroethene	2.93E+03	1.64E-03	9.28E-05	2.10E-02	1.95E-06	2.17E-04	1.00E-02	1.00E-02	2.17E-02
Trichloroethene	3.32E+03	1.64E-03	9.30E-05	4.00E-01	3.72E-05	2.17E-04	1.00E-02	1.00E-02	2.17E-02
Vinyl chloride	2.29E+02	1.74E-04	9.83E-06	1.50E-02	1.47E-07	2.29E-05	2.90E-02	2.90E-02	7.91E-04
Bis(2-ethylhexyl)phthalate	7.12E+00	2.54E-06							0
Total					3.93E-05				4.98E-02

WORKSHEET 7.20 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 2
Scenario Timeframe: Current/Future
Medium: Bedrock Groundwater
Exposure Medium: Groundwater
Exposure Route: Dermal (Bath)
Receptor: Resident Child

Chemical Constituent of Potential Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Dermal) (CW) mg/cm3	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) unitless	Absorbed Dose per Event (DAevent) mg/cm2-event	Permeability Coefficient Kp cm/hr	Lag Time Per Event tau hr/event	Time To Reach Steady-State t* hour	Permeability Ratio B	Exposure Time (ET) hours/day	Fraction Absorbed FA
Arsenic	1.60E+01	1.60E-05	4.33E-07	1.50E+00	6.49E-07	5.05E-06	3.00E-04	3.00E-04	1.68E-02	1.20E-08	1.00E-03				0.75	
Lead	0.00E+00					0.00E+00					1.00E-04				0.75	
1,1-Dichloroethene	9.67E+01	9.67E-05				6.84E-04	5.00E-02	5.00E-02	1.37E-02	1.62E-06	1.16E-02	3.66E-01	8.79E-01	4.38E-02	0.75	1.0
cis-1,2-Dichloroethene	1.21E+03	1.21E-03				5.65E-03	1.00E-02	1.00E-01	5.65E-01	1.34E-05	7.67E-03	3.66E-01	8.80E-01	2.90E-02	0.75	1.0
trans-1,2-Dichloroethene	6.78E+01	6.78E-05				3.18E-04	2.00E-02	2.00E-01	1.59E-02	7.53E-07	7.67E-03	3.66E-01	8.80E-01	2.90E-02	0.75	1.0
Methylene chloride	6.72E+01	6.72E-05	1.15E-05	7.50E-03	8.66E-08	1.35E-04	6.00E-02	6.00E-02	2.24E-03	3.19E-07	3.54E-03	3.14E-01	7.53E-01	1.26E-02	0.75	1.0
Tetrachloroethene	1.04E+03	1.04E-03	2.77E-03	5.40E-01	1.50E-03	3.23E-02	1.00E-02	1.00E-02	3.23E+00	7.67E-05	3.28E-02	8.91E-01	2.14E+00	1.62E-01	0.75	1.0
Trichloroethene	2.48E+03	2.48E-03	1.87E-03	4.00E-01	7.47E-04	2.18E-02	3.00E-04	3.00E-04	7.26E+01	5.16E-05	1.15E-02	5.72E-01	1.37E+00	5.08E-02	0.75	1.0
Vinyl Chloride	1.20E+02	1.20E-04	2.96E-05	1.50E+00	4.44E-05	3.45E-04	3.00E-03	3.00E-03	1.15E-01	8.18E-07	5.59E-03	2.35E-01	5.64E-01	1.70E-02	0.75	1.0
Bis(2-ethylhexyl)phthalate	0.00E+00			1.40E-02		0.00E+00	2.00E-02	2.00E-02	0.00E+00		2.42E-02	1.62E+01	3.90E+01	1.84E-01	0.75	0.8
Total					2.29E-03				7.65E+01							

WORKSHEET 7.21 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 2
Scenario Timeframe: Current/Future
Medium: Bedrock Groundwater
Exposure Medium: Groundwater
Exposure Route: Dermal (Tap)
Receptor: Resident Child

Chemical Constituent of Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Dermal) (CW) mg/cm3	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) unitless	Absorbed Dose per Event (DAevent) mg/cm2-event	Permeability Coefficient Kp cm/hr	Lag Time Per Event tau hr/event	Time To Reach Steady-State t* hour	Permeability Ratio B	Exposure Time (ET) hours/day	Fraction Absorbed FA
Arsenic	1.60E+01	1.60E-05	3.15E-08	1.50E+00	4.72E-08	3.67E-07	3.00E-04	3.00E-04	1.22E-03	1.60E-08	1.00E-03				1	
Lead	0.00E+00					0.00E+00					1.00E-04				1	
1,1-Dichloroethene	9.67E+01	9.67E-05				4.43E-05	5.00E-02	5.00E-02	8.87E-04	1.93E-06	1.16E-02	3.66E-01	8.79E-01	4.38E-02	1	1.0
cis-1,2-Dichloroethene	1.21E+03	1.21E-03				3.67E-04	1.00E-02	1.00E-01	3.67E-02	1.60E-05	7.67E-03	3.66E-01	8.80E-01	2.90E-02	1	1.0
trans-1,2-Dichloroethene	6.78E+01	6.78E-05				2.06E-05	2.00E-02	2.00E-01	1.03E-03	8.97E-07	7.67E-03	3.66E-01	8.80E-01	2.90E-02	1	1.0
Methylene chloride	6.72E+01	6.72E-05	7.62E-07	7.50E-03	5.72E-09	8.89E-06	6.00E-02	6.00E-02	1.48E-04	3.86E-07	3.54E-03	3.14E-01	7.53E-01	1.26E-02	1	1.0
Tetrachloroethene	1.04E+03	1.04E-03	1.75E-04	5.40E-01	9.43E-05	2.04E-03	1.00E-02	1.00E-02	2.04E-01	8.85E-05	3.28E-02	8.91E-01	2.14E+00	1.62E-01	1	1.0
Trichloroethene	2.48E+03	2.48E-03	1.18E-04	4.00E-01	4.70E-05	1.37E-03	3.00E-04	3.00E-04	4.57E+00	5.96E-05	1.15E-02	5.72E-01	1.37E+00	5.08E-02	1	1.0
Vinyl Chloride	1.20E+02	1.20E-04	1.94E-06	1.50E+00	2.91E-06	2.26E-05	3.00E-03	3.00E-03	7.55E-03	9.84E-07	5.59E-03	2.35E-01	5.64E-01	1.70E-02	1	1.0
Bis(2-ethylhexyl)phthalate	0.00E+00			1.40E-02		0.00E+00	2.00E-02	2.00E-02	0.00E+00		2.42E-02	1.62E+01	3.90E+01	1.84E-01	1	0.8
Total					1.44E-04				4.82E+00							

WORKSHEET 7.22 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 2
Scenario Timeframe: Current/Future
Medium: Bedrock Groundwater
Exposure Medium: Groundwater
Exposure Route: Dermal (Shower)
Receptor: Resident Adult

Chemical Constituent of Potential Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Dermal) (CW) mg/cm3	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) unitless	Absorbed Dose per Event (DAevent) mg/cm2-event	Permeability Coefficient Kp cm/hr	Lag Time Per Event tau hr/event	Time To Reach Steady-State t* hour	Permeability Ratio B	Exposure Time (ET) hours/day	Fraction Absorbed FA
Arsenic	1.60E+01	1.60E-05	7.87E-07	1.50E+00	1.18E-06	2.29E-06	3.00E-04	3.00E-04	7.65E-03	9.31E-09	1.00E-03				0.583	
Lead	0.00E+00					0.00E+00					1.00E-04				0.583	
1,1-Dichloroethene	9.67E+01	9.67E-05				3.52E-04	5.00E-02	5.00E-02	7.05E-03	1.43E-06	1.16E-02	3.66E-01	8.79E-01	4.38E-02	0.583	1.0
cis-1,2-Dichloroethene	1.21E+03	1.21E-03				2.91E-03	1.00E-02	1.00E-01	2.91E-01	1.18E-05	7.67E-03	3.66E-01	8.80E-01	2.90E-02	0.583	1.0
trans-1,2-Dichloroethene	6.78E+01	6.78E-05				1.64E-04	2.00E-02	2.00E-01	8.18E-03	6.64E-07	7.67E-03	3.66E-01	8.80E-01	2.90E-02	0.583	1.0
Methylene chloride	6.72E+01	6.72E-05	2.38E-05	7.50E-03	1.78E-07	6.94E-05	6.00E-02	6.00E-02	1.16E-03	2.81E-07	3.54E-03	3.14E-01	7.53E-01	1.26E-02	0.583	1.0
Tetrachloroethene	1.04E+03	1.04E-03	5.71E-03	5.40E-01	3.09E-03	1.67E-02	1.00E-02	1.00E-02	1.67E+00	6.76E-05	3.28E-02	8.91E-01	2.14E+00	1.62E-01	0.583	1.0
Trichloroethene	2.48E+03	2.48E-03	3.85E-03	4.00E-01	1.54E-03	1.12E-02	3.00E-04	3.00E-04	3.74E+01	4.55E-05	1.15E-02	5.72E-01	1.37E+00	5.08E-02	0.583	1.0
Vinyl Chloride	1.20E+02	1.20E-04	5.98E-05	1.50E+00	8.97E-05	1.74E-04	3.00E-03	3.00E-03	5.82E-02	7.08E-07	5.59E-03	2.35E-01	5.64E-01	1.70E-02	0.583	1.0
Bis(2-ethylhexyl)phthalate	0.00E+00			1.40E-02		0.00E+00	2.00E-02	2.00E-02	0.00E+00		2.42E-02	1.62E+01	3.90E+01	1.84E-01	0.583	0.8
Total					4.71E-03				3.94E+01							

WORKSHEET 7.23 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 2
Scenario Timeframe: Current/Future
Medium: Bedrock Groundwater
Exposure Medium: Groundwater
Exposure Route: Dermal (Tap)
Receptor: Resident Adult

Chemical Constituent of Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Dermal) (CW) mg/cm3	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) unitless	Absorbed Dose per Event (DAevent) mg/cm2-event	Permeability Coefficient Kp cm/hr	Lag Time Per Event tau hr/event	Time To Reach Steady-State t* hour	Permeability Ratio B	Exposure Time (ET) hours/day	Fraction Absorbed FA
Arsenic	1.60E+01	1.60E-05	6.00E-08	1.50E+00	9.00E-08	1.75E-07	3.00E-04	3.00E-04	5.83E-04	1.60E-08	1.00E-03				1	
Lead	0.00E+00					0.00E+00					1.00E-04				1	
1,1-Dichloroethene	9.67E+01	9.67E-05				2.11E-05	5.00E-02	5.00E-02	4.22E-04	1.93E-06	1.16E-02	3.66E-01	8.79E-01	4.38E-02	1	1.0
cis-1,2-Dichloroethene	1.21E+03	1.21E-03				1.75E-04	1.00E-02	1.00E-01	1.75E-02	1.60E-05	7.67E-03	3.66E-01	8.80E-01	2.90E-02	1	1.0
trans-1,2-Dichloroethene	6.78E+01	6.78E-05				9.83E-06	2.00E-02	2.00E-01	4.91E-04	8.97E-07	7.67E-03	3.66E-01	8.80E-01	2.90E-02	1	1.0
Methylene chloride	6.72E+01	6.72E-05	1.45E-06	7.50E-03	1.09E-08	4.23E-06	6.00E-02	6.00E-02	7.06E-05	3.86E-07	3.54E-03	3.14E-01	7.53E-01	1.26E-02	1	1.0
Tetrachloroethene	1.04E+03	1.04E-03	3.33E-04	5.40E-01	1.80E-04	9.70E-04	1.00E-02	1.00E-02	9.70E-02	8.85E-05	3.28E-02	8.91E-01	2.14E+00	1.62E-01	1	1.0
Trichloroethene	2.48E+03	2.48E-03	2.24E-04	4.00E-01	8.96E-05	6.53E-04	3.00E-04	3.00E-04	2.18E+00	5.96E-05	1.15E-02	5.72E-01	1.37E+00	5.08E-02	1	1.0
Vinyl Chloride	1.20E+02	1.20E-04	3.70E-06	1.50E+00	5.54E-06	1.08E-05	3.00E-03	3.00E-03	3.59E-03	9.84E-07	5.59E-03	2.35E-01	5.64E-01	1.70E-02	1	1.0
Bis(2-ethylhexyl)phthalate	0.00E+00			1.40E-02		0.00E+00	2.00E-02	2.00E-02	0.00E+00		2.42E-02	1.62E+01	3.90E+01	1.84E-01	1	0.8
Total					2.75E-04				2.30E+00							

WORKSHEET 7.24 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 2
Scenario Timeframe: Current/Future
Medium: Bedrock Groundwater
Exposure Medium: Groundwater
Exposure Route: Ingestion
Receptor: Resident Child

Chemical Constituent of Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Oral) (CW) mg/L	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) unitless
Arsenic	1.60E+01	1.60E-02	8.75E-05	1.50E+00	1.31E-04	1.02E-03	3.00E-04	3.00E-04	3.40E+00
Lead	0.00E+00								
1,1-Dichloroethene	9.67E+01	9.67E-02				6.18E-03	5.00E-02	5.00E-02	1.24E-01
cis-1,2-Dichloroethene	1.21E+03	1.21E+00				7.71E-02	1.00E-02	1.00E-01	7.71E+00
trans-1,2-Dichloroethene	6.78E+01	6.78E-02				4.33E-03	2.00E-02	2.00E-01	2.17E-01
Methylene chloride	6.72E+01	6.72E-02	3.68E-04	7.50E-03	2.76E-06	4.29E-03	6.00E-02	6.00E-02	7.16E-02
Tetrachloroethene	1.04E+03	1.04E+00	5.67E-03	5.40E-01	3.06E-03	6.62E-02	1.00E-02	1.00E-02	6.62E+00
Trichloroethene	2.48E+03	2.48E+00	1.36E-02	4.00E-01	5.43E-03	1.58E-01	3.00E-04	3.00E-04	5.28E+02
Vinyl Chloride	1.20E+02	1.20E-01	6.59E-04	1.50E+00	9.89E-04	7.69E-03	3.00E-03	3.00E-03	2.56E+00
Bis(2-ethylhexyl)phthalate	0.00E+00			1.40E-02			2.00E-02	2.00E-02	0.00E+00
Total					9.61E-03				5.48E+02

WORKSHEET 7.25 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 2
Scenario Timeframe: Current/Future
Medium: Bedrock Groundwater
Exposure Medium: Groundwater
Exposure Route: Ingestion
Receptor: Resident Adult

Chemical Constituent of Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Oral) (CW) mg/L	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) unitless
Arsenic	1.60E+01	1.60E-02	1.50E-04	1.50E+00	2.25E-04	4.37E-04	3.00E-04	3.00E-04	1.46E+00
Lead	0.00E+00								
1,1-Dichloroethene	9.67E+01	9.67E-02				2.65E-03	5.00E-02	5.00E-02	5.30E-02
cis-1,2-Dichloroethene	1.21E+03	1.21E+00				3.30E-02	1.00E-02	1.00E-01	3.30E+00
trans-1,2-Dichloroethene	6.78E+01	6.78E-02				1.86E-03	2.00E-02	2.00E-01	9.28E-02
Methylene chloride	6.72E+01	6.72E-02	6.31E-04	7.50E-03	4.73E-06	1.84E-03	6.00E-02	6.00E-02	3.07E-02
Tetrachloroethene	1.04E+03	1.04E+00	9.73E-03	5.40E-01	5.25E-03	2.84E-02	1.00E-02	1.00E-02	2.84E+00
Trichloroethene	2.48E+03	2.48E+00	2.33E-02	4.00E-01	9.30E-03	6.78E-02	3.00E-04	3.00E-04	2.26E+02
Vinyl Chloride	1.20E+02	1.20E-01	1.13E-03	1.50E+00	1.70E-03	3.30E-03	3.00E-03	3.00E-03	1.10E+00
Bis(2-ethylhexyl)phthalate	0.00E+00			1.40E-02			2.00E-02	2.00E-02	0.00E+00
Total					1.65E-02				2.35E+02

