ATTACHMENT D5

RISK CALCULATIONS

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ATTACHMENT D5 TABLES

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Attachment D5.1. Noncarcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 008 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	2.50E-04	1.08E-03	3.12E-09	NA	1.00E+00	1.00E-01	1.43E-03	NA	2.50E-04	1.08E-02	2.18E-06	NA	1.10E-02	2%	98%	0%	0%	1%
Antimony	2.66E-07	1.14E-06	3.32E-12	NA	4.00E-04	8.00E-06	NA	NA	6.64E-04	1.43E-01	NA	NA	1.44E-01	0%	100%	0%	0%	17%
Arsenic	1.56E-07	4.04E-07	1.95E-12	NA	3.00E-04	1.23E-04	NA	NA	5.21E-04	3.28E-03	NA	NA	3.80E-03	14%	86%	0%	0%	0%
Barium	2.00E-06	8.61E-06	2.50E-11	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.00E-05	6.15E-04	1.75E-07	NA	6.25E-04	2%	98%	0%	0%	0%
Beryllium	1.45E-08	6.25E-08	1.82E-13	NA	2.00E-03	2.00E-05	5.71E-06	NA	7.26E-06	3.13E-03	3.18E-08	NA	3.13E-03	0%	100%	0%	0%	0%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Chromium	3.84E-07	1.65E-06	4.80E-12	NA	1.50E+00	7.50E-03	NA	NA	2.56E-07	2.20E-04	NA	NA	2.21E-04	0%	100%	0%	0%	0%
Copper	4.93E-07	2.12E-06	6.17E-12	NA	4.00E-02	1.20E-02	NA	NA	1.23E-05	1.77E-04	NA	NA	1.89E-04	7%	93%	0%	0%	0%
Iron	3.40E-04	1.47E-03	4.26E-09	NA	3.00E-01	4.50E-02	NA	NA	1.13E-03	3.26E-02	NA	NA	3.37E-02	3%	97%	0%	0%	4%
Lead	6.03E-07	2.60E-06	7.54E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.29E-05	5.53E-05	1.61E-10	NA	1.40E-01	5.60E-03	1.43E-05	NA	9.18E-05	9.88E-03	1.12E-05	NA	9.99E-03	1%	99%	0%	0%	1%
Mercury	2.74E-09	1.18E-08	3.43E-14	NA	3.00E-04	2.10E-05	NA	NA	9.13E-06	5.62E-04	NA	NA	5.71E-04	2%	98%	0%	0%	0%
Molybdenum	2.25E-07	9.68E-07	2.81E-12	NA	5.00E-03	1.90E-03	NA	NA	4.49E-05	5.09E-04	NA	NA	5.54E-04	8%	92%	0%	0%	0%
Nickel	4.66E-07	2.01E-06	5.83E-12	NA	2.00E-02	5.40E-03	NA	NA	2.33E-05	3.71E-04	NA	NA	3.95E-04	6%	94%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	6.58E-08	2.83E-07	8.22E-13	NA	5.00E-03	9.00E-04	NA	NA	1.32E-05	3.15E-04	NA	NA	3.28E-04	4%	96%	0%	0%	0%
Uranium	2.63E-06	1.13E-05	3.29E-11	NA	6.00E-04	5.10E-04	NA	NA	4.38E-03	2.22E-02	NA	NA	2.66E-02	16%	84%	0%	0%	3%
Vanadium	5.75E-07	2.48E-06	7.20E-12	NA	9.00E-03	1.80E-03	NA	NA	6.39E-05	1.38E-03	NA	NA	1.44E-03	4%	96%	0%	0%	0%
Zinc	1.37E-06	5.90E-06	1.71E-11	NA	3.00E-01	6.00E-02	NA	NA	4.57E-06	9.83E-05	NA	NA	1.03E-04	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.59E-08	1.78E-07	1.99E-13	NA	4.00E-02	1.24E-02	NA	NA	3.97E-07	1.44E-05	NA	NA	1.47E-05	3%	97%	0%	0%	0%
Pyrene	1.37E-08	1.18E-07	1.71E-13	NA	3.00E-02	9.30E-03	NA	NA	4.57E-07	1.27E-05	NA	NA	1.31E-05	3%	97%	0%	0%	0%
Total PCB (1)	8.77E-07	1.06E-05	1.10E-11	NA	2.00E-05	1.80E-05	NA	NA	4.38E-02	5.87E-01	NA	NA	6.31E-01	7%	93%	0%	0%	73%
Total PAH (2)	3.29E-08	3.68E-07	4.11E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**5.11E-02**	**8.17E-01**	**1.36E-05**	**NA**	**8.68E-01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.2. Noncarcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 010 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	3.53E-04	1.52E-03	4.42E-09	NA	1.00E+00	1.00E-01	1.43E-03	NA	3.53E-04	1.52E-02	3.09E-06	NA	1.56E-02	2%	98%	0%	0%	3%
Antimony	2.65E-07	1.14E-06	3.31E-12	NA	4.00E-04	8.00E-06	NA	NA	6.62E-04	1.43E-01	NA	NA	1.43E-01	0%	100%	0%	0%	24%
Arsenic	3.45E-07	8.92E-07	4.32E-12	NA	3.00E-04	1.23E-04	NA	NA	1.15E-03	7.25E-03	NA	NA	8.40E-03	14%	86%	0%	0%	1%
Barium	2.61E-06	1.12E-05	3.26E-11	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.30E-05	8.02E-04	2.28E-07	NA	8.15E-04	2%	98%	0%	0%	0%
Beryllium	1.32E-08	5.66E-08	1.64E-13	NA	2.00E-03	2.00E-05	5.71E-06	NA	6.58E-06	2.83E-03	2.88E-08	NA	2.84E-03	0%	100%	0%	0%	0%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Chromium	6.38E-07	2.75E-06	7.98E-12	NA	1.50E+00	7.50E-03	NA	NA	4.26E-07	3.67E-04	NA	NA	3.67E-04	0%	100%	0%	0%	0%
Copper	5.01E-07	2.16E-06	6.27E-12	NA	4.00E-02	1.20E-02	NA	NA	1.25E-05	1.80E-04	NA	NA	1.92E-04	7%	93%	0%	0%	0%
Iron	4.27E-04	1.84E-03	5.35E-09	NA	3.00E-01	4.50E-02	NA	NA	1.42E-03	4.09E-02	NA	NA	4.23E-02	3%	97%	0%	0%	7%
Lead	2.06E-06	8.87E-06	2.58E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	8.85E-06	3.81E-05	1.11E-10	NA	1.40E-01	5.60E-03	1.43E-05	NA	6.32E-05	6.81E-03	7.74E-06	NA	6.88E-03	1%	99%	0%	0%	1%
Mercury	8.49E-09	3.66E-08	1.06E-13	NA	3.00E-04	2.10E-05	NA	NA	2.83E-05	1.74E-03	NA	NA	1.77E-03	2%	98%	0%	0%	0%
Molybdenum	3.81E-07	1.64E-06	4.76E-12	NA	5.00E-03	1.90E-03	NA	NA	7.62E-05	8.63E-04	NA	NA	9.39E-04	8%	92%	0%	0%	0%
Nickel	5.97E-07	2.57E-06	7.47E-12	NA	2.00E-02	5.40E-03	NA	NA	2.99E-05	4.76E-04	NA	NA	5.06E-04	6%	94%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	6.63E-08	2.86E-07	8.29E-13	NA	5.00E-03	9.00E-04	NA	NA	1.33E-05	3.17E-04	NA	NA	3.31E-04	4%	96%	0%	0%	0%
Uranium	7.23E-07	3.12E-06	9.05E-12	NA	6.00E-04	5.10E-04	NA	NA	1.21E-03	6.11E-03	NA	NA	7.31E-03	16%	84%	0%	0%	1%
Vanadium	7.62E-07	3.28E-06	9.53E-12	NA	9.00E-03	1.80E-03	NA	NA	8.46E-05	1.82E-03	NA	NA	1.91E-03	4%	96%	0%	0%	0%
Zinc	6.90E-06	2.97E-05	8.64E-11	NA	3.00E-01	6.00E-02	NA	NA	2.30E-05	4.96E-04	NA	NA	5.19E-04	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.40E-07	1.56E-06	1.75E-12	NA	4.00E-02	1.24E-02	NA	NA	3.49E-06	1.26E-04	NA	NA	1.30E-04	3%	97%	0%	0%	0%
Pyrene	9.59E-08	8.26E-07	1.20E-12	NA	3.00E-02	9.30E-03	NA	NA	3.20E-06	8.88E-05	NA	NA	9.20E-05	3%	97%	0%	0%	0%
Total PCB (1)	5.21E-07	6.28E-06	6.51E-12	NA	2.00E-05	1.80E-05	NA	NA	2.60E-02	3.49E-01	NA	NA	3.75E-01	7%	93%	0%	0%	62%
Total PAH (2)	8.49E-08	9.51E-07	1.06E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**3.12E-02**	**5.78E-01**	**1.11E-05**	**NA**	**6.09E-01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.3. Noncarcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 011 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	2.84E-04	1.22E-03	3.56E-09	NA	1.00E+00	1.00E-01	1.43E-03	NA	2.84E-04	1.22E-02	2.49E-06	NA	1.25E-02	2%	98%	0%	0%	2%
Antimony	4.66E-07	2.01E-06	5.83E-12	NA	4.00E-04	8.00E-06	NA	NA	1.16E-03	2.51E-01	NA	NA	2.52E-01	0%	100%	0%	0%	39%
Arsenic	3.56E-07	9.20E-07	4.45E-12	NA	3.00E-04	1.23E-04	NA	NA	1.19E-03	7.48E-03	NA	NA	8.67E-03	14%	86%	0%	0%	1%
Barium	2.52E-06	1.09E-05	3.15E-11	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.26E-05	7.75E-04	2.20E-07	NA	7.88E-04	2%	98%	0%	0%	0%