WORKSHEET 7.26 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 2
Scenario Timeframe: Current/Future
Medium: Bedrock Groundwater
Exposure Medium: Indoor Air - Vapors
Exposure Route: Inhalation (Bath)
Receptor: Resident Child

Chemical Constituent of Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) unitless	Henry's Law H' L-water/L-air
Arsenic	1.60E+01			1.50E+01					0	
Lead	0.00E+00								0	
1,1-Dichloroethene	9.67E+01	1.03E+02				1.80E+00	5.70E-02	5.70E-02	3.16E+01	1.07E+00
cis-1,2-Dichloroethene	1.21E+03	2.01E+02				3.50E+00	1.00E-01	1.00E-01	3.50E+01	1.67E-01
trans-1,2-Dichloroethene	6.78E+01	2.61E+01				4.53E-01	2.00E-03	2.00E-03	2.27E+02	3.85E-01
Methylene chloride	6.72E+01	6.03E+00	8.99E-03	1.60E-03	1.44E-05	1.05E-01	8.60E-01	8.60E-01	1.22E-01	8.98E-02
Tetrachloroethene	1.04E+03	7.81E+02	1.16E+00	2.10E-02	2.44E-02	1.36E+01	1.00E-02	1.00E-02	1.36E+03	7.54E-01
Trichloroethene	2.48E+03	1.04E+03	1.56E+00	4.00E-01	6.23E-01	1.82E+01	1.00E-02	1.00E-02	1.82E+03	4.22E-01
Vinyl Chloride	1.20E+02	1.34E+02	1.99E-01	3.10E-02	6.17E-03	2.32E+00	2.90E-02	2.90E-02	8.01E+01	1.11E+00
Bis(2-ethylhexyl)phthalate	0.00E+00	0.00E+00								4.18E-06
Total					6.53E-01				3.55E+03	

WORKSHEET 7.27 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 2
Scenario Timeframe: Current/Future
Medium: Bedrock Groundwater
Exposure Medium: Indoor Air - Vapors
Exposure Route: Inhalation (Shower)
Receptor: Resident Adult

Chemical Constituent of Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) unitless	Henry's Law H' L-water/L-air
Arsenic	1.60E+01			1.50E+01					0	
Lead	0.00E+00								0	
1,1-Dichloroethene	9.67E+01	1.03E+02				4.55E-01	5.70E-02	5.70E-02	7.974472014	1.07E+00
cis-1,2-Dichloroethene	1.21E+03	2.01E+02				8.85E-01	1.00E-01	1.00E-01	8.845749578	1.67E-01
trans-1,2-Dichloroethene	6.78E+01	2.61E+01				1.15E-01	2.00E-03	2.00E-03	57.29060782	3.85E-01
Methylene chloride	6.72E+01	6.03E+00	9.08E-03	1.60E-03	1.45E-05	2.65E-02	8.60E-01	8.60E-01	0.03080833	8.98E-02
Tetrachloroethene	1.04E+03	7.81E+02	1.18E+00	2.10E-02	2.47E-02	3.43E+00	1.00E-02	1.00E-02	342.9154642	7.54E-01
Trichloroethene	2.48E+03	1.04E+03	1.57E+00	4.00E-01	6.29E-01	4.59E+00	1.00E-02	1.00E-02	458.9847818	4.22E-01
Vinyl Chloride	1.20E+02	1.34E+02	2.01E-01	3.10E-02	6.24E-03	5.87E-01	2.90E-02	2.90E-02	20.23328542	1.11E+00
Bis(2-ethylhexyl)phthalate	0.00E+00	0.00E+00								4.18E-06
Total					6.60E-01				8.96E+02	

WORKSHEET 7.28 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 2
Scenario Timeframe: Current/Future
Medium: Overburden Groundwater
Exposure Medium: Groundwater
Exposure Route: Dermal
Receptor: Com. & Ind. Worker

Chemical Constituent of Potential Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Dermal) (CW) mg/cm3	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) unitless	Absorbed Dose per Event (DAevent) mg/cm2-event	Permeability Coefficient Kp cm/hr	Lag Time Per Event tau hr/event	Time To Reach Steady-State t* hour	Permeability Ratio B	Exposure Time (ET) hours/day	Fraction Absorbed FA
Arsenic	1.47E+01	1.47E-05	4.11E-08	1.50E+00	6.16E-08	1.15E-07	3.00E-04	3.00E-04	3.83E-04	1.47E-08	1.00E-03				1	
Lead	8.01E+00	8.01E-06				6.27E-09				8.01E-10	1.00E-04				1	
1,1-Dichloroethene	1.64E+02	1.64E-04				2.56E-05	5.00E-02		5.13E-04	3.27E-06	1.16E-02	3.66E-01	8.79E-01	4.38E-02	1	1.0
cis-1,2-Dichloroethene	2.57E+03	2.57E-03				2.67E-04	1.00E-02	5.00E-02	2.67E-02	3.41E-05	7.67E-03	3.66E-01	8.80E-01	2.90E-02	1	1.0
trans-1,2-Dichloroethene	1.24E+02	1.24E-04				1.29E-05	2.00E-02	1.00E-01	6.44E-04	1.64E-06	7.67E-03	3.66E-01	8.80E-01	2.90E-02	1	1.0
Methylene chloride	1.93E+02	1.93E-04	3.10E-06	7.50E-03	2.33E-08	8.69E-06	6.00E-02	2.00E-01	1.45E-04	1.11E-06	3.54E-03	3.14E-01	7.53E-01	1.26E-02	1	1.0
Tetrachloroethene	2.93E+03	2.93E-03	7.00E-04	5.40E-01	3.78E-04	1.96E-03	1.00E-02	6.00E-02	1.96E-01	2.50E-04	3.28E-02	8.91E-01	2.14E+00	1.62E-01	1	1.0
Trichloroethene	3.32E+03	3.32E-03	2.24E-04	4.00E-01	8.94E-05	6.26E-04	3.00E-04	1.00E-02	2.09E+00	8.00E-05	1.15E-02	5.72E-01	1.37E+00	5.08E-02	1	1.0
Vinyl chloride	2.29E+02	2.29E-04	5.24E-06	7.20E-01	3.77E-06	1.47E-05	3.00E-03	3.00E-03	4.89E-03	1.87E-06	5.59E-03	2.35E-01	5.64E-01	1.70E-02	1	1.0
Bis(2-ethylhexyl)phthalate	7.12E+00	7.12E-06	4.29E-06	1.40E-02	6.00E-08	1.20E-05	2.00E-02	2.00E-02	6.00E-04	1.53E-06	2.42E-02	1.62E+01	3.90E+01	1.84E-01	1	0.8
Total					4.71E-04				2.32E+00							

WORKSHEET 7.29 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 2
Scenario Timeframe: Current/Future
Medium: Overburden Groundwater
Exposure Medium: Groundwater
Exposure Route: Ingestion
Receptor: Com. & Ind. Worker

Chemical Constituent of Concern	Groundwater Concentration ug/L	Exposure Point Concentration (Oral) (CW) mg/L	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) unitless
Arsenic	1.47E+01	1.47E-02	5.13E-05	1.50E+00	7.70E-05	1.44E-04	3.00E-04	3.00E-04	4.79E-01
Lead	8.01E+00	8.01E-03							
1,1-Dichloroethene	1.64E+02	1.64E-01				1.61E-03	5.00E-02	5.00E-02	3.22E-02
cis-1,2-Dichloroethene	2.57E+03	2.57E+00				2.52E-02	1.00E-02	1.00E-01	2.52E+00
trans-1,2-Dichloroethene	1.24E+02	1.24E-01				1.22E-03	2.00E-02	2.00E-01	6.08E-02
Methylene chloride	1.93E+02	1.93E-01	6.74E-04	7.50E-03	5.06E-06	1.89E-03	6.00E-02	6.00E-02	3.15E-02
Tetrachloroethene	2.93E+03	2.93E+00	1.02E-02	5.40E-01	5.53E-03	2.87E-02	1.00E-02	1.00E-02	2.87E+00
Trichloroethene	3.32E+03	3.32E+00	1.16E-02	4.00E-01	4.64E-03	3.25E-02	3.00E-04	3.00E-04	1.08E+02
Vinyl chloride	2.29E+02	2.29E-01	8.01E-04	7.20E-01	5.77E-04	2.24E-03	3.00E-03	3.00E-03	7.48E-01
Bis(2-ethylhexyl)phthalate	7.12E+00	7.12E-03	2.49E-05	1.40E-02	3.48E-07	6.97E-05	2.00E-02	2.00E-02	3.48E-03
Total					1.08E-02				1.15E+02

WORKSHEET 7.30 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 3
Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Dermal
Receptor: Resident and Recreational Child

Chemical Constituent of Potential Concern	Surface Water Concentration ug/L	Exposure Point Concentration (Dermal) (CW) mg/cm3	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) unitless	Absorbed Dose per Event (DAevent) mg/cm2-event	Permeability Coefficient Kp cm/hr	Lag Time Per Event tau hr/event	Time To Reach Steady-State t* hour	Permeability Ratio B	Exposure Time (ET) hours/day	Fraction Absorbed FA
Arsenic	6.28E+00	6.28E-06	2.34E-08	1.50E+00	3.51E-08	2.73E-07	3.00E-04	3.00E-04	9.09E-04	1.89E-08	1.00E-03				3	1
Lead	5.75E+01	5.75E-05								1.73E-08	1.00E-04				3	1
Vanadium	2.15E+01	2.15E-05				9.33E-07	2.60E-05	2.60E-05	3.59E-02	6.45E-08	1.00E-03				3	1
Tetrachloroethene	2.52E+00	2.52E-06	4.76E-07	5.40E-01	2.57E-07	4.76E-07	1.00E-02	6.00E-02	4.76E-05	3.84E-07	3.28E-02	8.91E-01	2.14E+00	1.62E-01	3	1
Trichloroethene	2.52E+00	2.52E-06	1.46E-07	4.00E-01	5.84E-08	1.46E-07	3.00E-04	1.00E-02	4.87E-04	1.18E-07	1.15E-02	5.72E-01	1.37E+00	5.08E-02	3	1
Total					3.51E-07				3.73E-02							

WORKSHEET 7.31 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 3
Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Dermal
Receptor: Resident, Recreational, Visitor/Trespasser Adult

Chemical Constituent of Potential Concern	Surface Water Concentration ug/L	Exposure Point Concentration (Dermal) (CW) mg/cm3	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) unitless	Absorbed Dose per Event (DAevent) mg/cm2-event	Permeability Coefficient Kp cm/hr	Lag Time Per Event tau hr/event	Time To Reach Steady-State t* hour	Permeability Ratio B	Exposure Time (ET) hours/day	Fraction Absorbed FA
Arsenic	6.28E+00	6.28E-06	5.46E-08	1.50E+00	8.20E-08	1.59E-07	3.00E-04	3.00E-04	5.31E-04	1.89E-08	1.00E-03				3	1
Lead	5.75E+01	5.75E-05								1.73E-08	1.00E-04				3	1
Vanadium	2.15E+01	2.15E-05				5.45E-07	2.60E-05	2.60E-05	2.10E-02	6.45E-08	1.00E-03				3	1
Tetrachloroethene	2.52E+00	2.52E-06	1.11E-06	5.40E-01	6.01E-07	0.00E+00	1.00E-02	6.00E-02	0.00E+00	3.84E-07	3.28E-02	8.91E-01	2.14E+00	1.62E-01	3	1
Trichloroethene	2.52E+00	2.52E-06	3.41E-07	4.00E-01	1.37E-07	0.00E+00	3.00E-04	1.00E-02	0.00E+00	1.18E-07	1.15E-02	5.72E-01	1.37E+00	5.08E-02	3	1
Total					8.19E-07				2.15E-02							

WORKSHEET 7.32 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 3
Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Ingestion
Receptor: Resident and Recreational Child

Chemical Constituent of Concern	Surface Water Concentration ug/L	Exposure Point Concentration (Oral) (CW) mg/L	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) unitless
Arsenic	6.28E+00	6.28E-03	1.77E-07	1.50E+00	2.66E-07	2.07E-06	3.00E-04	3.00E-04	6.89E-03
Lead	5.75E+01	5.75E-02							
Vanadium	2.15E+01	2.15E-02				7.06E-06	1.00E-03	1.00E-03	7.06E-03
Tetrachloroethene	2.52E+00	2.52E-03	7.11E-08	5.40E-01	3.84E-08	7.11E-08	1.00E-02	1.00E-02	7.11E-06
Trichloroethene	2.52E+00	2.52E-03	7.11E-08	4.00E-01	2.84E-08	7.11E-08	3.00E-04	3.00E-04	2.37E-04
Total					3.32E-07				1.42E-02

WORKSHEET 7.33 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 3
Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Ingestion
Receptor: Resident, Recreational,
Visitor/Trespasser Adult

Chemical Constituent of Concern	Surface Water Concentration ug/L	Exposure Point Concentration (Oral) (CW) mg/L	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) unitless
Arsenic	6.28E+00	6.28E-03	1.52E-07	1.50E+00	2.28E-07	4.43E-07	3.00E-04	3.00E-04	1.48E-03
Lead	5.75E+01	5.75E-02							
Vanadium	2.15E+01	2.15E-02				1.51E-06	1.00E-03	1.00E-03	1.51E-03
Tetrachloroethene	2.52E+00	2.52E-03	6.09E-08	5.40E-01	3.29E-08	0.00E+00	1.00E-02	1.00E-02	0.00E+00
Trichloroethene	2.52E+00	2.52E-03	6.09E-08	4.00E-01	2.44E-08	0.00E+00	3.00E-04	3.00E-04	0.00E+00
Total					2.85E-07				2.99E-03

WORKSHEET 7.34 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 3
Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Dermal
Receptor: Commercial/Industrial Worker

Chemical Constituent of Potential Concern	Surface Water Concentration ug/L	Exposure Point Concentration (Dermal) (CW) mg/cm3	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) unitless	Absorbed Dose per Event (DAevent) mg/cm2-event	Permeability Coefficient Kp cm/hr	Lag Time Per Event tau hr/event	Time To Reach Steady-State t* hour	Permeability Ratio B	Exposure Time (ET) hours/day	Fraction Absorbed FA
Arsenic	6.28E+00	6.28E-06	1.76E-08	1.50E+00	2.64E-08	4.92E-08	3.00E-04	3.00E-04	1.64E-04	6.28E-09	1.00E-03				1	1
Lead	5.75E+01	5.75E-05								5.75E-09	1.00E-04				1	1
Vanadium	2.15E+01	2.15E-05				1.68E-07	2.60E-05	2.60E-05	6.47E-03	2.15E-08	1.00E-03				1	1
Tetrachloroethene	2.52E+00	2.52E-06	6.03E-07	5.40E-01	3.25E-07	0.00E+00	1.00E-02	6.00E-02	0.00E+00	2.16E-07	3.28E-02	8.91E-01	2.14E+00	1.62E-01	1	1
Trichloroethene	2.52E+00	2.52E-06	1.70E-07	4.00E-01	6.79E-08	0.00E+00	3.00E-04	1.00E-02	0.00E+00	6.07E-08	1.15E-02	5.72E-01	1.37E+00	5.08E-02	1	1
Total					4.20E-07				6.63E-03							

WORKSHEET 7.35 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 3
Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Ingestion
Receptor: Commercial/Industrial Worker

Chemical Constituent of Concern	Surface Water Concentration ug/L	Exposure Point Concentration (Oral) (CW) mg/L	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) unitless
Arsenic	6.28E+00	6.28E-03	1.10E-07	1.50E+00	1.65E-07	3.07E-07	3.00E-04	3.00E-04	1.02E-03
Lead	5.75E+01	5.75E-02							
Vanadium	2.15E+01	2.15E-02				1.05E-06	1.00E-03	1.00E-03	1.05E-03
Tetrachloroethene	2.52E+00	2.52E-03	4.41E-08	5.40E-01	2.38E-08	0.00E+00	1.00E-02	1.00E-02	0.00E+00
Trichloroethene	2.52E+00	2.52E-03	4.41E-08	4.00E-01	1.76E-08	0.00E+00	3.00E-04	3.00E-04	0.00E+00
Total					2.06E-07				2.08E-03