Beryllium	2.63E-08	1.13E-07	3.29E-13	NA	2.00E-03	2.00E-05	5.71E-06	NA	1.32E-05	5.66E-03	5.76E-08	NA	5.68E-03	0%	100%	0%	0%	1%
Cadmium	7.67E-08	6.61E-09	9.60E-13	NA	1.00E-03	1.00E-05	NA	NA	7.67E-05	6.61E-04	NA	NA	7.38E-04	10%	90%	0%	0%	0%
Chromium	4.08E-06	1.76E-05	5.11E-11	NA	1.50E+00	7.50E-03	NA	NA	2.72E-06	2.34E-03	NA	NA	2.35E-03	0%	100%	0%	0%	0%
Copper	5.53E-06	2.38E-05	6.92E-11	NA	4.00E-02	1.20E-02	NA	NA	1.38E-04	1.99E-03	NA	NA	2.12E-03	7%	93%	0%	0%	0%
Iron	6.39E-04	2.75E-03	7.99E-09	NA	3.00E-01	4.50E-02	NA	NA	2.13E-03	6.12E-02	NA	NA	6.33E-02	3%	97%	0%	0%	10%
Lead	1.42E-06	6.14E-06	1.78E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.63E-05	7.02E-05	2.04E-10	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.16E-04	1.25E-02	1.43E-05	NA	1.27E-02	1%	99%	0%	0%	2%
Mercury	4.66E-09	2.01E-08	5.83E-14	NA	3.00E-04	2.10E-05	NA	NA	1.55E-05	9.55E-04	NA	NA	9.71E-04	2%	98%	0%	0%	0%
Molybdenum	2.00E-07	8.61E-07	2.50E-12	NA	5.00E-03	1.90E-03	NA	NA	4.00E-05	4.53E-04	NA	NA	4.93E-04	8%	92%	0%	0%	0%
Nickel	3.84E-07	1.65E-06	4.80E-12	NA	2.00E-02	5.40E-03	NA	NA	1.92E-05	3.06E-04	NA	NA	3.25E-04	6%	94%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	6.85E-08	2.95E-07	8.57E-13	NA	5.00E-03	9.00E-04	NA	NA	1.37E-05	3.28E-04	NA	NA	3.41E-04	4%	96%	0%	0%	0%
Uranium	1.20E-05	5.18E-05	1.50E-10	NA	6.00E-04	5.10E-04	NA	NA	2.00E-02	1.02E-01	NA	NA	1.22E-01	16%	84%	0%	0%	19%
Vanadium	1.15E-06	4.96E-06	1.44E-11	NA	9.00E-03	1.80E-03	NA	NA	1.28E-04	2.75E-03	NA	NA	2.88E-03	4%	96%	0%	0%	0%
Zinc	2.09E-05	9.02E-05	2.62E-10	NA	3.00E-01	6.00E-02	NA	NA	6.98E-05	1.50E-03	NA	NA	1.57E-03	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.18E-06	1.32E-05	1.47E-11	NA	4.00E-02	1.24E-02	NA	NA	2.95E-05	1.06E-03	NA	NA	1.09E-03	3%	97%	0%	0%	0%
Pyrene	3.56E-06	3.07E-05	4.45E-11	NA	3.00E-02	9.30E-03	NA	NA	1.19E-04	3.30E-03	NA	NA	3.42E-03	3%	97%	0%	0%	1%
Total PCB (1)	2.08E-07	2.51E-06	2.60E-12	NA	2.00E-05	1.80E-05	NA	NA	1.04E-02	1.40E-01	NA	NA	1.50E-01	7%	93%	0%	0%	23%
Total PAH (2)	1.59E-06	1.78E-05	1.99E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**3.60E-02**	**6.07E-01**	**1.70E-05**	**NA**	**6.43E-01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.4. Noncarcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 015 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	1.84E-04	7.93E-04	2.30E-09	NA	1.00E+00	1.00E-01	1.43E-03	NA	1.84E-04	7.93E-03	1.61E-06	NA	8.12E-03	2%	98%	0%	0%	2%
Antimony	3.01E-07	1.30E-06	3.77E-12	NA	4.00E-04	8.00E-06	NA	NA	7.54E-04	1.62E-01	NA	NA	1.63E-01	0%	100%	0%	0%	32%
Arsenic	2.74E-07	7.08E-07	3.43E-12	NA	3.00E-04	1.23E-04	NA	NA	9.13E-04	5.76E-03	NA	NA	6.67E-03	14%	86%	0%	0%	1%
Barium	2.11E-06	9.09E-06	2.64E-11	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.05E-05	6.49E-04	1.85E-07	NA	6.60E-04	2%	98%	0%	0%	0%
Beryllium	1.56E-08	6.73E-08	1.95E-13	NA	2.00E-03	2.00E-05	5.71E-06	NA	7.81E-06	3.36E-03	3.42E-08	NA	3.37E-03	0%	100%	0%	0%	1%
Cadmium	5.75E-08	4.96E-09	7.20E-13	NA	1.00E-03	1.00E-05	NA	NA	5.75E-05	4.96E-04	NA	NA	5.53E-04	10%	90%	0%	0%	0%
Chromium	6.30E-07	2.71E-06	7.88E-12	NA	1.50E+00	7.50E-03	NA	NA	4.20E-07	3.62E-04	NA	NA	3.62E-04	0%	100%	0%	0%	0%
Copper	5.48E-07	2.36E-06	6.85E-12	NA	4.00E-02	1.20E-02	NA	NA	1.37E-05	1.97E-04	NA	NA	2.10E-04	7%	93%	0%	0%	0%
Iron	4.02E-04	1.73E-03	5.03E-09	NA	3.00E-01	4.50E-02	NA	NA	1.34E-03	3.85E-02	NA	NA	3.98E-02	3%	97%	0%	0%	8%
Lead	1.23E-06	5.31E-06	1.54E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.45E-05	6.25E-05	1.82E-10	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.04E-04	1.12E-02	1.27E-05	NA	1.13E-02	1%	99%	0%	0%	2%
Mercury	4.38E-09	1.89E-08	5.48E-14	NA	3.00E-04	2.10E-05	NA	NA	1.46E-05	8.99E-04	NA	NA	9.14E-04	2%	98%	0%	0%	0%
Molybdenum	1.51E-07	6.49E-07	1.88E-12	NA	5.00E-03	1.90E-03	NA	NA	3.01E-05	3.42E-04	NA	NA	3.72E-04	8%	92%	0%	0%	0%
Nickel	7.95E-07	3.42E-06	9.94E-12	NA	2.00E-02	5.40E-03	NA	NA	3.97E-05	6.34E-04	NA	NA	6.73E-04	6%	94%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	7.12E-08	3.07E-07	8.91E-13	NA	5.00E-03	9.00E-04	NA	NA	1.42E-05	3.41E-04	NA	NA	3.55E-04	4%	96%	0%	0%	0%
Uranium	2.52E-05	1.09E-04	3.15E-10	NA	6.00E-04	5.10E-04	NA	NA	4.20E-02	2.13E-01	NA	NA	2.55E-01	16%	84%	0%	0%	50%
Vanadium	5.21E-07	2.24E-06	6.51E-12	NA	9.00E-03	1.80E-03	NA	NA	5.78E-05	1.25E-03	NA	NA	1.30E-03	4%	96%	0%	0%	0%
Zinc	3.12E-06	1.35E-05	3.91E-11	NA	3.00E-01	6.00E-02	NA	NA	1.04E-05	2.24E-04	NA	NA	2.35E-04	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.86E-08	2.09E-07	2.33E-13	NA	4.00E-02	1.24E-02	NA	NA	4.66E-07	1.68E-05	NA	NA	1.73E-05	3%	97%	0%	0%	0%
Pyrene	1.73E-08	1.49E-07	2.16E-13	NA	3.00E-02	9.30E-03	NA	NA	5.75E-07	1.60E-05	NA	NA	1.66E-05	3%	97%	0%	0%	0%
Total PCB (1)	3.01E-08	3.63E-07	3.77E-13	NA	2.00E-05	1.80E-05	NA	NA	1.51E-03	2.02E-02	NA	NA	2.17E-02	7%	93%	0%	0%	4%
Total PAH (2)	3.01E-08	3.37E-07	3.77E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**4.71E-02**	**4.67E-01**	**1.45E-05**	**NA**	**5.14E-01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.5. Noncarcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 001 EU 13 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	2.43E-04	1.05E-03	3.04E-09	NA	1.00E+00	1.00E-01	1.43E-03	NA	2.43E-04	1.05E-02	2.13E-06	NA	1.07E-02	2%	98%	0%	0%	4%
Antimony	2.70E-07	1.16E-06	3.38E-12	NA	4.00E-04	8.00E-06	NA	NA	6.75E-04	1.45E-01	NA	NA	1.46E-01	0%	100%	0%	0%	48%
Arsenic	1.42E-07	3.66E-07	1.77E-12	NA	3.00E-04	1.23E-04	NA	NA	4.72E-04	2.98E-03	NA	NA	3.45E-03	14%	86%	0%	0%	1%
Barium	2.50E-06	1.08E-05	3.13E-11	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.25E-05	7.70E-04	2.19E-07	NA	7.83E-04	2%	98%	0%	0%	0%
Beryllium	1.35E-08	5.82E-08	1.69E-13	NA	2.00E-03	2.00E-05	5.71E-06	NA	6.75E-06	2.91E-03	2.96E-08	NA	2.92E-03	0%	100%	0%	0%	1%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Chromium	1.19E-06	5.13E-06	1.49E-11	NA	1.50E+00	7.50E-03	NA	NA	7.95E-07	6.84E-04	NA	NA	6.85E-04	0%	100%	0%	0%	0%
Copper	3.53E-07	1.52E-06	4.42E-12	NA	4.00E-02	1.20E-02	NA	NA	8.84E-06	1.27E-04	NA	NA	1.36E-04	7%	93%	0%	0%	0%
Iron	4.16E-04	1.79E-03	5.21E-09	NA	3.00E-01	4.50E-02	NA	NA	1.39E-03	3.99E-02	NA	NA	4.12E-02	3%	97%	0%	0%	14%
Lead	6.00E-07	2.58E-06	7.50E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	2.16E-05	9.30E-05	2.70E-10	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.54E-04	1.66E-02	1.89E-05	NA	1.68E-02	1%	99%	0%	0%	6%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	ND	ND	ND	NA	5.00E-03	1.90E-03	NA	NA	ND	ND	ND	ND	ND	0%	0%	0%	0%	0%
Nickel	3.48E-07	1.50E-06	4.35E-12	NA	2.00E-02	5.40E-03	NA	NA	1.74E-05	2.78E-04	NA	NA	2.95E-04	6%	94%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	6.77E-08	2.91E-07	8.46E-13	NA	5.00E-03	9.00E-04	NA	NA	1.35E-05	3.24E-04	NA	NA	3.37E-04	4%	96%	0%	0%	0%
Uranium	1.33E-06	5.72E-06	1.66E-11	NA	6.00E-04	5.10E-04	NA	NA	2.21E-03	1.12E-02	NA	NA	1.34E-02	16%	84%	0%	0%	4%
Vanadium	4.52E-07	1.95E-06	5.65E-12	NA	9.00E-03	1.80E-03	NA	NA	5.02E-05	1.08E-03	NA	NA	1.13E-03	4%	96%	0%	0%	0%
Zinc	3.07E-06	1.32E-05	3.84E-11	NA	3.00E-01	6.00E-02	NA	NA	1.02E-05	2.20E-04	NA	NA	2.30E-04	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.34E-08	1.50E-07	1.68E-13	NA	4.00E-02	1.24E-02	NA	NA	3.36E-07	1.21E-05	NA	NA	1.25E-05	3%	97%	0%	0%	0%
Pyrene	1.34E-08	1.16E-07	1.68E-13	NA	3.00E-02	9.30E-03	NA	NA	4.48E-07	1.24E-05	NA	NA	1.29E-05	3%	97%	0%	0%	0%
Total PCB (1)	9.04E-08	1.09E-06	1.13E-12	NA	2.00E-05	1.80E-05	NA	NA	4.52E-03	6.06E-02	NA	NA	6.51E-02	7%	93%	0%	0%	21%
Total PAH (2)	3.01E-08	3.37E-07	3.77E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
									Total HI =	**9.79E-03**	**2.94E-01**	**2.13E-05**	**NA**	**3.03E-01**				

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.6. Noncarcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 001 EU 14 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	2.24E-04	9.63E-04	2.80E-09	NA	1.00E+00	1.00E-01	1.43E-03	NA	2.24E-04	9.63E-03	1.96E-06	NA	9.86E-03	2%	98%	0%	0%	1%
Antimony	4.11E-07	1.77E-06	5.14E-12	NA	4.00E-04	8.00E-06	NA	NA	1.03E-03	2.21E-01	NA	NA	2.22E-01	0%	100%	0%	0%	31%
Arsenic	1.37E-07	3.54E-07	1.71E-12	NA	3.00E-04	1.23E-04	NA	NA	4.57E-04	2.88E-03	NA	NA	3.33E-03	14%	86%	0%	0%	0%
Barium	2.38E-06	1.03E-05	2.98E-11	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.19E-05	7.33E-04	2.08E-07	NA	7.45E-04	2%	98%	0%	0%	0%
Beryllium	1.32E-08	5.66E-08	1.64E-13	NA	2.00E-03	2.00E-05	5.71E-06	NA	6.58E-06	2.83E-03	2.88E-08	NA	2.84E-03	0%	100%	0%	0%	0%
Cadmium	5.21E-08	4.48E-09	6.51E-13	NA	1.00E-03	1.00E-05	NA	NA	5.21E-05	4.48E-04	NA	NA	5.00E-04	10%	90%	0%	0%	0%
Chromium	1.95E-06	8.38E-06	2.43E-11	NA	1.50E+00	7.50E-03	NA	NA	1.30E-06	1.12E-03	NA	NA	1.12E-03	0%	100%	0%	0%	0%
Copper	1.18E-06	5.07E-06	1.47E-11	NA	4.00E-02	1.20E-02	NA	NA	2.95E-05	4.23E-04	NA	NA	4.52E-04	7%	93%	0%	0%	0%
Iron	3.16E-04	1.36E-03	3.95E-09	NA	3.00E-01	4.50E-02	NA	NA	1.05E-03	3.02E-02	NA	NA	3.13E-02	3%	97%	0%	0%	4%
Lead	6.30E-07	2.71E-06	7.88E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	9.29E-06	4.00E-05	1.16E-10	NA	1.40E-01	5.60E-03	1.43E-05	NA	6.63E-05	7.14E-03	8.12E-06	NA	7.22E-03	1%	99%	0%	0%	1%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	1.28E-07	5.52E-07	1.60E-12	NA	5.00E-03	1.90E-03	NA	NA	2.56E-05	2.91E-04	NA	NA	3.16E-04	8%	92%	0%	0%	0%
Nickel	4.38E-07	1.89E-06	5.48E-12	NA	2.00E-02	5.40E-03	NA	NA	2.19E-05	3.50E-04	NA	NA	3.72E-04	6%	94%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	6.58E-08	2.83E-07	8.22E-13	NA	5.00E-03	9.00E-04	NA	NA	1.32E-05	3.15E-04	NA	NA	3.28E-04	4%	96%	0%	0%	0%
Uranium	2.14E-07	9.20E-07	2.67E-12	NA	6.00E-04	5.10E-04	NA	NA	3.56E-04	1.80E-03	NA	NA	2.16E-03	16%	84%	0%	0%	0%
Vanadium	5.21E-07	2.24E-06	6.51E-12	NA	9.00E-03	1.80E-03	NA	NA	5.78E-05	1.25E-03	NA	NA	1.30E-03	4%	96%	0%	0%	0%
Zinc	4.25E-06	1.83E-05	5.31E-11	NA	3.00E-01	6.00E-02	NA	NA	1.42E-05	3.05E-04	NA	NA	3.19E-04	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	5.48E-06	6.14E-05	6.85E-11	NA	4.00E-02	1.24E-02	NA	NA	1.37E-04	4.95E-03	NA	NA	5.09E-03	3%	97%	0%	0%	1%
Pyrene	1.26E-06	1.09E-05	1.58E-11	NA	3.00E-02	9.30E-03	NA	NA	4.20E-05	1.17E-03	NA	NA	1.21E-03	3%	97%	0%	0%	0%
Total PCB (1)	6.03E-07	7.27E-06	7.54E-12	NA	2.00E-05	1.80E-05	NA	NA	3.01E-02	4.04E-01	NA	NA	4.34E-01	7%	93%	0%	0%	60%
Total PAH (2)	5.04E-06	5.65E-05	6.31E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**3.37E-02**	**6.91E-01**	**1.03E-05**	**NA**	**7.25E-01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.7. Noncarcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 001 EU 15 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	2.05E-04	8.84E-04	2.57E-09	NA	1.00E+00	1.00E-01	1.43E-03	NA	2.05E-04	8.84E-03	1.79E-06	NA	9.05E-03	2%	98%	0%	0%	1%
Antimony	2.68E-07	1.16E-06	3.35E-12	NA	4.00E-04	8.00E-06	NA	NA	6.71E-04	1.44E-01	NA	NA	1.45E-01	0%	100%	0%	0%	10%
Arsenic	2.62E-07	6.76E-07	3.27E-12	NA	3.00E-04	1.23E-04	NA	NA	8.72E-04	5.50E-03	NA	NA	6.37E-03	14%	86%	0%	0%	0%
Barium	1.33E-06	5.71E-06	1.66E-11	NA	2.00E-01	1.40E-02	1.43E-04	NA	6.63E-06	4.08E-04	1.16E-07	NA	4.15E-04	2%	98%	0%	0%	0%
Beryllium	ND	ND	ND	NA	2.00E-03	2.00E-05	5.71E-06	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Cadmium	7.67E-08	6.61E-09	9.60E-13	NA	1.00E-03	1.00E-05	NA	NA	7.67E-05	6.61E-04	NA	NA	7.38E-04	10%	90%	0%	0%	0%
Chromium	1.99E-06	8.58E-06	2.49E-11	NA	1.50E+00	7.50E-03	NA	NA	1.33E-06	1.14E-03	NA	NA	1.15E-03	0%	100%	0%	0%	0%
Copper	1.31E-06	5.63E-06	1.63E-11	NA	4.00E-02	1.20E-02	NA	NA	3.27E-05	4.69E-04	NA	NA	5.02E-04	7%	93%	0%	0%	0%
Iron	3.21E-04	1.38E-03	4.01E-09	NA	3.00E-01	4.50E-02	NA	NA	1.07E-03	3.07E-02	NA	NA	3.17E-02	3%	97%	0%	0%	2%
Lead	1.77E-06	7.62E-06	2.21E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	9.37E-06	4.04E-05	1.17E-10	NA	1.40E-01	5.60E-03	1.43E-05	NA	6.69E-05	7.21E-03	8.20E-06	NA	7.28E-03	1%	99%	0%	0%	1%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	6.55E-07	2.82E-06	8.19E-12	NA	5.00E-03	1.90E-03	NA	NA	1.31E-04	1.48E-03	NA	NA	1.62E-03	8%	92%	0%	0%	0%
Nickel	1.42E-05	6.14E-05	1.78E-10	NA	2.00E-02	5.40E-03	NA	NA	7.12E-04	1.14E-02	NA	NA	1.21E-02	6%	94%	0%	0%	1%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	6.71E-08	2.89E-07	8.40E-13	NA	5.00E-03	9.00E-04	NA	NA	1.34E-05	3.21E-04	NA	NA	3.35E-04	4%	96%	0%	0%	0%
Uranium	1.76E-05	7.58E-05	2.20E-10	NA	6.00E-04	5.10E-04	NA	NA	2.93E-02	1.49E-01	NA	NA	1.78E-01	16%	84%	0%	0%	12%