WORKSHEET 7.34 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 3
Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Dermal
Receptor: Construction Worker

Chemical Constituent of Potential Concern	Surface Water Concentration ug/L	Exposure Point Concentration (Dermal) (CW) mg/cm3	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) unitless	Absorbed Dose per Event (DAevent) mg/cm2-event	Permeability Coefficient Kp cm/hr	Lag Time Per Event tau hr/event	Time To Reach Steady-State t* hour	Permeability Ratio B	Exposure Time (ET) hours/day	Fraction Absorbed FA
Arsenic	6.28E+00	6.28E-06	2.61E-09	1.50E+00	3.91E-09	1.83E-07	3.00E-04	3.00E-04	6.09E-04	6.28E-09	1.00E-03				1	1
Lead	5.75E+01	5.75E-05								5.75E-09	1.00E-04				1	1
Vanadium	2.15E+01	2.15E-05				6.24E-07	2.60E-05	2.60E-05	2.40E-02	2.15E-08	1.00E-03				1	1
Tetrachloroethene	2.52E+00	2.52E-06	8.95E-08	5.40E-01	4.83E-08	0.00E+00	1.00E-02	6.00E-02	0.00E+00	2.16E-07	3.28E-02	8.91E-01	2.14E+00	1.62E-01	1	1
Trichloroethene	2.52E+00	2.52E-06	2.52E-08	4.00E-01	1.01E-08	0.00E+00	3.00E-04	1.00E-02	0.00E+00	6.07E-08	1.15E-02	5.72E-01	1.37E+00	5.08E-02	1	1
Total					6.23E-08				2.46E-02							

WORKSHEET 7.37 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 3
Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Ingestion
Receptor: Construction Worker

Chemical Constituent of Concern	Surface Water Concentration ug/L	Exposure Point Concentration (Oral) (CW) mg/L	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) unitless
Arsenic	6.28E+00	6.28E-03	3.95E-09	1.50E+00	5.93E-09	2.77E-07	3.00E-04	3.00E-04	9.22E-04
Lead	5.75E+01	5.75E-02							
Vanadium	2.15E+01	2.15E-02				9.46E-07	1.00E-03	1.00E-03	9.46E-04
Tetrachloroethene	2.52E+00	2.52E-03	1.59E-09	5.40E-01	8.57E-10	0.00E+00	1.00E-02	1.00E-02	0.00E+00
Trichloroethene	2.52E+00	2.52E-03	1.59E-09	4.00E-01	6.34E-10	0.00E+00	3.00E-04	3.00E-04	0.00E+00
Total					7.42E-09				1.87E-03

WORKSHEET 7.38 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 3
Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Dermal
Receptor: Agricultural Worker

Chemical Constituent of Potential Concern	Surface Water Concentration ug/L	Exposure Point Concentration (Dermal) (CW) mg/cm3	Dermally Absorbed Dose (Cancer) (DADc) mg/kg-day	Adjusted Dermal Cancer Slope Factor CSFd 1/(mg/kg-day)	Cancer Risk (DADc*CSFd) unitless	Dermally Absorbed Dose (Non-Cancer) (DADn) mg/kg-day	Adjusted Dermal Reference Dose (chronic) RfDd mg/kg-day	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) unitless	Absorbed Dose per Event (DAevent) mg/cm2-event	Permeability Coefficient Kp cm/hr	Lag Time Per Event tau hr/event	Time To Reach Steady-State t* hour	Permeability Ratio B	Exposure Time (ET) hours/day	Fraction Absorbed FA
Arsenic	6.28E+00	6.28E-06	7.83E-08	1.50E+00	1.17E-07	1.83E-07	3.00E-04	3.00E-04	6.09E-04	6.28E-09	1.00E-03				1	1
Lead	5.75E+01	5.75E-05								5.75E-09	1.00E-04				1	1
Vanadium	2.15E+01	2.15E-05				6.24E-07	2.60E-05	2.60E-05	2.40E-02	2.15E-08	1.00E-03				1	1
Tetrachloroethene	2.52E+00	2.52E-06	2.68E-06	5.40E-01	1.45E-06	0.00E+00	1.00E-02	6.00E-02	0.00E+00	2.16E-07	3.28E-02	8.91E-01	2.14E+00	1.62E-01	1	1
Trichloroethene	2.52E+00	2.52E-06	7.56E-07	4.00E-01	3.02E-07	0.00E+00	3.00E-04	1.00E-02	0.00E+00	6.07E-08	1.15E-02	5.72E-01	1.37E+00	5.08E-02	1	1
Total					1.87E-06				2.46E-02							

WORKSHEET 7.39 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 3 EPC Set: 3
Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Route: Ingestion
Receptor: Agricultural Worker

Chemical Constituent of Concern	Surface Water Concentration ug/L	Exposure Point Concentration (Oral) (CW) mg/L	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Oral Cancer Slope Factor CSFo 1/(mg/kg-day)	Cancer Risk (CDIc*CSFo) unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Oral Reference Dose (chronic) RfDo mg/kg-day	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) unitless
Arsenic	6.28E+00	6.28E-03	1.19E-07	1.50E+00	1.78E-07	2.77E-07	3.00E-04	3.00E-04	9.22E-04
Lead	5.75E+01	5.75E-02							
Vanadium	2.15E+01	2.15E-02				9.46E-07	1.00E-03	1.00E-03	9.46E-04
Tetrachloroethene	2.52E+00	2.52E-03	4.76E-08	5.40E-01	2.57E-08	0.00E+00	1.00E-02	1.00E-02	0.00E+00
Trichloroethene	2.52E+00	2.52E-03	4.76E-08	4.00E-01	1.90E-08	0.00E+00	3.00E-04	3.00E-04	0.00E+00
Total					2.23E-07				1.87E-03

WORKSHEET 7.40 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4

Scenario Timeframe: Current/Future

Medium: Surface Soil

Exposure Medium: Surface Soil

Exposure Route: Dermal

Receptor: Resident Child

Chemical Constituent of Potential Concern	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	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) Dermal unitless	Absorption Factor (ABS)
Arsenic	2.54E+01	2.34E-06	1.50E+00	3.50E-06	2.73E-05	3.00E-04	3.00E-04	9.09E-02	3.00E-02
Chromium	3.42E+01				1.23E-05	7.50E-05	5.00E-04	1.63E-01	1.00E-02
Lead	1.62E+02								1.00E-02
Benzo(a)anthracene	9.81E-01	3.91E-07	7.30E-01	2.86E-07					1.30E-01
Benzo(a)pyrene	1.05E+00	4.19E-07	7.30E+00	3.06E-06					1.30E-01
Benzo(b)fluoranthene	1.45E+00	5.79E-07	7.30E-01	4.23E-07					1.30E-01
Indeno(1,2,3-cd)pyrene	1.04E+00	4.16E-07	7.30E-01	3.04E-07					1.30E-01
Aroclor-1254 (PCB-1254)	6.46E-02	2.77E-08	2.00E+00	5.55E-08	3.24E-07	2.00E-05	5.00E-05	1.62E-02	1.40E-01
Aroclor-1260 (PCB-1260)	7.97E-02	3.43E-08	2.00E+00	6.85E-08					1.40E-01
Total				7.70E-06				2.70E-01	

WORKSHEET 7.41 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4

Scenario Timeframe: Current/Future

Medium: Surface Soil

Exposure Medium: Surface Soil

Exposure Route: Dermal

Receptor: Resident Adult

Chemical Constituent of Potential Concern	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	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) Dermal unitless	Absorption Factor (ABS)
Arsenic	2.54E+01	1.43E-06	1.50E+00	2.14E-06	4.16E-06	3.00E-04	3.00E-04	1.39E-02	3.00E-02
Chromium	3.42E+01				1.87E-06	7.50E-05	5.00E-04	2.50E-02	1.00E-02
Lead	1.62E+02								1.00E-02
Benzo(a)anthracene	9.81E-01	2.39E-07	7.30E-01	1.74E-07					1.30E-01
Benzo(a)pyrene	1.05E+00	2.56E-07	7.30E+00	1.87E-06					1.30E-01
Benzo(b)fluoranthene	1.45E+00	3.54E-07	7.30E-01	2.58E-07					1.30E-01
Indeno(1,2,3-cd)pyrene	1.04E+00	2.54E-07	7.30E-01	1.86E-07					1.30E-01
Aroclor-1254 (PCB-1254)	6.46E-02	1.69E-08	2.00E+00	3.39E-08	4.94E-08	2.00E-05	5.00E-05	2.47E-03	1.40E-01
Aroclor-1260 (PCB-1260)	7.97E-02	2.09E-08	2.00E+00	4.18E-08					1.40E-01
Total				4.70E-06				4.13E-02	

WORKSHEET 7.42 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4

Scenario Timeframe: Current/Future

Medium: Surface Soil

Exposure Medium: Surface Soil

Exposure Route: Ingestion

Receptor: Resident Child

Chemical Constituent of Concern	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	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Arsenic	2.54E+01	2.78E-05	1.50E+00	4.17E-05	3.24E-04	3.00E-04	3.00E-04	1.08E+00
Chromium	3.42E+01				4.38E-04	3.00E-03	2.00E-02	1.46E-01
Lead	1.62E+02							
Benzo(a)anthracene	9.81E-01	1.08E-06	7.30E-01	7.85E-07				
Benzo(a)pyrene	1.05E+00	1.15E-06	7.30E+00	8.39E-06				
Benzo(b)fluoranthene	1.45E+00	1.59E-06	7.30E-01	1.16E-06				
Indeno(1,2,3-cd)pyrene	1.04E+00	1.14E-06	7.30E-01	8.35E-07				
Aroclor-1254 (PCB-1254)	6.46E-02	7.08E-08	2.00E+00	1.42E-07	8.26E-07	2.00E-05	5.00E-05	4.13E-02
Aroclor-1260 (PCB-1260)	7.97E-02	8.74E-08	2.00E+00	1.75E-07				
Total				5.32E-05				1.27E+00

WORKSHEET 7.43 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4

Scenario Timeframe: Current/Future

Medium: Surface Soil

Exposure Medium: Surface Soil

Exposure Route: Ingestion

Receptor: Resident Adult

Chemical Constituent of Concern	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	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Arsenic	2.54E+01	1.19E-05	1.50E+00	1.79E-05	3.48E-05	3.00E-04	3.00E-04	1.16E-01
Chromium	3.42E+01				4.69E-05	3.00E-03	2.00E-02	1.56E-02
Lead	1.62E+02							
Benzo(a)anthracene	9.81E-01	4.61E-07	7.30E-01	3.36E-07				
Benzo(a)pyrene	1.05E+00	4.93E-07	7.30E+00	3.60E-06				
Benzo(b)fluoranthene	1.45E+00	6.82E-07	7.30E-01	4.98E-07				
Indeno(1,2,3-cd)pyrene	1.04E+00	4.90E-07	7.30E-01	3.58E-07				
Aroclor-1254 (PCB-1254)	6.46E-02	3.03E-08	2.00E+00	6.07E-08	8.85E-08	2.00E-05	5.00E-05	4.42E-03
Aroclor-1260 (PCB-1260)	7.97E-02	3.75E-08	2.00E+00	7.49E-08				
Total				2.28E-05				1.36E-01

WORKSHEET 7.44 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4

Scenario Timeframe: Current/Future

Medium: Surface Soil

Exposure Medium: Outdoor Air - Vapor

Exposure Route: Inhalation

Receptor: Resident Child

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Poin Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Volatilization Factor (VF) kg/m3
Arsenic	2.54E+01			1.50E+01						
Chromium	3.42E+01			4.20E+01			2.20E-06	2.20E-06		
Lead	1.62E+02									
Benzo(a)anthracene	9.81E-01	8.03E-08								8.19E-08
Benzo(a)pyrene	1.05E+00	3.77E-08	4.17E-10	3.10E+00	1.29E-09					3.59E-08
Benzo(b)fluoranthene	1.45E+00	2.65E-07								1.83E-07
Indeno(1,2,3-cd)pyrene	1.04E+00	1.64E-08								1.57E-08
Aroclor-1254 (PCB-1254)	6.46E-02	3.18E-08	3.51E-10	2.00E+00	7.03E-10					4.92E-07
Aroclor-1260 (PCB-1260)	7.97E-02	4.14E-08	4.58E-10	2.00E+00	9.16E-10					5.19E-07
Total					2.91E-09				0.00E+00	

WORKSHEET 7.45 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4

Scenario Timeframe: Current/Future

Medium: Surface Soil

Exposure Medium: Outdoor Air - Vapor

Exposure Route: Inhalation

Receptor: Resident Adult

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Poin Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Volatilization Factor (VF) kg/m3
Arsenic	2.54E+01			1.50E+01						
Chromium	3.42E+01			4.20E+01			2.20E-06	2.20E-06		
Lead	1.62E+02									
Benzo(a)anthracene	9.81E-01	8.03E-08								8.19E-08
Benzo(a)pyrene	1.05E+00	3.77E-08	2.95E-10	3.10E+00	9.13E-10					3.59E-08
Benzo(b)fluoranthene	1.45E+00	2.65E-07								1.83E-07
Indeno(1,2,3-cd)pyrene	1.04E+00	1.64E-08								1.57E-08
Aroclor-1254 (PCB-1254)	6.46E-02	3.18E-08	2.48E-10	2.00E+00	4.97E-10					4.92E-07
Aroclor-1260 (PCB-1260)	7.97E-02	4.14E-08	3.24E-10	2.00E+00	6.48E-10					5.19E-07
Total					2.06E-09				0.00E+00	

WORKSHEET 7.46 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4

Scenario Timeframe: Current/Future

Medium: Surface Soil

Exposure Medium: Outdoor Air - Particulates

Exposure Route: Inhalation

Receptor: Resident Child

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Particulate Emission Factor (PEF) kg/m3
Arsenic	2.54E+01	1.93E-08	2.13E-10	1.50E+01	3.20E-09					7.60E-10
Chromium	3.42E+01	2.60E-08	2.88E-10	4.20E+01	1.21E-08	3.36E-09	2.20E-06	2.20E-06	1.53E-03	7.60E-10
Lead	1.62E+02	1.23E-07								7.60E-10
Benzo(a)anthracene	9.81E-01	7.45E-10								7.60E-10
Benzo(a)pyrene	1.05E+00	7.97E-10	8.82E-12	3.10E+00	2.73E-11					7.60E-10
Benzo(b)fluoranthene	1.45E+00	1.10E-09								7.60E-10
Indeno(1,2,3-cd)pyrene	1.04E+00	7.93E-10								7.60E-10
Aroclor-1254 (PCB-1254)	6.46E-02	4.91E-11	5.43E-13	2.00E+00	1.09E-12					7.60E-10
Aroclor-1260 (PCB-1260)	7.97E-02	6.06E-11	6.70E-13	2.00E+00	1.34E-12					7.60E-10
Total					1.53E-08				1.53E-03	

WORKSHEET 7.47 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4

Scenario Timeframe: Current/Future

Medium: Surface Soil

Exposure Medium: Outdoor Air - Particulates

Exposure Route: Inhalation

Receptor: Resident Adult

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Particulate Emission Factor (PEF) kg/m3
Arsenic	2.54E+01	1.93E-08	1.51E-10	1.50E+01	2.26E-09					7.60E-10
Chromium	3.42E+01	2.60E-08	2.04E-10	4.20E+01	8.55E-09	5.94E-10	2.20E-06	2.20E-06	2.70E-04	7.60E-10
Lead	1.62E+02	1.23E-07								7.60E-10
Benzo(a)anthracene	9.81E-01	7.45E-10								7.60E-10
Benzo(a)pyrene	1.05E+00	7.97E-10	6.24E-12	3.10E+00	1.93E-11					7.60E-10
Benzo(b)fluoranthene	1.45E+00	1.10E-09								7.60E-10
Indeno(1,2,3-cd)pyrene	1.04E+00	7.93E-10								7.60E-10
Aroclor-1254 (PCB-1254)	6.46E-02	4.91E-11	3.84E-13	2.00E+00	7.68E-13					7.60E-10
Aroclor-1260 (PCB-1260)	7.97E-02	6.06E-11	4.74E-13	2.00E+00	9.48E-13					7.60E-10
Total					1.08E-08				2.70E-04	