Vanadium	4.27E-07	1.84E-06	5.35E-12	NA	9.00E-03	1.80E-03	NA	NA	4.75E-05	1.02E-03	NA	NA	1.07E-03	4%	96%	0%	0%	0%
Zinc	3.75E-05	1.62E-04	4.69E-10	NA	3.00E-01	6.00E-02	NA	NA	1.25E-04	2.69E-03	NA	NA	2.82E-03	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.08E-07	2.33E-06	2.60E-12	NA	4.00E-02	1.24E-02	NA	NA	5.21E-06	1.88E-04	NA	NA	1.93E-04	3%	97%	0%	0%	0%
Pyrene	1.53E-07	1.32E-06	1.92E-12	NA	3.00E-02	9.30E-03	NA	NA	5.11E-06	1.42E-04	NA	NA	1.47E-04	3%	97%	0%	0%	0%
Total PCB (1)	1.42E-06	1.72E-05	1.78E-11	NA	2.00E-05	1.80E-05	NA	NA	7.12E-02	9.54E-01	NA	NA	1.03E+00	7%	93%	0%	0%	72%
Total PAH (2)	1.42E-07	1.60E-06	1.78E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
									Total HI =	**1.05E-01**	**1.32E+00**	**1.01E-05**	**NA**	**1.42E+00**				

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.8. Noncarcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 001 EU 16 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	2.24E-04	9.66E-04	2.81E-09	NA	1.00E+00	1.00E-01	1.43E-03	NA	2.24E-04	9.66E-03	1.96E-06	NA	9.89E-03	2%	98%	0%	0%	1%
Antimony	2.64E-07	1.14E-06	3.30E-12	NA	4.00E-04	8.00E-06	NA	NA	6.59E-04	1.42E-01	NA	NA	1.43E-01	0%	100%	0%	0%	19%
Arsenic	2.93E-07	7.58E-07	3.67E-12	NA	3.00E-04	1.23E-04	NA	NA	9.77E-04	6.16E-03	NA	NA	7.14E-03	14%	86%	0%	0%	1%
Barium	1.95E-06	8.38E-06	2.43E-11	NA	2.00E-01	1.40E-02	1.43E-04	NA	9.73E-06	5.98E-04	1.70E-07	NA	6.08E-04	2%	98%	0%	0%	0%
Beryllium	1.82E-08	7.82E-08	2.27E-13	NA	2.00E-03	2.00E-05	5.71E-06	NA	9.08E-06	3.91E-03	3.98E-08	NA	3.92E-03	0%	100%	0%	0%	1%
Cadmium	5.29E-07	4.55E-08	6.61E-12	NA	1.00E-03	1.00E-05	NA	NA	5.29E-04	4.55E-03	NA	NA	5.08E-03	10%	90%	0%	0%	1%
Chromium	6.44E-07	2.77E-06	8.05E-12	NA	1.50E+00	7.50E-03	NA	NA	4.29E-07	3.70E-04	NA	NA	3.70E-04	0%	100%	0%	0%	0%
Copper	3.81E-07	1.64E-06	4.76E-12	NA	4.00E-02	1.20E-02	NA	NA	9.52E-06	1.37E-04	NA	NA	1.46E-04	7%	93%	0%	0%	0%
Iron	4.99E-03	2.15E-02	6.24E-08	NA	3.00E-01	4.50E-02	NA	NA	1.66E-02	4.77E-01	NA	NA	4.94E-01	3%	97%	0%	0%	67%
Lead	5.78E-07	2.49E-06	7.23E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	4.22E-05	1.82E-04	5.28E-10	NA	1.40E-01	5.60E-03	1.43E-05	NA	3.01E-04	3.25E-02	3.69E-05	NA	3.28E-02	1%	99%	0%	0%	4%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	ND	ND	ND	NA	5.00E-03	1.90E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Nickel	2.82E-07	1.22E-06	3.53E-12	NA	2.00E-02	5.40E-03	NA	NA	1.41E-05	2.25E-04	NA	NA	2.39E-04	6%	94%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	6.60E-08	2.84E-07	8.26E-13	NA	5.00E-03	9.00E-04	NA	NA	1.32E-05	3.16E-04	NA	NA	3.29E-04	4%	96%	0%	0%	0%
Uranium	3.92E-07	1.69E-06	4.90E-12	NA	6.00E-04	5.10E-04	NA	NA	6.53E-04	3.31E-03	NA	NA	3.96E-03	16%	84%	0%	0%	1%
Vanadium	6.93E-07	2.99E-06	8.67E-12	NA	9.00E-03	1.80E-03	NA	NA	7.70E-05	1.66E-03	NA	NA	1.74E-03	4%	96%	0%	0%	0%
Zinc	1.86E-06	8.00E-06	2.32E-11	NA	3.00E-01	6.00E-02	NA	NA	6.19E-06	1.33E-04	NA	NA	1.40E-04	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	3.01E-08	3.37E-07	3.77E-13	NA	4.00E-02	1.24E-02	NA	NA	7.54E-07	2.72E-05	NA	NA	2.80E-05	3%	97%	0%	0%	0%
Pyrene	3.29E-08	2.83E-07	4.11E-13	NA	3.00E-02	9.30E-03	NA	NA	1.10E-06	3.05E-05	NA	NA	3.15E-05	3%	97%	0%	0%	0%
Total PCB (1)	4.93E-08	5.95E-07	6.17E-13	NA	2.00E-05	1.80E-05	NA	NA	2.47E-03	3.30E-02	NA	NA	3.55E-02	7%	93%	0%	0%	5%
Total PAH (2)	3.84E-08	4.30E-07	4.80E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**2.26E-02**	**7.16E-01**	**3.91E-05**	**NA**	**7.38E-01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.9. Noncarcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 001 EU 18 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	3.15E-04	1.36E-03	3.94E-09	NA	1.00E+00	1.00E-01	1.43E-03	NA	3.15E-04	1.36E-02	2.76E-06	NA	1.39E-02	2%	98%	0%	0%	5%
Antimony	2.72E-07	1.17E-06	3.40E-12	NA	4.00E-04	8.00E-06	NA	NA	6.80E-04	1.46E-01	NA	NA	1.47E-01	0%	100%	0%	0%	50%
Arsenic	1.28E-07	3.31E-07	1.60E-12	NA	3.00E-04	1.23E-04	NA	NA	4.27E-04	2.69E-03	NA	NA	3.12E-03	14%	86%	0%	0%	1%
Barium	1.68E-06	7.25E-06	2.10E-11	NA	2.00E-01	1.40E-02	1.43E-04	NA	8.41E-06	5.18E-04	1.47E-07	NA	5.26E-04	2%	98%	0%	0%	0%
Beryllium	1.65E-08	7.13E-08	2.07E-13	NA	2.00E-03	2.00E-05	5.71E-06	NA	8.27E-06	3.56E-03	3.62E-08	NA	3.57E-03	0%	100%	0%	0%	1%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Chromium	5.92E-07	2.55E-06	7.40E-12	NA	1.50E+00	7.50E-03	NA	NA	3.95E-07	3.40E-04	NA	NA	3.40E-04	0%	100%	0%	0%	0%
Copper	1.34E-06	5.78E-06	1.68E-11	NA	4.00E-02	1.20E-02	NA	NA	3.36E-05	4.82E-04	NA	NA	5.15E-04	7%	93%	0%	0%	0%
Iron	4.30E-04	1.85E-03	5.38E-09	NA	3.00E-01	4.50E-02	NA	NA	1.43E-03	4.12E-02	NA	NA	4.26E-02	3%	97%	0%	0%	15%
Lead	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0%	0%	0%	0%	0%
Manganese	2.32E-05	9.99E-05	2.90E-10	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.66E-04	1.78E-02	NA	NA	1.80E-02	1%	99%	0%	0%	6%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Molybdenum	5.75E-07	2.48E-06	7.20E-12	NA	5.00E-03	1.90E-03	NA	NA	1.15E-04	1.30E-03	NA	NA	1.42E-03	8%	92%	0%	0%	0%
Nickel	4.99E-06	2.15E-05	6.24E-11	NA	2.00E-02	5.40E-03	NA	NA	2.49E-04	3.98E-03	NA	NA	4.23E-03	6%	94%	0%	0%	1%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	6.80E-08	2.93E-07	8.50E-13	NA	5.00E-03	9.00E-04	NA	NA	1.36E-05	3.25E-04	NA	NA	3.39E-04	4%	96%	0%	0%	0%
Uranium	2.49E-06	1.07E-05	3.11E-11	NA	6.00E-04	5.10E-04	NA	NA	4.15E-03	2.10E-02	NA	NA	2.52E-02	16%	84%	0%	0%	9%
Vanadium	6.22E-07	2.68E-06	7.78E-12	NA	9.00E-03	1.80E-03	NA	NA	6.91E-05	1.49E-03	NA	NA	1.56E-03	4%	96%	0%	0%	1%
Zinc	2.38E-06	1.02E-05	2.97E-11	NA	3.00E-01	6.00E-02	NA	NA	7.92E-06	1.71E-04	NA	NA	1.78E-04	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.37E-08	1.53E-07	1.71E-13	NA	4.00E-02	1.24E-02	NA	NA	3.43E-07	1.24E-05	NA	NA	1.27E-05	3%	97%	0%	0%	0%
Pyrene	1.37E-08	1.18E-07	1.71E-13	NA	3.00E-02	9.30E-03	NA	NA	4.57E-07	1.27E-05	NA	NA	1.31E-05	3%	97%	0%	0%	0%
Total PCB (1)	4.11E-08	4.96E-07	5.14E-13	NA	2.00E-05	1.80E-05	NA	NA	2.06E-03	2.75E-02	NA	NA	2.96E-02	7%	93%	0%	0%	10%
Total PAH (2)	3.01E-08	3.37E-07	3.77E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**9.73E-03**	**2.82E-01**	**2.94E-06**	**NA**	**2.92E-01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.10. Noncarcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 001 EU 20 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	2.48E-04	1.07E-03	3.10E-09	NA	1.00E+00	1.00E-01	1.43E-03	NA	2.48E-04	1.07E-02	2.17E-06	NA	1.09E-02	2%	98%	0%	0%	5%
Antimony	2.67E-07	1.15E-06	3.34E-12	NA	4.00E-04	8.00E-06	NA	NA	6.67E-04	1.44E-01	NA	NA	1.44E-01	0%	100%	0%	0%	65%
Arsenic	1.87E-07	4.84E-07	2.34E-12	NA	3.00E-04	1.23E-04	NA	NA	6.25E-04	3.94E-03	NA	NA	4.56E-03	14%	86%	0%	0%	2%
Barium	1.90E-06	8.17E-06	2.37E-11	NA	2.00E-01	1.40E-02	1.43E-04	NA	9.48E-06	5.83E-04	1.66E-07	NA	5.93E-04	2%	98%	0%	0%	0%
Beryllium	ND	ND	ND	NA	2.00E-03	2.00E-05	5.71E-06	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Chromium	3.12E-07	1.35E-06	3.91E-12	NA	1.50E+00	7.50E-03	NA	NA	2.08E-07	1.79E-04	NA	NA	1.80E-04	0%	100%	0%	0%	0%
Copper	ND	ND	ND	NA	4.00E-02	1.20E-02	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Iron	3.07E-04	1.32E-03	3.84E-09	NA	3.00E-01	4.50E-02	NA	NA	1.02E-03	2.94E-02	NA	NA	3.04E-02	3%	97%	0%	0%	14%
Lead	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.29E-05	5.56E-05	1.61E-10	NA	1.40E-01	5.60E-03	1.43E-05	NA	9.22E-05	9.92E-03	1.13E-05	NA	1.00E-02	1%	99%	0%	0%	5%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	ND	ND	ND	NA	5.00E-03	1.90E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Nickel	1.98E-07	8.54E-07	2.48E-12	NA	2.00E-02	5.40E-03	NA	NA	9.92E-06	1.58E-04	NA	NA	1.68E-04	6%	94%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	6.69E-08	2.88E-07	8.36E-13	NA	5.00E-03	9.00E-04	NA	NA	1.34E-05	3.20E-04	NA	NA	3.33E-04	4%	96%	0%	0%	0%
Uranium	5.32E-07	2.29E-06	6.65E-12	NA	6.00E-04	5.10E-04	NA	NA	8.86E-04	4.49E-03	NA	NA	5.37E-03	16%	84%	0%	0%	2%
Vanadium	5.37E-07	2.31E-06	6.72E-12	NA	9.00E-03	1.80E-03	NA	NA	5.97E-05	1.28E-03	NA	NA	1.34E-03	4%	96%	0%	0%	1%
Zinc	8.14E-07	3.50E-06	1.02E-11	NA	3.00E-01	6.00E-02	NA	NA	2.71E-06	5.84E-05	NA	NA	6.11E-05	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.34E-08	1.50E-07	1.68E-13	NA	4.00E-02	1.24E-02	NA	NA	3.36E-07	1.21E-05	NA	NA	1.25E-05	3%	97%	0%	0%	0%
Pyrene	1.34E-08	1.16E-07	1.68E-13	NA	3.00E-02	9.30E-03	NA	NA	4.48E-07	1.24E-05	NA	NA	1.29E-05	3%	97%	0%	0%	0%
Total PCB (1)	1.95E-08	2.35E-07	2.43E-13	NA	2.00E-05	1.80E-05	NA	NA	9.73E-04	1.30E-02	NA	NA	1.40E-02	7%	93%	0%	0%	6%
Total PAH (2)	3.01E-08	3.37E-07	3.77E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**4.61E-03**	**2.18E-01**	**1.36E-05**	**NA**	**2.22E-01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.11. Noncarcinogenic Risk Results-Current Industrial Worker for Soil Within the Fence, Excluding the Hot Spots

	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
COPC	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	1.96E-04	8.46E-04	2.46E-09	NA	1.00E+00	1.00E-01	1.43E-03	NA	1.96E-04	8.46E-03	1.72E-06	NA	8.66E-03	2%	98%	0%	0%	3%
Antimony	3.01E-07	1.30E-06	3.77E-12	NA	4.00E-04	8.00E-06	NA	NA	7.54E-04	1.62E-01	NA	NA	1.63E-01	0%	100%	0%	0%	56%
Arsenic	1.64E-07	4.25E-07	2.06E-12	NA	3.00E-04	1.23E-04	NA	NA	5.48E-04	3.45E-03	NA	NA	4.00E-03	14%	86%	0%	0%	1%
Barium	1.92E-06	8.26E-06	2.40E-11	NA	2.00E-01	1.40E-02	1.43E-04	NA	9.59E-06	5.90E-04	1.68E-07	NA	6.00E-04	2%	98%	0%	0%	0%
Beryllium	1.42E-08	6.14E-08	1.78E-13	NA	2.00E-03	2.00E-05	5.71E-06	NA	7.12E-06	3.07E-03	3.12E-08	NA	3.08E-03	0%	100%	0%	0%	1%
Cadmium	9.86E-08	8.50E-09	1.23E-12	NA	1.00E-03	1.00E-05	NA	NA	9.86E-05	8.50E-04	NA	NA	9.48E-04	10%	90%	0%	0%	0%
Chromium	4.66E-07	2.01E-06	5.83E-12	NA	1.50E+00	7.50E-03	NA	NA	3.11E-07	2.67E-04	NA	NA	2.68E-04	0%	100%	0%	0%	0%
Copper	3.01E-07	1.30E-06	3.77E-12	NA	4.00E-02	1.20E-02	NA	NA	7.54E-06	1.08E-04	NA	NA	1.16E-04	7%	93%	0%	0%	0%
Iron	2.94E-04	1.26E-03	3.67E-09	NA	3.00E-01	4.50E-02	NA	NA	9.79E-04	2.81E-02	NA	NA	2.91E-02	3%	97%	0%	0%	10%
Lead	5.75E-07	2.48E-06	7.20E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	9.45E-06	4.07E-05	1.18E-10	NA	1.40E-01	5.60E-03	1.43E-05	NA	6.75E-05	7.27E-03	8.27E-06	NA	7.35E-03	1%	99%	0%	0%	3%
Mercury	3.01E-09	1.30E-08	3.77E-14	NA	3.00E-04	2.10E-05	NA	NA	1.00E-05	6.18E-04	NA	NA	6.28E-04	2%	98%	0%	0%	0%
Molybdenum	1.73E-07	7.43E-07	2.16E-12	NA	5.00E-03	1.90E-03	NA	NA	3.45E-05	3.91E-04	NA	NA	4.26E-04	8%	92%	0%	0%	0%
Nickel	2.71E-07	1.17E-06	3.39E-12	NA	2.00E-02	5.40E-03	NA	NA	1.36E-05	2.16E-04	NA	NA	2.30E-04	6%	94%	0%	0%	0%
Selenium	5.48E-07	2.36E-06	6.85E-12	NA	5.00E-03	2.20E-03	NA	NA	1.10E-04	1.07E-03	NA	NA	1.18E-03	9%	91%	0%	0%	0%
Silver	7.12E-08	3.07E-07	8.91E-13	NA	5.00E-03	9.00E-04	NA	NA	1.42E-05	3.41E-04	NA	NA	3.55E-04	4%	96%	0%	0%	0%
Uranium	5.70E-06	2.45E-05	7.13E-11	NA	6.00E-04	5.10E-04	NA	NA	9.50E-03	4.81E-02	NA	NA	5.76E-02	16%	84%	0%	0%	20%
Vanadium	4.93E-07	2.12E-06	6.17E-12	NA	9.00E-03	1.80E-03	NA	NA	5.48E-05	1.18E-03	NA	NA	1.23E-03	4%	96%	0%	0%	0%
Zinc	1.97E-06	8.50E-06	2.47E-11	NA	3.00E-01	6.00E-02	NA	NA	6.58E-06	1.42E-04	NA	NA	1.48E-04	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.00E-08	2.24E-07	2.50E-13	NA	4.00E-02	1.24E-02	NA	NA	5.00E-07	1.81E-05	NA	NA	1.86E-05	3%	97%	0%	0%	0%
Pyrene	1.86E-08	1.60E-07	2.33E-13	NA	3.00E-02	9.30E-03	NA	NA	6.21E-07	1.73E-05	NA	NA	1.79E-05	3%	97%	0%	0%	0%
Total PCB (1)	1.73E-08	2.08E-07	2.16E-13	NA	2.00E-05	1.80E-05	NA	NA	8.63E-04	1.16E-02	NA	NA	1.24E-02	7%	93%	0%	0%	4%
Total PAH (2)	2.74E-08	3.07E-07	3.43E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**1.33E-02**	**2.78E-01**	**1.02E-05**	**NA**	**2.91E-01**					

NA: Not applicable.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.12. Noncarcinogenic Risk Results-Current Industrial Worker for Soil at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total Risk**
Inorganic Chemicals (Metals)																		
Aluminum	2.22E-04	9.55E-04	2.77E-09	NA	1.00E+00	1.00E-01	1.43E-03	NA	2.22E-04	9.55E-03	1.94E-06	NA	9.78E-03	2%	98%	0%	0%	2%
Antimony	3.84E-07	1.65E-06	4.80E-12	NA	4.00E-04	8.00E-06	NA	NA	9.59E-04	2.07E-01	NA	NA	2.07E-01	0%	100%	0%	0%	49%
Arsenic	1.59E-07	4.11E-07	1.99E-12	NA	3.00E-04	1.23E-04	NA	NA	5.30E-04	3.34E-03	NA	NA	3.87E-03	14%	86%	0%	0%	1%
Barium	2.15E-06	9.26E-06	2.69E-11	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.07E-05	6.61E-04	1.88E-07	NA	6.72E-04	2%	98%	0%	0%	0%