WORKSHEET 7.48 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4

Scenario Timeframe: Current/Future

Medium: Surface Soil

Exposure Medium: Surface Soil

Exposure Route: Dermal

Receptor: Com. & Ind. Worker

Chemical Constituent of Potential Concern	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	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) Dermal unitless	Absorption Factor (ABS)
Arsenic	2.54E+01	1.76E-06	1.50E+00	2.63E-06	4.92E-06	3.00E-04	3.00E-04	1.64E-02	3.00E-02
Chromium	3.42E+01				2.21E-06	7.50E-05	5.00E-04	2.95E-02	1.00E-02
Lead	1.62E+02								1.00E-02
Benzo(a)anthracene	9.81E-01	2.94E-07	7.30E-01	2.15E-07					1.30E-01
Benzo(a)pyrene	1.05E+00	3.15E-07	7.30E+00	2.30E-06					1.30E-01
Benzo(b)fluoranthene	1.45E+00	4.35E-07	7.30E-01	3.18E-07					1.30E-01
Indeno(1,2,3-cd)pyrene	1.04E+00	3.13E-07	7.30E-01	2.28E-07					1.30E-01
Aroclor-1254 (PCB-1254)	6.46E-02	2.09E-08	2.00E+00	4.17E-08	5.84E-08	2.00E-05	5.00E-05	2.92E-03	1.40E-01
Aroclor-1260 (PCB-1260)	7.97E-02	2.57E-08	2.00E+00	5.15E-08					1.40E-01
Total				5.79E-06				4.88E-02	

WORKSHEET 7.49 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4

Scenario Timeframe: Current/Future

Medium: Surface Soil

Exposure Medium: Surface Soil

Exposure Route: Ingestion

Receptor: Com. & Ind. Worker

Chemical Constituent of Concern	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	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Arsenic	2.54E+01	8.87E-06	1.50E+00	1.33E-05	2.48E-05	3.00E-04	3.00E-04	8.28E-02
Chromium	3.42E+01				3.35E-05	3.00E-03	2.00E-02	1.12E-02
Lead	1.62E+02							
Benzo(a)anthracene	9.81E-01	3.43E-07	7.30E-01	2.50E-07				
Benzo(a)pyrene	1.05E+00	3.67E-07	7.30E+00	2.68E-06				
Benzo(b)fluoranthene	1.45E+00	5.08E-07	7.30E-01	3.71E-07				
Indeno(1,2,3-cd)pyrene	1.04E+00	3.65E-07	7.30E-01	2.66E-07				
Aroclor-1254 (PCB-1254)	6.46E-02	2.26E-08	2.00E+00	4.51E-08	6.32E-08	2.00E-05	5.00E-05	3.16E-03
Aroclor-1260 (PCB-1260)	7.97E-02	2.79E-08	2.00E+00	5.57E-08				
Total				1.70E-05				9.71E-02

WORKSHEET 7.50 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4

Scenario Timeframe: Current/Future

Medium: Surface Soil

Exposure Medium: Outdoor Air - Vapor

Exposure Route: Inhalation

Receptor: Com. & Ind. Worker

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Poin Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Volatilization Factor (VF) kg/m3
Arsenic	2.54E+01			1.50E+01						
Chromium	3.42E+01			4.20E+01			2.20E-06	2.20E-06		
Lead	1.62E+02									
Benzo(a)anthracene	9.81E-01	8.03E-08								8.19E-08
Benzo(a)pyrene	1.05E+00	3.77E-08	1.64E-10	3.10E+00	5.10E-10					3.59E-08
Benzo(b)fluoranthene	1.45E+00	2.65E-07								1.83E-07
Indeno(1,2,3-cd)pyrene	1.04E+00	1.64E-08								1.57E-08
Aroclor-1254 (PCB-1254)	6.46E-02	3.18E-08	1.39E-10	2.00E+00	2.77E-10					4.92E-07
Aroclor-1260 (PCB-1260)	7.97E-02	4.14E-08	1.81E-10	2.00E+00	3.61E-10					5.19E-07
Total					1.15E-09				0.00E+00	

WORKSHEET 7.51 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4

Scenario Timeframe: Current/Future

Medium: Surface Soil

Exposure Medium: Outdoor Air - Particulates

Exposure Route: Inhalation

Receptor: Com. & Ind. Worker

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Particulate Emission Factor (PEF) kg/m3
Arsenic	2.54E+01	1.93E-08	8.42E-11	1.50E+01	1.26E-09					7.60E-10
Chromium	3.42E+01	2.60E-08	1.14E-10	4.20E+01	4.77E-09	3.18E-10	2.20E-06	2.20E-06	1.45E-04	7.60E-10
Lead	1.62E+02	1.23E-07								7.60E-10
Benzo(a)anthracene	9.81E-01	7.45E-10								7.60E-10
Benzo(a)pyrene	1.05E+00	7.97E-10	3.48E-12	3.10E+00	1.08E-11					7.60E-10
Benzo(b)fluoranthene	1.45E+00	1.10E-09								7.60E-10
Indeno(1,2,3-cd)pyrene	1.04E+00	7.93E-10								7.60E-10
Aroclor-1254 (PCB-1254)	6.46E-02	4.91E-11	2.14E-13	2.00E+00	4.28E-13					7.60E-10
Aroclor-1260 (PCB-1260)	7.97E-02	6.06E-11	2.65E-13	2.00E+00	5.29E-13					7.60E-10
Total					6.04E-09				1.45E-04	

WORKSHEET 7.52 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Route: Dermal
Receptor: Construction Worker

Chemical Constituent of Potential Concern	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	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) Dermal unitless	Absorption Factor (ABS)
Arsenic	2.25E+01	8.40E-08	1.50E+00	1.26E-07	5.88E-06	3.00E-04	3.00E-04	1.96E-02	3.00E-02
Chromium	3.07E+01				2.68E-06	7.50E-05	5.00E-04	5.36E-03	1.00E-02
Lead	1.54E+02								1.00E-02
Benzo(a)anthracene	8.53E-01	1.38E-08	7.30E-01	1.01E-08					1.30E-01
Benzo(a)pyrene	9.15E-01	1.48E-08	7.30E+00	1.08E-07					1.30E-01
Benzo(b)fluoranthene	1.26E+00	2.04E-08	7.30E-01	1.49E-08					1.30E-01
Indeno(1,2,3-cd)pyrene	7.55E-01	1.22E-08	7.30E-01	8.92E-09					1.30E-01
Aroclor-1254 (PCB-1254)	5.79E-02	1.01E-09	2.00E+00	2.02E-09	7.06E-08	2.00E-05	5.00E-05	1.41E-03	1.40E-01
Aroclor-1260 (PCB-1260)	7.07E-02	1.23E-09	2.00E+00	2.47E-09					1.40E-01
Total				2.73E-07				2.64E-02	

WORKSHEET 7.53 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Route: Ingestion
Receptor: Construction Worker

Chemical Constituent of Concern	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	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Arsenic	2.25E+01	9.34E-07	1.50E+00	1.40E-06	6.54E-05	3.00E-04	3.00E-04	2.18E-01
Chromium	3.07E+01				8.93E-05	3.00E-03	2.00E-02	4.47E-03
Lead	1.54E+02							
Benzo(a)anthracene	8.53E-01	3.54E-08	7.30E-01	2.59E-08				
Benzo(a)pyrene	9.15E-01	3.80E-08	7.30E+00	2.77E-07				
Benzo(b)fluoranthene	1.26E+00	5.24E-08	7.30E-01	3.83E-08				
Indeno(1,2,3-cd)pyrene	7.55E-01	3.13E-08	7.30E-01	2.29E-08				
Aroclor-1254 (PCB-1254)	5.79E-02	2.40E-09	2.00E+00	4.81E-09	1.68E-07	2.00E-05	5.00E-05	3.36E-03
Aroclor-1260 (PCB-1260)	7.07E-02	2.94E-09	2.00E+00	5.87E-09				
Total				1.78E-06				2.26E-01

WORKSHEET 7.54 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Construction Worker

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Volatilization Factor (VF) m3/kg
Arsenic	2.25E+01			1.50E+01						
Chromium	3.07E+01			4.20E+01			2.20E-06	2.20E-06		
Lead	1.54E+02									
Benzo(a)anthracene	8.53E-01	6.99E-08								8.19E-08
Benzo(a)pyrene	9.15E-01	3.28E-08	6.20E-11	3.10E+00	1.92E-10					3.59E-08
Benzo(b)fluoranthene	1.26E+00	2.31E-07								1.83E-07
Indeno(1,2,3-cd)pyrene	7.55E-01	1.19E-08								1.57E-08
Aroclor-1254 (PCB-1254)	5.79E-02	2.85E-08	5.37E-11	2.00E+00	1.07E-10					4.92E-07
Aroclor-1260 (PCB-1260)	7.07E-02	3.67E-08	6.93E-11	2.00E+00	1.39E-10					5.19E-07
Total					4.38E-10				0.00E+00	

WORKSHEET 7.55 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Outdoor Air - Particulates
Exposure Route: Inhalation
Receptor: Construction Worker

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Particulate Emission Factor (PEF) kg/m3
Arsenic	2.25E+01	1.71E-08	3.22E-11	1.50E+01	4.84E-10					7.60E-10
Chromium	3.07E+01	2.33E-08	4.41E-11	4.20E+01	1.85E-09	3.08E-09	2.20E-06	2.20E-06	1.40E-03	7.60E-10
Lead	1.54E+02	1.17E-07								7.60E-10
Benzo(a)anthracene	8.53E-01	6.48E-10								7.60E-10
Benzo(a)pyrene	9.15E-01	6.95E-10	1.31E-12	3.10E+00	4.07E-12					7.60E-10
Benzo(b)fluoranthene	1.26E+00	9.59E-10								7.60E-10
Indeno(1,2,3-cd)pyrene	7.55E-01	5.74E-10								7.60E-10
Aroclor-1254 (PCB-1254)	5.79E-02	4.40E-11	8.30E-14	2.00E+00	1.66E-13					7.60E-10
Aroclor-1260 (PCB-1260)	7.07E-02	5.37E-11	1.01E-13	2.00E+00	2.03E-13					7.60E-10
Total					2.34E-09				1.40E-03	

WORKSHEET 7.56 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Route: Dermal
Receptor: Recreational Child

Chemical Constituent of Potential Concern	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	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) Dermal unitless	Absorption Factor (ABS)
Arsenic	2.25E+01	1.15E-06	1.50E+00	1.73E-06	1.35E-05	3.00E-04	3.00E-04	4.49E-02	3.00E-02
Chromium	3.07E+01				6.13E-06	7.50E-05	5.00E-04	8.17E-02	1.00E-02
Lead	1.54E+02								1.00E-02
Benzo(a)anthracene	8.53E-01	1.90E-07	7.30E-01	1.38E-07					1.30E-01
Benzo(a)pyrene	9.15E-01	2.03E-07	7.30E+00	1.48E-06					1.30E-01
Benzo(b)fluoranthene	1.26E+00	2.81E-07	7.30E-01	2.05E-07					1.30E-01
Indeno(1,2,3-cd)pyrene	7.55E-01	1.68E-07	7.30E-01	1.22E-07					1.30E-01
Aroclor-1254 (PCB-1254)	5.79E-02	1.39E-08	2.00E+00	2.77E-08	1.62E-07	2.00E-05	5.00E-05	8.08E-03	1.40E-01
Aroclor-1260 (PCB-1260)	7.07E-02	1.69E-08	2.00E+00	3.38E-08					1.40E-01
Total				3.74E-06				1.35E-01	

WORKSHEET 7.57 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Route: Dermal
Receptor: Recreational Adult

Chemical Constituent of Potential Concern	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	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) Dermal unitless	Absorption Factor (ABS)
Arsenic	2.25E+01	7.04E-07	1.50E+00	1.06E-06	2.05E-06	3.00E-04	3.00E-04	6.85E-03	3.00E-02
Chromium	3.07E+01				9.36E-07	7.50E-05	5.00E-04	1.25E-02	1.00E-02
Lead	1.54E+02								1.00E-02
Benzo(a)anthracene	8.53E-01	1.16E-07	7.30E-01	8.46E-08					1.30E-01
Benzo(a)pyrene	9.15E-01	1.24E-07	7.30E+00	9.07E-07					1.30E-01
Benzo(b)fluoranthene	1.26E+00	1.71E-07	7.30E-01	1.25E-07					1.30E-01
Indeno(1,2,3-cd)pyrene	7.55E-01	1.02E-07	7.30E-01	7.48E-08					1.30E-01
Aroclor-1254 (PCB-1254)	5.79E-02	8.46E-09	2.00E+00	1.69E-08	2.47E-08	2.00E-05	5.00E-05	1.23E-03	1.40E-01
Aroclor-1260 (PCB-1260)	7.07E-02	1.03E-08	2.00E+00	2.07E-08					1.40E-01
Total				2.29E-06				2.06E-02	

WORKSHEET 7.58 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Route: Ingestion
Receptor: Recreational Child

Chemical Constituent of Concern	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	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Arsenic	2.25E+01	7.36E-07	1.50E+00	1.10E-06	2.15E-06	3.00E-04	3.00E-04	7.15E-03
Chromium	3.07E+01				2.93E-06	3.00E-03	2.00E-02	9.77E-04
Lead	1.54E+02							
Benzo(a)anthracene	8.53E-01	2.79E-08	7.30E-01	2.04E-08				
Benzo(a)pyrene	9.15E-01	2.99E-08	7.30E+00	2.18E-07				
Benzo(b)fluoranthene	1.26E+00	4.13E-08	7.30E-01	3.02E-08				
Indeno(1,2,3-cd)pyrene	7.55E-01	2.47E-08	7.30E-01	1.80E-08				
Aroclor-1254 (PCB-1254)	5.79E-02	1.89E-09	2.00E+00	3.79E-09	5.52E-09	2.00E-05	5.00E-05	2.76E-04
Aroclor-1260 (PCB-1260)	7.07E-02	2.31E-09	2.00E+00	4.63E-09				
Total				1.40E-06				8.41E-03

WORKSHEET 7.59 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Route: Ingestion
Receptor: Recreational Adult

Chemical Constituent of Concern	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	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Arsenic	2.25E+01	7.36E-07	1.50E+00	1.10E-06	2.15E-06	3.00E-04	3.00E-04	7.15E-03
Chromium	3.07E+01				2.93E-06	3.00E-03	2.00E-02	9.77E-04
Lead	1.54E+02							
Benzo(a)anthracene	8.53E-01	2.79E-08	7.30E-01	2.04E-08				
Benzo(a)pyrene	9.15E-01	2.99E-08	7.30E+00	2.18E-07				
Benzo(b)fluoranthene	1.26E+00	4.13E-08	7.30E-01	3.02E-08				
Indeno(1,2,3-cd)pyrene	7.55E-01	2.47E-08	7.30E-01	1.80E-08				
Aroclor-1254 (PCB-1254)	5.79E-02	1.89E-09	2.00E+00	3.79E-09	5.52E-09	2.00E-05	5.00E-05	2.76E-04
Aroclor-1260 (PCB-1260)	7.07E-02	2.31E-09	2.00E+00	4.63E-09				
Total				1.40E-06				8.41E-03

WORKSHEET 7.60 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Recreational Child

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Volatilization Factor (VF) m3/kg
Arsenic	2.25E+01			1.50E+01						
Chromium	3.07E+01			4.20E+01			2.20E-06	2.20E-06		
Lead	1.54E+02									
Benzo(a)anthracene	8.53E-01	6.99E-08								8.19E-08
Benzo(a)pyrene	9.15E-01	3.28E-08	3.02E-11	3.10E+00	9.35E-11					3.59E-08
Benzo(b)fluoranthene	1.26E+00	2.31E-07								1.83E-07
Indeno(1,2,3-cd)pyrene	7.55E-01	1.19E-08								1.57E-08
Aroclor-1254 (PCB-1254)	5.79E-02	2.85E-08	2.61E-11	2.00E+00	5.23E-11					4.92E-07
Aroclor-1260 (PCB-1260)	7.07E-02	3.67E-08	3.37E-11	2.00E+00	6.74E-11					5.19E-07
Total					2.13E-10				0.00E+00	

WORKSHEET 7.61 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Recreational Adult

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Volatilization Factor (VF) m3/kg
Arsenic	2.25E+01			1.50E+01						
Chromium	3.07E+01			4.20E+01			2.20E-06	2.20E-06		
Lead	1.54E+02									
Benzo(a)anthracene	8.53E-01	6.99E-08								8.19E-08
Benzo(a)pyrene	9.15E-01	3.28E-08	9.91E-11	3.10E+00	3.07E-10					3.59E-08
Benzo(b)fluoranthene	1.26E+00	2.31E-07								1.83E-07
Indeno(1,2,3-cd)pyrene	7.55E-01	1.19E-08								1.57E-08
Aroclor-1254 (PCB-1254)	5.79E-02	2.85E-08	8.59E-11	2.00E+00	1.72E-10					4.92E-07
Aroclor-1260 (PCB-1260)	7.07E-02	3.67E-08	1.11E-10	2.00E+00	2.22E-10					5.19E-07
Total					7.01E-10				0.00E+00	

WORKSHEET 7.62 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Outdoor Air - Particulates
Exposure Route: Inhalation
Receptor: Recreational Child

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Particulate Emission Factor (PEF) kg/m3
Arsenic	2.25E+01	1.71E-08	1.57E-11	1.50E+01	2.35E-10					7.60E-10
Chromium	3.07E+01	2.33E-08	2.14E-11	4.20E+01	9.01E-10	2.50E-10	2.20E-06	2.20E-06	1.14E-04	7.60E-10
Lead	1.54E+02	1.17E-07								7.60E-10
Benzo(a)anthracene	8.53E-01	6.48E-10								7.60E-10
Benzo(a)pyrene	9.15E-01	6.95E-10	6.39E-13	3.10E+00	1.98E-12					7.60E-10
Benzo(b)fluoranthene	1.26E+00	9.59E-10								7.60E-10
Indeno(1,2,3-cd)pyrene	7.55E-01	5.74E-10								7.60E-10
Aroclor-1254 (PCB-1254)	5.79E-02	4.40E-11	4.04E-14	2.00E+00	8.08E-14					7.60E-10
Aroclor-1260 (PCB-1260)	7.07E-02	5.37E-11	4.93E-14	2.00E+00	9.87E-14					7.60E-10
Total					1.14E-09				1.14E-04	

WORKSHEET 7.63 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Outdoor Air - Particulates
Exposure Route: Inhalation
Receptor: Recreational Adult

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Particulate Emission Factor (PEF) kg/m3
Arsenic	2.25E+01	1.71E-08	5.16E-11	1.50E+01	7.74E-10					7.60E-10
Chromium	3.07E+01	2.33E-08	7.05E-11	4.20E+01	2.96E-09	2.06E-10	2.20E-06	2.20E-06	9.34E-05	7.60E-10
Lead	1.54E+02	1.17E-07								7.60E-10
Benzo(a)anthracene	8.53E-01	6.48E-10								7.60E-10
Benzo(a)pyrene	9.15E-01	6.95E-10	2.10E-12	3.10E+00	6.51E-12					7.60E-10
Benzo(b)fluoranthene	1.26E+00	9.59E-10								7.60E-10
Indeno(1,2,3-cd)pyrene	7.55E-01	5.74E-10								7.60E-10
Aroclor-1254 (PCB-1254)	5.79E-02	4.40E-11	1.33E-13	2.00E+00	2.66E-13					7.60E-10
Aroclor-1260 (PCB-1260)	7.07E-02	5.37E-11	1.62E-13	2.00E+00	3.24E-13					7.60E-10
Total					3.74E-09				9.34E-05	

WORKSHEET 7.64 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Route: Dermal
Receptor: Visitor/Trespasser

Chemical Constituent of Potential Concern	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	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) Dermal unitless	Absorption Factor (ABS)
Arsenic	2.25E+01	8.67E-08	1.50E+00	1.30E-07	2.53E-07	3.00E-04	3.00E-04	8.43E-04	3.00E-02
Chromium	3.07E+01				1.15E-07	7.50E-05	5.00E-04	1.54E-03	1.00E-02
Lead	1.54E+02								1.00E-02
Benzo(a)anthracene	8.53E-01	1.43E-08	7.30E-01	1.04E-08					1.30E-01
Benzo(a)pyrene	9.15E-01	1.53E-08	7.30E+00	1.12E-07					1.30E-01
Benzo(b)fluoranthene	1.26E+00	2.11E-08	7.30E-01	1.54E-08					1.30E-01
Indeno(1,2,3-cd)pyrene	7.55E-01	1.26E-08	7.30E-01	9.21E-09					1.30E-01
Aroclor-1254 (PCB-1254)	5.79E-02	1.04E-09	2.00E+00	2.08E-09	3.04E-09	2.00E-05	5.00E-05	1.52E-04	1.40E-01
Aroclor-1260 (PCB-1260)	7.07E-02	1.27E-09	2.00E+00	2.54E-09					1.40E-01
Total				2.81E-07				2.53E-03	

WORKSHEET 7.65 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Route: Ingestion
Receptor: Visitor/Trespasser

Chemical Constituent of Concern	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	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Arsenic	2.25E+01	9.05E-08	1.50E+00	1.36E-07	2.64E-07	3.00E-04	3.00E-04	8.80E-04
Chromium	3.07E+01				3.61E-07	3.00E-03	2.00E-02	1.20E-04
Lead	1.54E+02							
Benzo(a)anthracene	8.53E-01	3.44E-09	7.30E-01	2.51E-09				
Benzo(a)pyrene	9.15E-01	3.68E-09	7.30E+00	2.69E-08				
Benzo(b)fluoranthene	1.26E+00	5.08E-09	7.30E-01	3.71E-09				
Indeno(1,2,3-cd)pyrene	7.55E-01	3.04E-09	7.30E-01	2.22E-09				
Aroclor-1254 (PCB-1254)	5.79E-02	2.33E-10	2.00E+00	4.66E-10	6.80E-10	2.00E-05	5.00E-05	3.40E-05
Aroclor-1260 (PCB-1260)	7.07E-02	2.85E-10	2.00E+00	5.69E-10				
Total				1.72E-07				1.03E-03

WORKSHEET 7.66 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Outdoor Air - Particulates
Receptor: Visitor/Trespasser

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Volatilization Factor (VF) m3/kg
Arsenic	2.25E+01			1.50E+01						
Chromium	3.07E+01			4.20E+01			2.20E-06	2.20E-06		
Lead	1.54E+02									
Benzo(a)anthracene	8.53E-01	6.99E-08								8.19E-08
Benzo(a)pyrene	9.15E-01	3.28E-08	1.76E-11	3.10E+00	5.46E-11					3.59E-08
Benzo(b)fluoranthene	1.26E+00	2.31E-07								1.83E-07
Indeno(1,2,3-cd)pyrene	7.55E-01	1.19E-08								1.57E-08
Aroclor-1254 (PCB-1254)	5.79E-02	2.85E-08	1.53E-11	2.00E+00	3.05E-11					4.92E-07
Aroclor-1260 (PCB-1260)	7.07E-02	3.67E-08	1.97E-11	2.00E+00	3.94E-11					5.19E-07
Total					1.25E-10				0.00E+00	

WORKSHEET 7.67 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Inhalation
Exposure Route: Outdoor Air - Particulates
Receptor: Visitor/Trespasser

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Particulate Emission Factor (PEF) kg/m3
Arsenic	2.25E+01	1.71E-08	9.17E-12	1.50E+01	1.38E-10					7.60E-10
Chromium	3.07E+01	2.33E-08	1.25E-11	4.20E+01	5.26E-10	3.65E-11	2.20E-06	2.20E-06	1.66E-05	7.60E-10
Lead	1.54E+02	1.17E-07								7.60E-10
Benzo(a)anthracene	8.53E-01	6.48E-10								7.60E-10
Benzo(a)pyrene	9.15E-01	6.95E-10	3.73E-13	3.10E+00	1.16E-12					7.60E-10
Benzo(b)fluoranthene	1.26E+00	9.59E-10								7.60E-10
Indeno(1,2,3-cd)pyrene	7.55E-01	5.74E-10								7.60E-10
Aroclor-1254 (PCB-1254)	5.79E-02	4.40E-11	2.36E-14	2.00E+00	4.72E-14					7.60E-10
Aroclor-1260 (PCB-1260)	7.07E-02	5.37E-11	2.88E-14	2.00E+00	5.76E-14					7.60E-10
Total					6.65E-10				1.66E-05	

WORKSHEET 7.68 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Route: Dermal
Receptor: Agricultural Worker

Chemical Constituent of Potential Concern	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	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) Dermal unitless	Absorption Factor (ABS)
Arsenic	2.25E+01	2.52E-06	1.50E+00	3.78E-06	5.88E-06	3.00E-04	3.00E-04	1.96E-02	3.00E-02
Chromium	3.07E+01				2.68E-06	7.50E-05	5.00E-04	3.57E-02	1.00E-02
Lead	1.54E+02								1.00E-02
Benzo(a)anthracene	8.53E-01	4.15E-07	7.30E-01	3.03E-07					1.30E-01
Benzo(a)pyrene	9.15E-01	4.44E-07	7.30E+00	3.24E-06					1.30E-01
Benzo(b)fluoranthene	1.26E+00	6.13E-07	7.30E-01	4.48E-07					1.30E-01
Indeno(1,2,3-cd)pyrene	7.55E-01	3.67E-07	7.30E-01	2.68E-07					1.30E-01
Aroclor-1254 (PCB-1254)	5.79E-02	3.03E-08	2.00E+00	6.06E-08	7.06E-08	2.00E-05	5.00E-05	3.53E-03	1.40E-01
Aroclor-1260 (PCB-1260)	7.07E-02	3.70E-08	2.00E+00	7.40E-08					1.40E-01
Total				8.18E-06				5.89E-02	

WORKSHEET 7.69 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Route: Ingestion
Receptor: Agricultural Worker

Chemical Constituent of Concern	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	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Arsenic	2.25E+01	2.64E-05	1.50E+00	3.96E-05	6.16E-05	3.00E-04	3.00E-04	2.05E-01
Chromium	3.07E+01				8.42E-05	3.00E-03	2.00E-02	2.81E-02
Lead	1.54E+02							
Benzo(a)anthracene	8.53E-01	1.00E-06	7.30E-01	7.31E-07				
Benzo(a)pyrene	9.15E-01	1.07E-06	7.30E+00	7.84E-06				
Benzo(b)fluoranthene	1.26E+00	1.48E-06	7.30E-01	1.08E-06				
Indeno(1,2,3-cd)pyrene	7.55E-01	8.86E-07	7.30E-01	6.47E-07				
Aroclor-1254 (PCB-1254)	5.79E-02	6.80E-08	2.00E+00	1.36E-07	1.59E-07	2.00E-05	5.00E-05	7.93E-03
Aroclor-1260 (PCB-1260)	7.07E-02	8.30E-08	2.00E+00	1.66E-07				
Total				5.02E-05				2.41E-01

WORKSHEET 7.70 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Agricultural Worker

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Volatilization Factor (VF) m3/kg
Arsenic	2.25E+01			1.50E+01						
Chromium	3.07E+01			4.20E+01			2.20E-06	2.20E-06		
Lead	1.54E+02									
Benzo(a)anthracene	8.53E-01	6.99E-08								8.19E-08
Benzo(a)pyrene	9.15E-01	3.28E-08	1.86E-09	3.10E+00	5.76E-09					3.59E-08
Benzo(b)fluoranthene	1.26E+00	2.31E-07								1.83E-07
Indeno(1,2,3-cd)pyrene	7.55E-01	1.19E-08								1.57E-08
Aroclor-1254 (PCB-1254)	5.79E-02	2.85E-08	1.61E-09	2.00E+00	3.22E-09					4.92E-07
Aroclor-1260 (PCB-1260)	7.07E-02	3.67E-08	2.08E-09	2.00E+00	4.16E-09					5.19E-07
Total					1.31E-08				0.00E+00	

WORKSHEET 7.71 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 4
Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Outdoor Air - Particulates
Exposure Route: Inhalation
Receptor: Agricultural Worker

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Particulate Emission Factor (PEF) kg/m3
Arsenic	2.25E+01	1.71E-08	9.67E-10	1.50E+01	1.45E-08					7.60E-10
Chromium	3.07E+01	2.33E-08	1.32E-09	4.20E+01	5.55E-08	3.08E-09	2.20E-06	2.20E-06	1.40E-03	7.60E-10
Lead	1.54E+02	1.17E-07								7.60E-10
Benzo(a)anthracene	8.53E-01	6.48E-10								7.60E-10
Benzo(a)pyrene	9.15E-01	6.95E-10	3.94E-11	3.10E+00	1.22E-10					7.60E-10
Benzo(b)fluoranthene	1.26E+00	9.59E-10								7.60E-10
Indeno(1,2,3-cd)pyrene	7.55E-01	5.74E-10								7.60E-10
Aroclor-1254 (PCB-1254)	5.79E-02	4.40E-11	2.49E-12	2.00E+00	4.98E-12					7.60E-10
Aroclor-1260 (PCB-1260)	7.07E-02	5.37E-11	3.04E-12	2.00E+00	6.08E-12					7.60E-10
Total					7.02E-08				1.40E-03	

WORKSHEET 7.72 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 5
Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Resident Child

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Volatilization Factor (VF) kg/m3
Arsenic	7.06E+00			1.50E+01						
Lead	2.01E+01									
Tetrachloroethene	4.30E-01	1.25E-04	1.38E-06	2.10E-02	2.91E-08	1.61E-05	1.00E-02	1.00E-02	1.61E-03	2.91E-04
Trichloroethene	5.94E-02	3.12E-05	3.45E-07	4.00E-01	1.38E-07	4.02E-06	1.00E-02	1.00E-02	4.02E-04	5.24E-04
Total					1.67E-07				2.02E-03	

WORKSHEET 7.73 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 5
Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Resident Adult

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Volatilization Factor (VF) kg/m3
Arsenic	7.06E+00			1.50E+01						
Lead	2.01E+01									
Tetrachloroethene	4.30E-01	1.25E-04	6.46E-07	2.10E-02	1.36E-08	1.89E-06	1.00E-02	1.00E-02	1.89E-04	2.91E-04
Trichloroethene	5.94E-02	3.12E-05	1.61E-07	4.00E-01	6.44E-08	4.70E-07	1.00E-02	1.00E-02	4.70E-05	5.24E-04
Total					7.80E-08				2.35E-04	

WORKSHEET 7.74 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 5
Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Com. & Ind. Worker

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Volatilization Factor (VF) kg/m3
Arsenic	7.06E+00			1.50E+01						
Lead	2.01E+01									
Tetrachloroethene	4.30E-01	1.25E-04	3.61E-07	2.10E-02	7.58E-09	1.01E-06	1.00E-02	1.00E-02	1.01E-04	2.91E-04
Trichloroethene	5.94E-02	3.12E-05	8.98E-08	4.00E-01	3.59E-08	2.52E-07	1.00E-02	1.00E-02	2.52E-05	5.24E-04
Total					4.35E-08				1.26E-04	