Beryllium	1.78E-08	7.67E-08	2.23E-13	NA	2.00E-03	2.00E-05	5.71E-06	NA	8.91E-06	3.84E-03	3.90E-08	NA	3.84E-03	0%	100%	0%	0%	1%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Chromium	2.32E-06	9.99E-06	2.90E-11	NA	1.50E+00	7.50E-03	NA	NA	1.55E-06	1.33E-03	NA	NA	1.33E-03	0%	100%	0%	0%	0%
Copper	3.37E-06	1.45E-05	4.21E-11	NA	4.00E-02	1.20E-02	NA	NA	8.43E-05	1.21E-03	NA	NA	1.29E-03	7%	93%	0%	0%	0%
Iron	3.06E-04	1.32E-03	3.83E-09	NA	3.00E-01	4.50E-02	NA	NA	1.02E-03	2.93E-02	NA	NA	3.03E-02	3%	97%	0%	0%	7%
Lead	5.75E-07	2.48E-06	7.20E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.14E-05	4.92E-05	1.43E-10	NA	1.40E-01	5.60E-03	1.43E-05	NA	8.16E-05	8.78E-03	9.99E-06	NA	8.87E-03	1%	99%	0%	0%	2%
Mercury	1.64E-08	7.08E-08	2.06E-13	NA	3.00E-04	2.10E-05	NA	NA	5.48E-05	3.37E-03	NA	NA	3.43E-03	2%	98%	0%	0%	1%
Molybdenum	2.27E-07	9.79E-07	2.84E-12	NA	5.00E-03	1.90E-03	NA	NA	4.55E-05	5.15E-04	NA	NA	5.61E-04	8%	92%	0%	0%	0%
Nickel	2.58E-06	1.11E-05	3.22E-11	NA	2.00E-02	5.40E-03	NA	NA	1.29E-04	2.05E-03	NA	NA	2.18E-03	6%	94%	0%	0%	1%
Selenium	5.48E-07	2.36E-06	6.85E-12	NA	5.00E-03	2.20E-03	NA	NA	1.10E-04	1.07E-03	NA	NA	1.18E-03	9%	91%	0%	0%	0%
Silver	9.32E-08	4.01E-07	1.17E-12	NA	5.00E-03	9.00E-04	NA	NA	1.86E-05	4.46E-04	NA	NA	4.64E-04	4%	96%	0%	0%	0%
Uranium	8.99E-06	3.87E-05	1.12E-10	NA	6.00E-04	5.10E-04	NA	NA	1.50E-02	7.59E-02	NA	NA	9.09E-02	16%	84%	0%	0%	22%
Vanadium	5.50E-07	2.37E-06	6.88E-12	NA	9.00E-03	1.80E-03	NA	NA	6.11E-05	1.32E-03	NA	NA	1.38E-03	4%	96%	0%	0%	0%
Zinc	2.80E-06	1.21E-05	3.50E-11	NA	3.00E-01	6.00E-02	NA	NA	9.34E-06	2.01E-04	NA	NA	2.10E-04	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.86E-08	2.09E-07	2.33E-13	NA	4.00E-02	1.24E-02	NA	NA	4.66E-07	1.68E-05	NA	NA	1.73E-05	3%	97%	0%	0%	0%
Pyrene	1.53E-08	1.32E-07	1.92E-13	NA	3.00E-02	9.30E-03	NA	NA	5.11E-07	1.42E-05	NA	NA	1.47E-05	3%	97%	0%	0%	0%
Total PCB (1)	7.40E-08	8.92E-07	9.25E-13	NA	2.00E-05	1.80E-05	NA	NA	3.70E-03	4.96E-02	NA	NA	5.33E-02	7%	93%	0%	0%	13%
Total PAH (2)	2.74E-08	3.07E-07	3.43E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**2.20E-02**	**3.99E-01**	**1.22E-05**	**NA**	**4.21E-01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.13. Noncarcinogenic Risk Results-Current Industrial Worker for Soil at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	1.76E-04	7.58E-04	2.20E-09	NA	1.00E+00	1.00E-01	1.43E-03	NA	1.76E-04	7.58E-03	1.54E-06	NA	7.76E-03	2%	98%	0%	0%	3%
Antimony	2.74E-07	1.18E-06	3.43E-12	NA	4.00E-04	8.00E-06	NA	NA	6.85E-04	1.48E-01	NA	NA	1.48E-01	0%	100%	0%	0%	54%
Arsenic	1.64E-07	4.25E-07	2.06E-12	NA	3.00E-04	1.23E-04	NA	NA	5.48E-04	3.45E-03	NA	NA	4.00E-03	14%	86%	0%	0%	1%
Barium	1.81E-06	7.79E-06	2.26E-11	NA	2.00E-01	1.40E-02	1.43E-04	NA	9.04E-06	5.56E-04	1.58E-07	NA	5.65E-04	2%	98%	0%	0%	0%
Beryllium	1.59E-08	6.84E-08	1.99E-13	NA	2.00E-03	2.00E-05	5.71E-06	NA	7.95E-06	3.42E-03	3.48E-08	NA	3.43E-03	0%	100%	0%	0%	1%
Cadmium	5.75E-08	4.96E-09	7.20E-13	NA	1.00E-03	1.00E-05	NA	NA	5.75E-05	4.96E-04	NA	NA	5.53E-04	10%	90%	0%	0%	0%
Chromium	1.07E-06	4.60E-06	1.34E-11	NA	1.50E+00	7.50E-03	NA	NA	7.12E-07	6.14E-04	NA	NA	6.14E-04	0%	100%	0%	0%	0%
Copper	9.59E-07	4.13E-06	1.20E-11	NA	4.00E-02	1.20E-02	NA	NA	2.40E-05	3.44E-04	NA	NA	3.68E-04	7%	93%	0%	0%	0%
Iron	2.56E-04	1.10E-03	3.20E-09	NA	3.00E-01	4.50E-02	NA	NA	8.52E-04	2.45E-02	NA	NA	2.53E-02	3%	97%	0%	0%	9%
Lead	5.75E-07	2.48E-06	7.20E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.25E-05	5.38E-05	1.56E-10	NA	1.40E-01	5.60E-03	1.43E-05	NA	8.92E-05	9.61E-03	1.09E-05	NA	9.71E-03	1%	99%	0%	0%	4%
Mercury	3.01E-09	1.30E-08	3.77E-14	NA	3.00E-04	2.10E-05	NA	NA	1.00E-05	6.18E-04	NA	NA	6.28E-04	2%	98%	0%	0%	0%
Molybdenum	1.26E-07	5.43E-07	1.58E-12	NA	5.00E-03	1.90E-03	NA		2.52E-05	2.86E-04	NA	NA	3.11E-04	8%	92%	0%	0%	0%
Nickel	4.38E-07	1.89E-06	5.48E-12	NA	2.00E-02	5.40E-03	NA	NA	2.19E-05	3.50E-04	NA	NA	3.72E-04	6%	94%	0%	0%	0%
Selenium	6.03E-07	2.60E-06	7.54E-12	NA	5.00E-03	2.20E-03	NA	NA	1.21E-04	1.18E-03	NA	NA	1.30E-03	9%	91%	0%	0%	0%
Silver	7.95E-08	3.42E-07	9.94E-13	NA	5.00E-03	9.00E-04	NA	NA	1.59E-05	3.80E-04	NA	NA	3.96E-04	4%	96%	0%	0%	0%
Uranium	4.49E-06	1.94E-05	5.62E-11	NA	6.00E-04	5.10E-04	NA	NA	7.49E-03	3.79E-02	NA	NA	4.54E-02	16%	84%	0%	0%	17%
Vanadium	4.66E-07	2.01E-06	5.83E-12	NA	9.00E-03	1.80E-03	NA	NA	5.18E-05	1.11E-03	NA	NA	1.17E-03	4%	96%	0%	0%	0%
Zinc	1.04E-06	4.48E-06	1.30E-11	NA	3.00E-01	6.00E-02	NA	NA	3.47E-06	7.47E-05	NA	NA	7.82E-05	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	6.03E-08	6.75E-07	7.54E-13	NA	4.00E-02	1.24E-02	NA	NA	1.51E-06	5.44E-05	NA	NA	5.59E-05	3%	97%	0%	0%	0%
Pyrene	3.84E-08	3.30E-07	4.80E-13	NA	3.00E-02	9.30E-03	NA	NA	1.28E-06	3.55E-05	NA	NA	3.68E-05	3%	97%	0%	0%	0%
Total PCB (1)	3.01E-08	3.63E-07	3.77E-13	NA	2.00E-05	1.80E-05	NA	NA	1.51E-03	2.02E-02	NA	NA	2.17E-02	7%	93%	0%	0%	8%
Total PAH (2)	3.29E-08	3.68E-07	4.11E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**1.17E-02**	**2.60E-01**	**1.27E-05**	**NA**	**2.72E-01**					

NA: Not applicable.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.14. Noncarcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 008 Hot Spot

COPC	Exposure Route - Chronic Daily Intake	Chronic Toxicity (RfD)	HI	Percent Risk by Pathway		
	Dermal Intake Hazard	Dermal	Dermal	Chemical Total	Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.15. Noncarcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 010 Hot Spot

COPC	Exposure Route - Chronic Daily Intake	Chronic Toxicity (RfD)	HI	Percent Risk by Pathway		
	Dermal Intake Hazard	Dermal	Dermal	**Chemical Total**	Dermal	**Percent Total**
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.16. Noncarcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 011 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	2.34E-06	1.80E-05	1.30E-01	1.30E-01	100%	32%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	1.25E-05	4.50E-05	2.78E-01	2.78E-01	100%	68%
		Total HI =	**4.08E-01**	**4.08E-01**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.17. Noncarcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 015 Hot Spot

COPC	Exposure Route - Chronic Daily Intake	Chronic Toxicity (RfD)	HI	Percent Risk by Pathway		
	Dermal Intake Hazard	Dermal	Dermal	**Chemical Total**	Dermal	**Percent Total**
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	4.24E-07	1.80E-05	2.35E-02	2.35E-02	100%	85%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	1.92E-07	4.50E-05	4.28E-03	4.28E-03	100%	15%
		Total HI =	**2.78E-02**	**2.78E-02**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.18. Noncarcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 001 EU 13 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.19. Noncarcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 001 EU 14 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (SF) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	2.66E-06	1.80E-05	1.48E-01	1.48E-01	100%	100%
Total PAH (2)	NA	0.00E+00	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**1.48E-01**	**1.48E-01**		

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.20. Noncarcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 001 EU 15 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (SF) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.21. Noncarcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 001 EU 16 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.22. Noncarcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 001 EU 18 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.23. Noncarcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 001 EU 20 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.24. Noncarcinogenic Risk Results-Current Industrial Worker for Surface Water Within the Fence, Excluding the Hot Spots

COPC	Exposure Route - Chronic Daily Intake	Chronic Toxicity (RfD)	HI	Percent Risk by Pathway		
	Dermal Intake Hazard	Dermal	Dermal	**Chemical Total**	Dermal	**Percent Total**
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	2.66E-06	1.80E-05	1.48E-01	1.48E-01	100%	100%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	1.92E-07	4.50E-05	8.66E-12	8.66E-12	100%	0%
		Total HI =	**1.48E-01**	**1.48E-01**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.25. Noncarcinogenic Risk Results-Current Industrial Worker for Surface Water at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	100%	100%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.26. Noncarcinogenic Risk Results-Current Industrial Worker for Surface Water at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	1.35E-07	4.50E-05	6.06E-12	6.06E-12	100%	100%
		Total HI =	**6.06E-12**	**6.06E-12**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.27. Noncarcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 008 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	4.46E-03	1.92E-02	5.56E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	4.46E-03	1.92E-01	3.89E-05	NA	1.96E-01	2%	98%	0%	0%	1%
Antimony	4.74E-06	2.04E-05	5.92E-11	NA	4.00E-04	8.00E-06	NA	NA	1.19E-02	2.55E+00	NA	NA	2.56E+00	0%	100%	0%	0%	17%
Arsenic	2.79E-06	7.20E-06	3.48E-11	NA	3.00E-04	1.23E-04	NA	NA	9.29E-03	5.85E-02	NA	NA	6.78E-02	14%	86%	0%	0%	0%
Barium	3.57E-05	1.54E-04	4.46E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.78E-04	1.10E-02	3.12E-06	NA	1.12E-02	2%	98%	0%	0%	0%
Beryllium	2.59E-07	1.12E-06	3.24E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	1.30E-04	5.58E-02	5.67E-07	NA	5.59E-02	0%	100%	0%	0%	0%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Chromium	6.85E-06	2.95E-05	8.55E-11	NA	1.50E+00	7.50E-03	NA	NA	4.56E-06	3.93E-03	NA	NA	3.93E-03	0%	100%	0%	0%	0%
Copper	8.80E-06	3.79E-05	1.10E-10	NA	4.00E-02	1.20E-02	NA	NA	2.20E-04	3.16E-03	NA	NA	3.38E-03	7%	93%	0%	0%	0%
Iron	6.07E-03	2.61E-02	7.58E-08	NA	3.00E-01	4.50E-02	NA	NA	2.02E-02	5.81E-01	NA	NA	6.01E-01	3%	97%	0%	0%	4%
Lead	1.08E-05	4.63E-05	1.34E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	2.29E-04	9.87E-04	2.86E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.64E-03	1.76E-01	2.00E-04	NA	1.78E-01	1%	99%	0%	0%	1%
Mercury	4.89E-08	2.11E-07	6.11E-13	NA	3.00E-04	2.10E-05	NA	NA	1.63E-04	1.00E-02	NA	NA	1.02E-02	2%	98%	0%	0%	0%
Molybdenum	4.01E-06	1.73E-05	5.01E-11	NA	5.00E-03	1.90E-03	NA	NA	8.02E-04	9.08E-03	NA	NA	9.89E-03	8%	92%	0%	0%	0%
Nickel	8.31E-06	3.58E-05	1.04E-10	NA	2.00E-02	5.40E-03	NA	NA	4.16E-04	6.63E-03	NA	NA	7.04E-03	6%	94%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	1.17E-06	5.05E-06	1.47E-11	NA	5.00E-03	9.00E-04	NA	NA	2.35E-04	5.61E-03	NA	NA	5.85E-03	4%	96%	0%	0%	0%
Uranium	4.69E-05	2.02E-04	5.86E-10	NA	6.00E-04	5.10E-04	NA	NA	7.82E-02	3.96E-01	NA	NA	4.74E-01	16%	84%	0%	0%	3%
Vanadium	1.03E-05	4.42E-05	1.28E-10	NA	9.00E-03	1.80E-03	NA	NA	1.14E-03	2.46E-02	NA	NA	2.57E-02	4%	96%	0%	0%	0%
Zinc	2.45E-05	1.05E-04	3.05E-10	NA	3.00E-01	6.00E-02	NA	NA	8.15E-05	1.75E-03	NA	NA	1.84E-03	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.84E-07	3.17E-06	3.54E-12	NA	4.00E-02	1.24E-02	NA	NA	7.09E-06	2.56E-04	NA	NA	2.63E-04	3%	97%	0%	0%	0%
Pyrene	2.45E-07	2.11E-06	3.05E-12	NA	3.00E-02	9.30E-03	NA	NA	8.15E-06	2.26E-04	NA	NA	2.34E-04	3%	97%	0%	0%	0%
Total PCB (1)	1.56E-05	1.89E-04	1.95E-10	NA	2.00E-05	1.80E-05	NA	NA	7.82E-01	1.05E+01	NA	NA	1.13E+01	7%	93%	0%	0%	73%
Total PAH (2)	5.87E-07	6.57E-06	7.33E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =	**9.12E-01**	**1.46E+01**	**2.43E-04**	**NA**	**1.55E+01**													

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.28. Noncarcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 010 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	6.31E-03	2.72E-02	7.88E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	6.31E-03	2.72E-01	5.51E-05	NA	2.78E-01	2%	98%	0%	0%	3%
Antimony	4.73E-06	2.04E-05	5.90E-11	NA	4.00E-04	8.00E-06	NA	NA	1.18E-02	2.54E+00	NA	NA	2.56E+00	0%	100%	0%	0%	24%
Arsenic	6.16E-06	1.59E-05	7.69E-11	NA	3.00E-04	1.23E-04	NA	NA	2.05E-02	1.29E-01	NA	NA	1.50E-01	14%	86%	0%	0%	1%
Barium	4.65E-05	2.00E-04	5.81E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	2.33E-04	1.43E-02	4.06E-06	NA	1.45E-02	2%	98%	0%	0%	0%
Beryllium	2.35E-07	1.01E-06	2.93E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	1.17E-04	5.05E-02	5.13E-07	NA	5.06E-02	0%	100%	0%	0%	0%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Chromium	1.14E-05	4.90E-05	1.42E-10	NA	1.50E+00	7.50E-03	NA	NA	7.60E-06	6.54E-03	NA	NA	6.55E-03	0%	100%	0%	0%	0%