WORKSHEET 7.75 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 5
Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Construction Worker

Chemical Constituent of Potential Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Volatilization Factor (VF) kg/m3
Arsenic	6.70E+00			1.50E+01						
Lead	2.56E+01									
Tetrachloroethene	3.26E-01	9.47E-05	1.79E-07	2.10E-02	3.75E-09	1.25E-05	1.00E-02	1.00E-02	1.25E-03	2.91E-04
Trichloroethene	6.08E-02	3.19E-05	6.01E-08	4.00E-01	2.40E-08	4.21E-06	1.00E-02	1.00E-02	4.21E-04	5.24E-04
Total					2.78E-08				1.67E-03	

WORKSHEET 7.76 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 5
Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Outdoor Air - Particulates
Exposure Route: Inhalation
Receptor: Construction Worker

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Particulate Emission Factor (PEF) kg/m3
Arsenic	6.70E+00	5.09E-09	9.60E-12	1.50E+01	1.44E-10					7.60E-10
Lead	2.56E+01	1.94E-08								7.60E-10
Tetrachloroethene	3.26E-01	2.47E-10	4.67E-13	2.10E-02	9.81E-15	3.27E-11	1.00E-02	1.00E-02	3.27E-09	7.60E-10
Trichloroethene	6.08E-02	4.62E-11	8.71E-14	4.00E-01	3.48E-14	6.10E-12	1.00E-02	1.00E-02	6.10E-10	7.60E-10
Total					1.44E-10				3.88E-09	

WORKSHEET 7.75 CALCULATION OF RISK
Westinghouse Electric Co. Hematite Site

EPC Set: 5
Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Recreational Child

Chemical Constituent of Potential Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Volatilization Factor (VF) kg/m3
Arsenic	6.70E+00			1.50E+01						
Lead	2.56E+01									
Tetrachloroethene	3.26E-01	9.47E-05	8.70E-08	2.10E-02	1.83E-09	1.01E-06	1.00E-02	1.00E-02	1.01E-04	2.91E-04
Trichloroethene	6.08E-02	3.19E-05	2.93E-08	4.00E-01	1.17E-08	3.41E-07	1.00E-02	1.00E-02	3.41E-05	5.24E-04
Total					1.35E-08				1.36E-04	

WORKSHEET 7.78 CALCULATION OF RISK
Westinghouse Electric Co. Hematite Site

EPC Set: 5
Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Recreational Adult

Chemical Constituent of Potential Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Volatilization Factor (VF) kg/m3
Arsenic	6.70E+00			1.50E+01						
Lead	2.56E+01									
Tetrachloroethene	3.26E-01	9.47E-05	2.86E-07	2.10E-02	6.00E-09	8.34E-07	1.00E-02	1.00E-02	8.34E-05	2.91E-04
Trichloroethene	6.08E-02	3.19E-05	9.62E-08	4.00E-01	3.85E-08	2.81E-07	1.00E-02	1.00E-02	2.81E-05	5.24E-04
Total					4.45E-08				1.11E-04	

WORKSHEET 7.79 CALCULATION OF RISK
Westinghouse Electric Co. Hematite Site

EPC Set: 5
Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Visitor/Trespasser

Chemical Constituent of Potential Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Volatilization Factor (VF) kg/m3
Arsenic	6.70E+00			1.50E+01						
Lead	2.56E+01									
Tetrachloroethene	3.26E-01	9.47E-05	5.08E-08	2.10E-02	1.07E-09	1.48E-07	1.00E-02	1.00E-02	1.48E-05	2.91E-04
Trichloroethene	6.08E-02	3.19E-05	1.71E-08	4.00E-01	6.84E-09	4.99E-08	1.00E-02	1.00E-02	4.99E-06	5.24E-04
Total					7.90E-09				1.98E-05	

WORKSHEET 7.80 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 5
Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Outdoor Air - Vapors
Exposure Route: Inhalation
Receptor: Agricultural Worker

Chemical Constituent of Potential Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Volatilization Factor (VF) kg/m3
Arsenic	6.70E+00			1.50E+01						
Lead	2.56E+01									
Tetrachloroethene	3.26E-01	9.47E-05	5.36E-06	2.10E-02	1.13E-07	1.25E-05	1.00E-02	1.00E-02	1.25E-03	2.91E-04
Trichloroethene	6.08E-02	3.19E-05	1.80E-06	4.00E-01	7.21E-07	4.21E-06	1.00E-02	1.00E-02	4.21E-04	5.24E-04
Total					8.34E-07				1.67E-03	

WORKSHEET 7.81 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 5
Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Outdoor Air - Particulates
Exposure Route: Inhalation
Receptor: Agricultural Worker

Chemical Constituent of Concern	Soil Concentration mg/kg	Exposure Point Concentration (Inhalation) (CA) mg/m3	Chronic Daily Intake (Cancer) (CDIc) mg/kg-day	Inhalation Cancer Slope Factor CSFi 1/(mg/kg-day)	Cancer Risk (CDIc*CSFi) Inhalation unitless	Chronic Daily Intake (Non-Cancer) (CDIn) mg/kg-day	Inhalation Reference Dose (chronic) RfDi mg/kg-day	Inhalation Reference Dose (subchronic) RfDi mg/kg-day	Hazard Quotient (CDIn/RfDi) Inhalation unitless	Particulate Emission Factor (PEF) kg/m3
Arsenic	6.70E+00	5.09E-09	2.88E-10	1.50E+01	4.32E-09					7.60E-10
Lead	2.56E+01	1.94E-08								7.60E-10
Tetrachloroethene	3.26E-01	2.47E-10	1.40E-11	2.10E-02	2.94E-13	3.27E-11	1.00E-02	1.00E-02	3.27E-09	7.60E-10
Trichloroethene	6.08E-02	4.62E-11	2.61E-12	4.00E-01	1.05E-12	6.10E-12	1.00E-02	1.00E-02	6.10E-10	7.60E-10
Total					4.32E-09				3.88E-09	

WORKSHEET 7.82 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 6
Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil to depth of 15 feet
Exposure Route: Dermal
Receptor: Construction Worker

Chemical Constituent of Potential Concern	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	Adjusted Dermal Reference Dose (subchronic) RfDd mg/kg-day	Hazard Quotient (DADn/RfDd) Dermal unitless	Absorption Factor (ABS)
Arsenic	7.00E+00				1.83E-06	3.00E-04	3.00E-04	6.10E-03	3.00E-02
Lead	2.57E+01								1.00E-02
Tetrachloroethene	1.86E-01	6.93E-10	5.40E-01	3.74E-10	4.85E-08	1.00E-02	1.00E-02	4.85E-06	3.00E-02
Trichloroethene	4.20E-03				1.10E-09	3.00E-04	3.00E-04	3.66E-06	3.00E-02

WORKSHEET 7.83 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set: 6
Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil to depth of 15 feet
Exposure Route: Ingestion
Receptor: Construction Worker

Chemical Constituent of Concern	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	Oral Reference Dose (subchronic) RfDo mg/kg-day	Hazard Quotient (CDIn/RfDo) Oral unitless
Arsenic	7.00E+00	2.90E-07	1.50E+00	4.36E-07	2.03E-05	3.00E-04	3.00E-04	6.78E-02
Lead	2.57E+01							
Tetrachloroethene	1.86E-01	7.70E-09	5.40E-01	4.16E-09	5.39E-07	1.00E-02	1.00E-02	5.39E-05
Trichloroethene	4.20E-03	1.74E-10	4.00E-01	6.97E-11	1.22E-08	3.00E-04	3.00E-04	4.07E-05
Total				4.40E-07				6.79E-02

WORKSHEET 7.84 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 1, Overburden Wells
Scenario Timeframe: Future
Medium: Overburden Groundwater
Exposure Medium: Groundwater
Exposure Route: Ingestion
Receptor: Resident Child

Radiological Constituent of Concern	Groundwater Concentration	Exposure Time (ET)	Total Uptake	Total Activity	Dose Conversion Factor	Radiation Dose	Slope Factor Cancer	Cancer Risk	Slope Factor NonCancer	Non Cancer Risk
	pCi/l	liters/day	liters	uCi	mrem/uCi	mrem	/uCi	unitless	/uCi	unitless
Radium 226	1.01E+00	1.00E+00	2.10E+03	2.12E-03	2.28E+00	4.84E-03	9.58E-04	2.03E-06	2.22E-03	4.71E-06
Neptunium 237	4.36E-03	1.00E+00	2.10E+03	9.16E-06	5.28E-01	4.83E-06	3.43E-04	3.14E-09	5.66E-04	5.18E-09
Plutonium 239	4.38E-03	1.00E+00	2.10E+03	9.20E-06	1.23E+00	1.13E-05	2.88E-04	2.65E-09	9.10E-04	8.37E-09
Uranium 238	1.39E+00	1.00E+00	2.10E+03	2.92E-03	3.00E+02	8.76E-01	1.50E-04	4.38E-07	2.50E-04	7.30E-07
Uranium 235	5.04E-02	1.00E+00	2.10E+03	1.06E-04	3.20E+02	3.39E-02	1.70E-04	1.80E-08	2.70E-04	2.86E-08
Uranium 234	1.64E+00	1.00E+00	2.10E+03	3.44E-03	3.30E+02	1.14E+00	1.70E-04	5.85E-07	2.70E-04	9.30E-07
Thorium 232	5.55E-02	1.00E+00	2.10E+03	1.17E-04	1.30E+03	1.52E-01	2.20E-04	2.56E-08	3.30E-04	3.85E-08
Thorium 230	4.75E-02	1.00E+00	2.10E+03	9.98E-05	1.14E+03	1.14E-01	1.86E-04	1.86E-08	2.90E-04	2.89E-08
Technetium 99	4.53E+02	1.00E+00	2.10E+03	9.51E-01	8.50E+00	8.09E+00	7.60E-06	7.23E-06	1.30E-05	1.24E-05
Total						1.04E+01		1.04E-05		1.88E-05
						1.73E+00	mrem/yr			

WORKSHEET 7.85 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 1, Overburden Wells
Scenario Timeframe: Future
Medium: Overburden Groundwater
Exposure Medium: Groundwater
Exposure Route: Ingestion
Receptor: Resident Adult

Radiological Constituent of Concern	Groundwater Concentration pCi/l	Exposure Time (ET) liters/day	Total Uptake liters	Total Activity uCi	Dose Conversion Factor mrem/uCi	Radiation Dose mrem	Slope Factor Cancer /uCi	Cancer Risk unitless	Slope Factor NonCancer /uCi	Non Cancer Risk unitless
Radium 226	1.01E+00	2.00E+00	1.68E+04	1.70E-02	1.03E+00	1.75E-02	9.58E-04	1.63E-05	2.22E-03	3.77E-05
Neptunium 237	4.36E-03	2.00E+00	1.68E+04	7.32E-05	3.96E-01	2.90E-05	3.43E-04	2.51E-08	5.66E-04	4.15E-08
Plutonium 239	4.38E-03	2.00E+00	1.68E+04	7.36E-05	9.28E-01	6.83E-05	2.88E-04	2.12E-08	9.10E-04	6.70E-08
Uranium 238	1.39E+00	2.00E+00	1.68E+04	2.34E-02	1.70E+02	3.97E+00	2.20E-05	5.14E-07	3.20E-05	7.47E-07
Uranium 235	5.04E-02	2.00E+00	1.68E+04	8.47E-04	1.70E+02	1.44E-01	2.30E-05	1.95E-08	3.40E-05	2.88E-08
Uranium 234	1.64E+00	2.00E+00	1.68E+04	2.76E-02	1.80E+02	4.96E+00	2.40E-05	6.61E-07	3.50E-05	9.64E-07
Thorium 232	5.55E-02	2.00E+00	1.68E+04	9.32E-04	8.53E+02	7.95E-01	5.80E-05	5.41E-08	5.80E-05	5.41E-08
Thorium 230	4.75E-02	2.00E+00	1.68E+04	7.98E-04	7.91E+02	6.31E-01	4.37E-05	3.49E-08	6.11E-05	4.88E-08
Technetium 99	4.53E+02	2.00E+00	1.68E+04	7.61E+00	2.40E+00	1.83E+01	7.60E-07	5.78E-06	7.60E-07	5.78E-06
Total						2.88E+01		2.34E-05		4.54E-05
						1.20E+00	mrem/yr			

WORKSHEET 7.86 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 1, Overburden Wells
Scenario Timeframe: Future
Medium: Overburden Groundwater
Exposure Medium: Groundwater
Exposure Route: Ingestion
Receptor: Industrial Worker

Radiological Constituent of Concern	Groundwater Concentration pCi/l	Exposure Time (ET) liters/day	Total Uptake liters	Total Activity uCi	Dose Conversion Faxctor mrem/uCi	Radiation Dose mrem	Slope Factor Cancer /uCi	Cancer Risk unitless	Slope Factor NonCancer /uCi	Non Cancer Risk unitless
Radium 226	1.01E+00	1.00E+00	6.25E+03	6.31E-03	1.03E+00	6.50E-03	9.58E-04	6.05E-06	2.22E-03	1.40E-05
Neptunium 237	4.36E-03	1.00E+00	6.25E+03	2.73E-05	3.96E-01	1.08E-05	3.43E-04	9.35E-09	5.66E-04	1.54E-08
Plutonium 239	4.38E-03	1.00E+00	6.25E+03	2.74E-05	9.28E-01	2.54E-05	2.88E-04	7.88E-09	9.10E-04	2.49E-08
Uranium 238	1.39E+00	1.00E+00	6.25E+03	8.69E-03	1.70E+02	1.48E+00	2.20E-05	1.91E-07	3.20E-05	2.78E-07
Uranium 235	5.04E-02	1.00E+00	6.25E+03	3.15E-04	1.70E+02	5.36E-02	2.30E-05	7.25E-09	3.40E-05	1.07E-08
Uranium 234	1.64E+00	1.00E+00	6.25E+03	1.03E-02	1.80E+02	1.85E+00	2.40E-05	2.46E-07	3.50E-05	3.59E-07
Thorium 232	5.55E-02	1.00E+00	6.25E+03	3.47E-04	8.53E+02	2.96E-01	5.80E-05	2.01E-08	5.80E-05	2.01E-08
Thorium 230	4.75E-02	1.00E+00	6.25E+03	2.97E-04	7.91E+02	2.35E-01	4.37E-05	1.30E-08	6.11E-05	1.81E-08
Technetium 99	4.53E+02	1.00E+00	6.25E+03	2.83E+00	2.40E+00	6.80E+00	7.60E-07	2.15E-06	7.60E-07	2.15E-06
Total						1.07E+01		8.69E-06		1.69E-05
						4.28E-01	mrem/yr			

WORKSHEET 7.87 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 2, Bedrock Wells

Scenario Timeframe: Future

Medium: Bedrock Groundwater

Exposure Medium: Groundwater

Exposure Route: Ingestion

Receptor: Resident Child

Radiological Constituent of Concern	Groundwater Concentration pCi/l	Exposure Time (ET) liters/day	Total Uptake liters	Total Activity uCi	Dose Conversion Factor mrem/uCi	Radiation Dose mrem	Slope Factor Cancer /uCi	Cancer Risk unitless	Slope Factor NonCancer /uCi	Non Cancer Risk unitless
Radium 226	1.66E+00	1.00E+00	2.10E+03	3.49E-03	2.28E+00	7.95E-03	9.58E-04	3.34E-06	2.22E-03	7.74E-06
Neptunium 237	4.25E-03	1.00E+00	2.10E+03	8.93E-06	5.28E-01	4.71E-06	3.43E-04	3.06E-09	5.66E-04	5.05E-09
Plutonium 239	1.24E-02	1.00E+00	2.10E+03	2.60E-05	1.23E+00	3.20E-05	2.88E-04	7.50E-09	9.10E-04	2.37E-08
Uranium 238	7.05E-01	1.00E+00	2.10E+03	1.48E-03	3.00E+02	4.44E-01	1.50E-04	2.22E-07	2.50E-04	3.70E-07
Uranium 235	5.72E-02	1.00E+00	2.10E+03	1.20E-04	3.20E+02	3.84E-02	1.70E-04	2.04E-08	2.70E-04	3.24E-08
Uranium 234	6.91E+00	1.00E+00	2.10E+03	1.45E-02	3.30E+02	4.79E+00	1.70E-04	2.47E-06	2.70E-04	3.92E-06
Thorium 232	3.58E-02	1.00E+00	2.10E+03	7.52E-05	1.30E+03	9.77E-02	2.20E-04	1.65E-08	3.30E-04	2.48E-08
Thorium 230	3.17E-02	1.00E+00	2.10E+03	6.66E-05	1.14E+03	7.59E-02	1.86E-04	1.24E-08	2.90E-04	1.93E-08
Technetium 99	4.47E+00	1.00E+00	2.10E+03	9.39E-03	8.50E+00	7.98E-02	7.60E-06	7.13E-08	1.30E-05	1.22E-07
Total						5.53E+00		6.16E-06		1.23E-05
						9.22E-01	mrem/yr			

WORKSHEET 7.88 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 2, Bedrock Wells

Scenario Timeframe: Future

Medium: Bedrock Groundwater

Exposure Medium: Groundwater

Exposure Route: Ingestion

Receptor: Resident Adult

Radiological Constituent of Concern	Groundwater Concentration pCi/l	Exposure Time (ET) liters/day	Total Uptake liters	Total Activity uCi	Dose Conversion Factor mrem/uCi	Radiation Dose mrem	Slope Factor Cancer /uCi	Cancer Risk unitless	Slope Factor NonCancer /uCi	Non Cancer Risk unitless
Radium 226	1.66E+00	2.00E+00	1.68E+04	2.79E-02	1.03E+00	2.87E-02	9.58E-04	2.67E-05	2.22E-03	6.19E-05
Neptunium 237	4.25E-03	2.00E+00	1.68E+04	7.14E-05	3.96E-01	2.83E-05	3.43E-04	2.45E-08	5.66E-04	4.04E-08
Plutonium 239	1.24E-02	2.00E+00	1.68E+04	2.08E-04	9.28E-01	1.93E-04	2.88E-04	6.00E-08	9.10E-04	1.90E-07
Uranium 238	7.05E-01	2.00E+00	1.68E+04	1.18E-02	1.70E+02	2.01E+00	2.20E-05	2.61E-07	3.20E-05	3.79E-07
Uranium 235	5.72E-02	2.00E+00	1.68E+04	9.61E-04	1.70E+02	1.63E-01	2.30E-05	2.21E-08	3.40E-05	3.27E-08
Uranium 234	6.91E+00	2.00E+00	1.68E+04	1.16E-01	1.80E+02	2.09E+01	2.40E-05	2.79E-06	3.50E-05	4.06E-06
Thorium 232	3.58E-02	2.00E+00	1.68E+04	6.01E-04	8.53E+02	5.13E-01	5.80E-05	3.49E-08	5.80E-05	3.49E-08
Thorium 230	3.17E-02	2.00E+00	1.68E+04	5.33E-04	7.91E+02	4.21E-01	4.37E-05	2.33E-08	6.11E-05	3.25E-08
Technetium 99	4.47E+00	2.00E+00	1.68E+04	7.51E-02	2.40E+00	1.80E-01	7.60E-07	5.71E-08	7.60E-07	5.71E-08
Total						2.42E+01		3.00E-05		6.67E-05
						1.01E+00	mrem/yr			

WORKSHEET 7.89 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 2, Bedrock Wells

Scenario Timeframe: Future

Medium: Bedrock Groundwater

Exposure Medium: Groundwater

Exposure Route: Ingestion

Receptor: Industrial Worker

Radiological Constituent of Concern	Groundwater Concentration pCi/l	Exposure Time (ET) liters/day	Total Uptake liters	Total Activity uCi	Dose Conversion Faxctor mrem/uCi	Radiation Dose mrem	Slope Factor Cancer /uCi	Cancer Risk unitless	Slope Factor NonCancer /uCi	Non Cancer Risk unitless
Radium 226	1.66E+00	1.00E+00	6.25E+03	1.04E-02	1.03E+00	1.07E-02	9.58E-04	9.94E-06	2.22E-03	2.30E-05
Neptunium 237	4.25E-03	1.00E+00	6.25E+03	2.66E-05	3.96E-01	1.05E-05	3.43E-04	9.11E-09	5.66E-04	1.50E-08
Plutonium 239	1.24E-02	1.00E+00	6.25E+03	7.75E-05	9.28E-01	7.19E-05	2.88E-04	2.23E-08	9.10E-04	7.05E-08
Uranium 238	7.05E-01	1.00E+00	6.25E+03	4.41E-03	1.70E+02	7.49E-01	2.20E-05	9.69E-08	3.20E-05	1.41E-07
Uranium 235	5.72E-02	1.00E+00	6.25E+03	3.58E-04	1.70E+02	6.08E-02	2.30E-05	8.22E-09	3.40E-05	1.22E-08
Uranium 234	6.91E+00	1.00E+00	6.25E+03	4.32E-02	1.80E+02	7.77E+00	2.40E-05	1.04E-06	3.50E-05	1.51E-06
Thorium 232	3.58E-02	1.00E+00	6.25E+03	2.24E-04	8.53E+02	1.91E-01	5.80E-05	1.30E-08	5.80E-05	1.30E-08
Thorium 230	3.17E-02	1.00E+00	6.25E+03	1.98E-04	7.91E+02	1.57E-01	4.37E-05	8.66E-09	6.11E-05	1.21E-08
Technetium 99	4.47E+00	1.00E+00	6.25E+03	2.79E-02	2.40E+00	6.71E-02	7.60E-07	2.12E-08	7.60E-07	2.12E-08
Total						9.01E+00		1.12E-05		2.48E-05
						3.60E-01	mrem/yr			

WORKSHEET 7.90 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 3, Surface Water

Scenario Timeframe: Future

Exposure Medium: Surface water

Exposure Route: Ingestion

Receptor: Resident Child

Radiological Constituent of Concern	Groundwater Concentration pCi/l	Exposure Time (ET) liters/day	Total Uptake liters	Total Activity uCi	Dose Conversion Factor mrem/uCi	Radiation Dose mrem	Slope Factor Cancer /uCi	Cancer Risk unitless	Slope Factor NonCancer /uCi	Non Cancer Risk unitless
Uranium 238	2.21E+00	1.00E+00	2.10E+03	4.64E-03	3.00E+02	1.39E+00	1.50E-04	6.96E-07	2.50E-04	1.16E-06
Uranium 235	7.20E-02	1.00E+00	2.10E+03	1.51E-04	3.20E+02	4.84E-02	1.70E-04	2.57E-08	2.70E-04	4.08E-08
Thorium 232	1.87E-02	1.00E+00	2.10E+03	3.93E-05	1.30E+03	5.11E-02	2.20E-04	8.64E-09	3.30E-04	1.30E-08
Thorium 230	3.58E-02	1.00E+00	2.10E+03	7.52E-05	1.14E+03	8.57E-02	1.86E-04	1.40E-08	2.90E-04	2.18E-08
Technetium 99	1.63E+00	1.00E+00	2.10E+03	3.42E-03	8.50E+00	2.91E-02	7.60E-06	2.60E-08	1.30E-05	4.45E-08
Total						1.61E+00		7.70E-07		1.28E-06
						2.68E-01	mrem/yr			

WORKSHEET 7.91 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 3, Surface Water

Scenario Timeframe: Future

Exposure Medium: Surface water

Exposure Route: Ingestion

Receptor: Resident Adult

Radiological Constituent of Concern	Groundwater Concentration pCi/l	Exposure Time (ET) liters/day	Total Uptake liters	Total Activity uCi	Dose Conversion Factor mrem/uCi	Radiation Dose mrem	Slope Factor Cancer /uCi	Cancer Risk unitless	Slope Factor NonCancer /uCi	Non Cancer Risk unitless
Uranium 238	2.21E+00	2.00E+00	1.68E+04	3.71E-02	1.70E+02	6.31E+00	2.20E-05	8.17E-07	3.20E-05	1.19E-06
Uranium 235	7.20E-02	2.00E+00	1.68E+04	1.21E-03	1.70E+02	2.06E-01	2.30E-05	2.78E-08	3.40E-05	4.11E-08
Thorium 232	1.87E-02	2.00E+00	1.68E+04	3.14E-04	8.53E+02	2.68E-01	3.51E-04	1.10E-07	4.74E-04	1.49E-07
Thorium 230	3.58E-02	2.00E+00	1.68E+04	6.01E-04	7.91E+02	4.76E-01	4.37E-05	2.63E-08	6.11E-05	3.67E-08
Technetium 99	1.63E+00	2.00E+00	1.68E+04	2.74E-02	2.40E+00	6.57E-02	4.60E-07	1.26E-08	7.60E-07	2.08E-08
Total						7.33E+00		9.94E-07		1.44E-06
						3.05E-01	mrem/yr			

WORKSHEET 7.92 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 3, Surface Water
Scenario Timeframe: Future
Exposure Medium: Surface water
Exposure Route: Ingestion
Receptor: Construction worker

Radiological Constituent of Concern	Groundwater Concentration pCi/l	Exposure Time (ET) liters/day	Total Uptake liters	Total Activity uCi	Dose Conversion Factor mrem/uCi	Radiation Dose mrem	Slope Factor Cancer /uCi	Cancer Risk unitless	Slope Factor NonCancer /uCi	Non Cancer Risk unitless
Uranium 238	2.21E+00	1.00E+00	2.25E+02	4.97E-04	1.70E+02	8.45E-02	2.20E-05	1.09E-08	3.20E-05	1.59E-08
Uranium 235	7.20E-02	1.00E+00	2.25E+02	1.62E-05	1.70E+02	2.75E-03	2.30E-05	3.73E-10	3.40E-05	5.51E-10
Thorium 232	1.87E-02	1.00E+00	2.25E+02	4.21E-06	8.53E+02	3.59E-03	3.51E-04	1.48E-09	4.74E-04	1.99E-09
Thorium 230	3.58E-02	1.00E+00	2.25E+02	8.06E-06	7.91E+02	6.37E-03	4.37E-05	3.52E-10	6.11E-05	4.92E-10
Technetium 99	1.63E+00	1.00E+00	2.25E+02	3.67E-04	2.40E+00	8.80E-04	4.60E-07	1.69E-10	7.60E-07	2.79E-10
Total						9.81E-02		1.33E-08		1.92E-08
						9.81E-02	mrem/yr			

WORKSHEET 7.93 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 3, Surface Water

Scenario Timeframe: Future

Exposure Medium: Surface water

Exposure Route: Ingestion

Receptor: Industrial worker

Radiological Constituent of Concern	Groundwater Concentration pCi/l	Exposure Time (ET) liters/day	Total Uptake liters	Total Activity uCi	Dose Conversion Factor mrem/uCi	Radiation Dose mrem	Slope Factor Cancer /uCi	Cancer Risk unitless	Slope Factor NonCancer /uCi	Non Cancer Risk unitless
Uranium 238	2.21E+00	1.00E+00	6.25E+03	1.38E-02	1.70E+02	2.35E+00	2.20E-05	3.04E-07	3.20E-05	4.42E-07
Uranium 235	7.20E-02	1.00E+00	6.25E+03	4.50E-04	1.70E+02	7.65E-02	2.30E-05	1.04E-08	3.40E-05	1.53E-08
Thorium 232	1.87E-02	1.00E+00	6.25E+03	1.17E-04	8.53E+02	9.97E-02	3.51E-04	4.10E-08	4.74E-04	5.54E-08
Thorium 230	3.58E-02	1.00E+00	6.25E+03	2.24E-04	7.91E+02	1.77E-01	4.37E-05	9.78E-09	6.11E-05	1.37E-08
Technetium 99	1.63E+00	1.00E+00	6.25E+03	1.02E-02	2.40E+00	2.45E-02	4.60E-07	4.69E-09	7.60E-07	7.74E-09
Total						2.73E+00		3.70E-07		5.34E-07
						1.09E-01	mrem/yr			

WORKSHEET 7.94 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 3, Surface Water

Scenario Timeframe: Future

Exposure Medium: Surface water

Exposure Route: Ingestion

Receptor: Agricultural worker

Radiological Constituent of Concern	Groundwater Concentration	Exposure Time (ET)	Total Uptake	Total Activity	Dose Conversion Factor	Radiation Dose	Slope Factor Cancer	Cancer Risk	Slope Factor NonCancer	Non Cancer Risk
	pCi/l	liters/day	liters	uCi	mrem/uCi	mrem	/uCi	unitless	/uCi	unitless
Uranium 238	2.21E+00	1.00E+00	6.75E+03	1.49E-02	1.70E+02	2.54E+00	2.20E-05	3.28E-07	3.20E-05	4.77E-07
Uranium 235	7.20E-02	1.00E+00	6.75E+03	4.86E-04	1.70E+02	8.26E-02	2.30E-05	1.12E-08	3.40E-05	1.65E-08
Thorium 232	1.87E-02	1.00E+00	6.75E+03	1.26E-04	8.53E+02	1.08E-01	3.51E-04	4.43E-08	4.74E-04	5.98E-08
Thorium 230	3.58E-02	1.00E+00	6.75E+03	2.42E-04	7.91E+02	1.91E-01	4.37E-05	1.06E-08	6.11E-05	1.48E-08
Technetium 99	1.63E+00	1.00E+00	6.75E+03	1.10E-02	2.40E+00	2.64E-02	4.60E-07	5.06E-09	7.60E-07	8.36E-09
Total						2.94E+00		3.99E-07		5.77E-07
						9.81E-02	mrem/yr			

WORKSHEET 7.95 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 4, Surface Soil

Scenario Timeframe: Future

Exposure Medium: Surface Soil

Exposure Route: Ingestion

Receptor: Resident Child

Radiological Constituent of Concern	Soil Concentration	Intake Rate	Total Uptake	Total Activity	Dose Conversion Factor	Radiation Dose	Slope Factor Cancer	Cancer Risk	Slope Factor NonCancer	Non Cancer Risk
	pCi/g	mg/day	grams	uCi	mrem/uCi	mrem	/uCi	unitless	/uCi	unitless
Radium 226	8.98E-01	2.00E+02	4.20E+02	3.77E-04	2.28E+00	8.60E-04	9.58E-04	3.61E-07	2.22E-03	8.37E-07
Neptunium 237	1.66E+02	2.00E+02	4.20E+02	6.97E-02	5.28E-01	3.68E-02	3.43E-04	2.39E-05	5.66E-04	3.95E-05
Plutonium 239	1.37E-02	2.00E+02	4.20E+02	5.75E-06	1.23E+00	7.08E-06	2.88E-04	1.66E-09	9.10E-04	5.24E-09
Uranium 238	9.02E+01	2.00E+02	4.20E+02	3.79E-02	3.00E+02	1.14E+01	1.50E-04	5.68E-06	2.50E-04	9.47E-06
Uranium 235	3.20E+01	2.00E+02	4.20E+02	1.34E-02	3.20E+02	4.30E+00	1.70E-04	2.28E-06	2.70E-04	3.63E-06
Thorium 232	3.22E+00	2.00E+02	4.20E+02	1.35E-03	1.31E+03	1.77E+00	6.11E-03	8.26E-06	6.02E-03	8.14E-06
Technetium 99	8.34E+02	2.00E+02	4.20E+02	3.50E-01	8.50E+00	2.98E+00	7.60E-06	2.66E-06	1.30E-05	4.55E-06
Total						2.05E+01		4.32E-05		6.61E-05
						3.41E+00	mrem/yr			

WORKSHEET 7.96 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 4, Surface Soil

Scenario Timeframe: Future

Exposure Medium: Surface Soil

Exposure Route: Ingestion

Receptor: Resident Adult

Radiological Constituent of Concern	Soil Concentration	Intake Rate	Total Uptake	Total Activity	Dose Conversion Factor	Radiation Dose	Slope Factor Cancer	Cancer Risk	Slope Factor NonCancer	Non Cancer Risk
	pCi/g	mg/day	grams	uCi	mrem/uCi	mrem	/uCi	unitless	/uCi	unitless
Radium 226	8.98E-01	1.00E+02	8.40E+02	7.54E-04	1.03E+00	7.77E-04	1.14E-04	8.60E-08	1.57E-04	1.18E-07
Neptunium 237	1.66E+02	1.00E+02	8.40E+02	1.39E-01	3.96E-01	5.52E-02	3.65E-05	5.09E-06	5.48E-05	7.64E-06
Plutonium 239	1.37E-02	1.00E+02	8.40E+02	1.15E-05	9.28E-01	1.07E-05	7.44E-05	8.56E-10	8.88E-05	1.02E-09
Uranium 238	9.02E+01	1.00E+02	8.40E+02	7.58E-02	1.70E+02	1.29E+01	2.20E-05	1.67E-06	3.20E-05	2.42E-06
Uranium 235	3.20E+01	1.00E+02	8.40E+02	2.69E-02	1.70E+02	4.57E+00	2.30E-05	6.18E-07	3.40E-05	9.14E-07
Thorium 232	3.22E+00	1.00E+02	8.40E+02	2.70E-03	8.53E+02	2.31E+00	3.51E-04	9.49E-07	4.74E-04	1.28E-06
Technetium 99	8.34E+02	1.00E+02	8.40E+02	7.01E-01	2.40E+00	1.68E+00	4.60E-07	3.22E-07	7.60E-07	5.32E-07
Total						2.15E+01		8.73E-06		1.29E-05
						8.96E-01	mrem/yr			

WORKSHEET 7.97 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 4, Surface Soil

Scenario Timeframe: Future

Exposure Medium: Surface Soil

Exposure Route: Ingestion

Receptor: Industrial Worker

Radiological Constituent of Concern	Soil Concentration	Intake Rate	Total Uptake	Total Activity	Dose Conversion Factor	Radiation Dose	Slope Factor Cancer	Cancer Risk	Slope Factor NonCancer	Non Cancer Risk
	pCi/g	mg/day	grams	uCi	mrem/uCi	mrem	/uCi	unitless	/uCi	unitless
Radium 226	8.98E-01	1.00E+02	6.25E+02	5.61E-04	1.03E+00	5.78E-04	1.14E-04	6.40E-08	1.57E-04	8.81E-08
Neptunium 237	1.66E+02	1.00E+02	6.25E+02	1.04E-01	3.96E-01	4.11E-02	3.65E-05	3.79E-06	5.48E-05	5.69E-06
Plutonium 239	1.37E-02	1.00E+02	6.25E+02	8.56E-06	9.28E-01	7.95E-06	7.44E-05	6.37E-10	8.88E-05	7.60E-10
Uranium 238	9.02E+01	1.00E+02	6.25E+02	5.64E-02	1.70E+02	9.58E+00	2.20E-05	1.24E-06	3.20E-05	1.80E-06
Uranium 235	3.20E+01	1.00E+02	6.25E+02	2.00E-02	1.70E+02	3.40E+00	2.30E-05	4.60E-07	3.40E-05	6.80E-07
Thorium 232	3.22E+00	1.00E+02	6.25E+02	2.01E-03	8.53E+02	1.72E+00	3.51E-04	7.06E-07	4.74E-04	9.54E-07
Technetium 99	8.34E+02	1.00E+02	6.25E+02	5.21E-01	2.40E+00	1.25E+00	4.60E-07	2.40E-07	7.60E-07	3.96E-07
Total						1.60E+01		6.50E-06		9.61E-06
						6.40E-01	mrem/yr			

WORKSHEET 7.98 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 4, Surface Soil

Scenario Timeframe: Future

Exposure Medium: Surface Soil

Exposure Route: Ingestion

Receptor: Construction Worker

Radiological Constituent of Concern	Soil Concentration	Intake Rate	Total Uptake	Total Activity	Dose Conversion Factor	Radiation Dose	Slope Factor Cancer	Cancer Risk	Slope Factor NonCancer	Non Cancer Risk
	pCi/g	mg/day	grams	uCi	mrem/uCi	mrem	/uCi	unitless	/uCi	unitless
Radium 226	8.98E-01	3.30E+02	7.43E+01	6.67E-05	1.03E+00	6.87E-05	1.14E-04	7.60E-09	1.57E-04	1.05E-08
Neptunium 237	1.66E+02	3.30E+02	7.43E+01	1.23E-02	3.96E-01	4.88E-03	3.65E-05	4.50E-07	5.48E-05	6.75E-07
Plutonium 239	1.37E-02	3.30E+02	7.43E+01	1.02E-06	9.28E-01	9.44E-07	7.44E-05	7.57E-11	8.88E-05	9.03E-11
Uranium 238	9.02E+01	3.30E+02	7.43E+01	6.70E-03	1.70E+02	1.14E+00	2.20E-05	1.47E-07	3.20E-05	2.14E-07
Uranium 235	3.20E+01	3.30E+02	7.43E+01	2.38E-03	1.70E+02	4.04E-01	2.30E-05	5.46E-08	3.40E-05	8.08E-08
Thorium 232	3.22E+00	3.30E+02	7.43E+01	2.39E-04	8.53E+02	2.04E-01	3.51E-04	8.39E-08	4.74E-04	1.13E-07
Technetium 99	8.34E+02	3.30E+02	7.43E+01	6.19E-02	2.40E+00	1.49E-01	4.60E-07	2.85E-08	7.60E-07	4.71E-08
Total						1.90E+00		7.72E-07		1.14E-06
						1.90E+00	mrem/yr			

WORKSHEET 7.99 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 4, Surface Soil

Scenario Timeframe: Future

Exposure Medium: Surface Soil

Exposure Route: Ingestion

Receptor: Recreational Child

Radiological Constituent of Concern	Soil Concentration	Intake Rate	Total Uptake	Total Activity	Dose Conversion Factor	Radiation Dose	Slope Factor Cancer	Cancer Risk	Slope Factor NonCancer	Non Cancer Risk
	pCi/g	mg/day	grams	uCi	mrem/uCi	mrem	/uCi	unitless	/uCi	unitless
Radium 226	8.98E-01	2.00E+02	2.34E+02	2.10E-04	2.28E+00	4.79E-04	9.58E-04	2.01E-07	2.22E-03	4.66E-07
Neptunium 237	1.66E+02	2.00E+02	2.34E+02	3.88E-02	5.28E-01	2.05E-02	3.43E-04	1.33E-05	5.66E-04	2.20E-05
Plutonium 239	1.37E-02	2.00E+02	2.34E+02	3.21E-06	1.23E+00	3.94E-06	2.88E-04	9.23E-10	9.10E-04	2.92E-09
Uranium 238	9.02E+01	2.00E+02	2.34E+02	2.11E-02	3.00E+02	6.33E+00	1.50E-04	3.17E-06	2.50E-04	5.28E-06
Uranium 235	3.20E+01	2.00E+02	2.34E+02	7.49E-03	3.20E+02	2.40E+00	1.70E-04	1.27E-06	2.70E-04	2.02E-06
Thorium 232	3.22E+00	2.00E+02	2.34E+02	7.53E-04	1.31E+03	9.87E-01	6.11E-03	4.60E-06	6.02E-03	4.54E-06
Technetium 99	8.34E+02	2.00E+02	2.34E+02	1.95E-01	8.50E+00	1.66E+00	7.60E-06	1.48E-06	1.30E-05	2.54E-06
Total						1.14E+01		2.41E-05		3.68E-05
						1.90E+00	mrem/yr			

WORKSHEET 7.100 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 4, Surface Soil

Scenario Timeframe: Future

Exposure Medium: Surface Soil

Exposure Route: Ingestion

Receptor: Recreational Adult

Radiological Constituent of Concern	Soil Concentration	Intake Rate	Total Uptake	Total Activity	Dose Conversion Factor	Radiation Dose	Slope Factor Cancer	Cancer Risk	Slope Factor NonCancer	Non Cancer Risk
	pCi/g	mg/day	grams	uCi	mrem/uCi	mrem	/uCi	unitless	/uCi	unitless
Radium 226	8.98E-01	1.00E+02	4.68E+02	4.20E-04	1.03E+00	4.33E-04	1.14E-04	4.79E-08	1.57E-04	6.60E-08
Neptunium 237	1.66E+02	1.00E+02	4.68E+02	7.77E-02	3.96E-01	3.08E-02	3.65E-05	2.84E-06	5.48E-05	4.26E-06
Plutonium 239	1.37E-02	1.00E+02	4.68E+02	6.41E-06	9.28E-01	5.95E-06	7.44E-05	4.77E-10	8.88E-05	5.69E-10
Uranium 238	9.02E+01	1.00E+02	4.68E+02	4.22E-02	1.70E+02	7.18E+00	2.20E-05	9.29E-07	3.20E-05	1.35E-06
Uranium 235	3.20E+01	1.00E+02	4.68E+02	1.50E-02	1.70E+02	2.55E+00	2.30E-05	3.44E-07	3.40E-05	5.09E-07
Thorium 232	3.22E+00	1.00E+02	4.68E+02	1.51E-03	8.53E+02	1.29E+00	3.51E-04	5.29E-07	4.74E-04	7.14E-07
Technetium 99	8.34E+02	1.00E+02	4.68E+02	3.90E-01	2.40E+00	9.37E-01	4.60E-07	1.80E-07	7.60E-07	2.97E-07
Total						1.20E+01		4.87E-06		7.19E-06
						4.99E-01	mrem/yr			

WORKSHEET 7.101 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 4, Surface Soil

Scenario Timeframe: Future

Exposure Medium: Surface Soil

Exposure Route: Ingestion

Receptor: Visitor/ Trespasser

Radiological Constituent of Concern	Soil Concentration	Intake Rate	Total Uptake	Total Activity	Dose Conversion Factor	Radiation Dose	Slope Factor Cancer	Cancer Risk	Slope Factor NonCancer	Non Cancer Risk
	pCi/g	mg/day	grams	uCi	mrem/uCi	mrem	/uCi	unitless	/uCi	unitless
Radium 226	8.98E-01	1.00E+02	5.76E+01	5.17E-05	1.03E+00	5.33E-05	1.14E-04	5.90E-09	1.57E-04	8.12E-09
Neptunium 237	1.66E+02	1.00E+02	5.76E+01	9.56E-03	3.96E-01	3.79E-03	3.65E-05	3.49E-07	5.48E-05	5.24E-07
Plutonium 239	1.37E-02	1.00E+02	5.76E+01	7.89E-07	9.28E-01	7.32E-07	7.44E-05	5.87E-11	8.88E-05	7.01E-11
Uranium 238	9.02E+01	1.00E+02	5.76E+01	5.20E-03	1.70E+02	8.83E-01	2.20E-05	1.14E-07	3.20E-05	1.66E-07
Uranium 235	3.20E+01	1.00E+02	5.76E+01	1.84E-03	1.70E+02	3.13E-01	2.30E-05	4.24E-08	3.40E-05	6.27E-08
Thorium 232	3.22E+00	1.00E+02	5.76E+01	1.85E-04	8.53E+02	1.58E-01	3.51E-04	6.51E-08	4.74E-04	8.79E-08
Technetium 99	8.34E+02	1.00E+02	5.76E+01	4.80E-02	2.40E+00	1.15E-01	4.60E-07	2.21E-08	7.60E-07	3.65E-08
Total						1.47E+00		5.99E-07		8.86E-07
						6.14E-02	mrem/yr			

WORKSHEET 7.102 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 4, Surface Soil

Scenario Timeframe: Future

Exposure Medium: Surface Soil

Exposure Route: Ingestion

Receptor: Agricultural Worker

Radiological Constituent of Concern	Soil Concentration	Intake Rate	Total Uptake	Total Activity	Dose Conversion Factor	Radiation Dose	Slope Factor Cancer	Cancer Risk	Slope Factor NonCancer	Non Cancer Risk
	pCi/g	mg/day	grams	uCi	mrem/uCi	mrem	/uCi	unitless	/uCi	unitless
Radium 226	8.98E-01	2.00E+02	1.35E+03	1.21E-03	1.03E+00	1.25E-03	1.14E-04	1.38E-07	1.57E-04	1.90E-07
Neptunium 237	1.66E+02	2.00E+02	1.35E+03	2.24E-01	3.96E-01	8.87E-02	3.65E-05	8.18E-06	5.48E-05	1.23E-05
Plutonium 239	1.37E-02	2.00E+02	1.35E+03	1.85E-05	9.28E-01	1.72E-05	7.44E-05	1.38E-09	8.88E-05	1.64E-09
Uranium 238	9.02E+01	2.00E+02	1.35E+03	1.22E-01	1.70E+02	2.07E+01	2.20E-05	2.68E-06	3.20E-05	3.90E-06
Uranium 235	3.20E+01	2.00E+02	1.35E+03	4.32E-02	1.70E+02	7.34E+00	2.30E-05	9.94E-07	3.40E-05	1.47E-06
Thorium 232	3.22E+00	2.00E+02	1.35E+03	4.35E-03	8.53E+02	3.71E+00	3.51E-04	1.53E-06	4.74E-04	2.06E-06
Technetium 99	8.34E+02	2.00E+02	1.35E+03	1.13E+00	2.40E+00	2.70E+00	4.60E-07	5.18E-07	7.60E-07	8.56E-07
Total						3.45E+01		1.40E-05		2.08E-05
						1.15E+00	mrem/yr			

WORKSHEET 7.103 CALCULATION OF RISK

Westinghouse Electric Co. Hematite Site

EPC Set 6, Subsurface Soil

Scenario Timeframe: Future

Exposure Medium: Subsurface Soil

Exposure Route: Ingestion

Receptor: Construction Worker

Radiological Constituent of Concern	Soil Concentration	Intake Rate	Total Uptake	Total Activity	Dose Conversion Factor	Radiation Dose	Slope Factor Cancer	Cancer Risk	Slope Factor NonCancer	Non Cancer Risk
	pCi/g	mg/day	grams	uCi	mrem/uCi	mrem	/uCi	unitless	/uCi	unitless
Radium 226	7.93E-01	3.30E+02	7.43E+01	5.89E-05	1.03E+00	6.06E-05	1.14E-04	6.71E-09	1.57E-04	9.24E-09
Neptunium 237	1.00E-04	3.30E+02	7.43E+01	7.43E-09	3.96E-01	2.94E-09	3.65E-05	2.71E-13	5.48E-05	4.07E-13
Plutonium 239	3.73E-03	3.30E+02	7.43E+01	2.77E-07	9.28E-01	2.57E-07	7.44E-05	2.06E-11	8.88E-05	2.46E-11
Uranium 238	3.29E+00	3.30E+02	7.43E+01	2.44E-04	1.70E+02	4.15E-02	2.20E-05	5.37E-09	3.20E-05	7.82E-09
Uranium 234	4.88E+02	3.30E+02	7.43E+01	3.62E-02	1.80E+02	6.52E+00	2.40E-05	8.70E-07	3.50E-05	1.27E-06
Uranium 235	1.35E+00	3.30E+02	7.43E+01	1.00E-04	1.70E+02	1.70E-02	2.30E-05	2.31E-09	3.40E-05	3.41E-09
Thorium 232	1.02E+00	3.30E+02	7.43E+01	7.57E-05	8.53E+02	6.46E-02	3.51E-04	2.66E-08	4.74E-04	3.59E-08
Thorium 230	1.22E+00	3.30E+02	7.43E+01	9.06E-05	7.91E+02	7.17E-02	4.37E-05	3.96E-09	6.11E-05	5.53E-09
Technetium 99	2.31E+00	3.30E+02	7.43E+01	1.72E-04	2.40E+00	4.12E-04	4.60E-07	7.89E-11	7.60E-07	1.30E-10
Total						6.72E+00		9.15E-07		1.33E-06
						6.72E+00	mrem/yr			