Copper	8.95E-06	3.85E-05	1.12E-10	NA	4.00E-02	1.20E-02	NA	NA	2.24E-04	3.21E-03	NA	NA	3.43E-03	7%	93%	0%	0%	0%
Iron	7.63E-03	3.28E-02	9.53E-08	NA	3.00E-01	4.50E-02	NA	NA	2.54E-02	7.30E-01	NA	NA	7.55E-01	3%	97%	0%	0%	7%
Lead	3.68E-05	1.58E-04	4.59E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.58E-04	6.80E-04	1.97E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.13E-03	1.21E-01	1.38E-04	NA	1.23E-01	1%	99%	0%	0%	1%
Mercury	1.52E-07	6.53E-07	1.89E-12	NA	3.00E-04	2.10E-05	NA	NA	5.05E-04	3.11E-02	NA	NA	3.16E-02	2%	98%	0%	0%	0%
Molybdenum	6.80E-06	2.93E-05	8.49E-11	NA	5.00E-03	1.90E-03	NA	NA	1.36E-03	1.54E-02	NA	NA	1.68E-02	8%	92%	0%	0%	0%
Nickel	1.07E-05	4.59E-05	1.33E-10	NA	2.00E-02	5.40E-03	NA	NA	5.33E-04	8.50E-03	NA	NA	9.03E-03	6%	94%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	1.18E-06	5.09E-06	1.48E-11	NA	5.00E-03	9.00E-04	NA	NA	2.37E-04	5.66E-03	NA	NA	5.90E-03	4%	96%	0%	0%	0%
Uranium	1.29E-05	5.56E-05	1.61E-10	NA	6.00E-04	5.10E-04	NA	NA	2.15E-02	1.09E-01	NA	NA	1.30E-01	16%	84%	0%	0%	1%
Vanadium	1.36E-05	5.85E-05	1.70E-10	NA	9.00E-03	1.80E-03	NA	NA	1.51E-03	3.25E-02	NA	NA	3.40E-02	4%	96%	0%	0%	0%
Zinc	1.23E-04	5.30E-04	1.54E-09	NA	3.00E-01	6.00E-02	NA	NA	4.11E-04	8.84E-03	NA	NA	9.25E-03	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.49E-06	2.79E-05	3.11E-11	NA	4.00E-02	1.24E-02	NA	NA	6.23E-05	2.25E-03	NA	NA	2.31E-03	3%	97%	0%	0%	0%
Pyrene	1.71E-06	1.47E-05	2.14E-11	NA	3.00E-02	9.30E-03	NA	NA	5.71E-05	1.58E-03	NA	NA	1.64E-03	3%	97%	0%	0%	0%
Total PCB (1)	9.29E-06	1.12E-04	1.16E-10	NA	2.00E-05	1.80E-05	NA	NA	4.65E-01	6.22E+00	NA	NA	6.69E+00	7%	93%	0%	0%	62%
Total PAH (2)	1.52E-06	1.70E-05	1.89E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**5.57E-01**	**1.03E+01**	**1.98E-04**	**NA**	**1.09E+01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.29. Noncarcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 011 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	5.07E-03	2.18E-02	6.34E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	5.07E-03	2.18E-01	4.43E-05	NA	2.24E-01	2%	98%	0%	0%	2%
Antimony	8.31E-06	3.58E-05	1.04E-10	NA	4.00E-04	8.00E-06	NA	NA	2.08E-02	4.47E+00	NA	NA	4.49E+00	0%	100%	0%	0%	39%
Arsenic	6.36E-06	1.64E-05	7.94E-11	NA	3.00E-04	1.23E-04	NA	NA	2.12E-02	1.33E-01	NA	NA	1.55E-01	14%	86%	0%	0%	1%
Barium	4.50E-05	1.94E-04	5.62E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	2.25E-04	1.38E-02	3.93E-06	NA	1.41E-02	2%	98%	0%	0%	0%
Beryllium	4.69E-07	2.02E-06	5.86E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	2.35E-04	1.01E-01	1.03E-06	NA	1.01E-01	0%	100%	0%	0%	1%
Cadmium	1.37E-06	1.18E-07	1.71E-11	NA	1.00E-03	1.00E-05	NA	NA	1.37E-03	1.18E-02	NA	NA	1.32E-02	10%	90%	0%	0%	0%
Chromium	7.29E-05	3.14E-04	9.10E-10	NA	1.50E+00	7.50E-03	NA	NA	4.86E-05	4.18E-02	NA	NA	4.19E-02	0%	100%	0%	0%	0%
Copper	9.88E-05	4.25E-04	1.23E-09	NA	4.00E-02	1.20E-02	NA	NA	2.47E-03	3.54E-02	NA	NA	3.79E-02	7%	93%	0%	0%	0%
Iron	1.14E-02	4.91E-02	1.42E-07	NA	3.00E-01	4.50E-02	NA	NA	3.80E-02	1.09E+00	NA	NA	1.13E+00	3%	97%	0%	0%	10%
Lead	2.54E-05	1.09E-04	3.18E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	2.91E-04	1.25E-03	3.63E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	2.08E-03	2.24E-01	2.54E-04	NA	2.26E-01	1%	99%	0%	0%	2%
Mercury	8.31E-08	3.58E-07	1.04E-12	NA	3.00E-04	2.10E-05	NA	NA	2.77E-04	1.70E-02	NA	NA	1.73E-02	2%	98%	0%	0%	0%
Molybdenum	3.57E-06	1.54E-05	4.46E-11	NA	5.00E-03	1.90E-03	NA	NA	7.14E-04	8.09E-03	NA	NA	8.80E-03	8%	92%	0%	0%	0%
Nickel	6.85E-06	2.95E-05	8.55E-11	NA	2.00E-02	5.40E-03	NA	NA	3.42E-04	5.46E-03	NA	NA	5.80E-03	6%	94%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	1.22E-06	5.26E-06	1.53E-11	NA	5.00E-03	9.00E-04	NA	NA	2.45E-04	5.85E-03	NA	NA	6.09E-03	4%	96%	0%	0%	0%
Uranium	2.15E-04	9.24E-04	2.68E-09	NA	6.00E-04	5.10E-04	NA	NA	3.58E-01	1.81E+00	NA	NA	2.17E+00	16%	84%	0%	0%	19%
Vanadium	2.05E-05	8.84E-05	2.56E-10	NA	9.00E-03	1.80E-03	NA	NA	2.28E-03	4.91E-02	NA	NA	5.14E-02	4%	96%	0%	0%	0%
Zinc	3.74E-04	1.61E-03	4.66E-09	NA	3.00E-01	6.00E-02	NA	NA	1.25E-03	2.68E-02	NA	NA	2.80E-02	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.10E-05	2.35E-04	2.63E-10	NA	4.00E-02	1.24E-02	NA	NA	5.26E-04	1.90E-02	NA	NA	1.95E-02	3%	97%	0%	0%	0%
Pyrene	6.36E-05	5.47E-04	7.94E-10	NA	3.00E-02	9.30E-03	NA	NA	2.12E-03	5.88E-02	NA	NA	6.10E-02	3%	97%	0%	0%	1%
Total PCB (1)	3.72E-06	4.48E-05	4.64E-11	NA	2.00E-05	1.80E-05	NA	NA	1.86E-01	2.49E+00	NA	NA	2.67E+00	7%	93%	0%	0%	23%
Total PAH (2)	2.84E-05	3.17E-04	3.54E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**6.43E-01**	**1.08E+01**	**3.03E-04**	**NA**	**1.15E+01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.30. Noncarcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 015 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	3.29E-03	1.41E-02	4.10E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	3.29E-03	1.41E-01	2.87E-05	NA	1.45E-01	2%	98%	0%	0%	2%
Antimony	5.38E-06	2.32E-05	6.72E-11	NA	4.00E-04	8.00E-06	NA	NA	1.34E-02	2.89E+00	NA	NA	2.91E+00	0%	100%	0%	0%	32%
Arsenic	4.89E-06	1.26E-05	6.11E-11	NA	3.00E-04	1.23E-04	NA	NA	1.63E-02	1.03E-01	NA	NA	1.19E-01	14%	86%	0%	0%	1%
Barium	3.77E-05	1.62E-04	4.70E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.88E-04	1.16E-02	3.29E-06	NA	1.18E-02	2%	98%	0%	0%	0%
Beryllium	2.79E-07	1.20E-06	3.48E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	1.39E-04	6.00E-02	6.10E-07	NA	6.01E-02	0%	100%	0%	0%	1%
Cadmium	1.03E-06	8.84E-08	1.28E-11	NA	1.00E-03	1.00E-05	NA	NA	1.03E-03	8.84E-03	NA	NA	9.87E-03	10%	90%	0%	0%	0%
Chromium	1.12E-05	4.84E-05	1.40E-10	NA	1.50E+00	7.50E-03	NA	NA	7.50E-06	6.46E-03	NA	NA	6.46E-03	0%	100%	0%	0%	0%
Copper	9.78E-06	4.21E-05	1.22E-10	NA	4.00E-02	1.20E-02	NA	NA	2.45E-04	3.51E-03	NA	NA	3.75E-03	7%	93%	0%	0%	0%
Iron	7.17E-03	3.09E-02	8.95E-08	NA	3.00E-01	4.50E-02	NA	NA	2.39E-02	6.86E-01	NA	NA	7.10E-01	3%	97%	0%	0%	8%
Lead	2.20E-05	9.47E-05	2.75E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	2.59E-04	1.12E-03	3.24E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.85E-03	1.99E-01	2.26E-04	NA	2.01E-01	1%	99%	0%	0%	2%
Mercury	7.82E-08	3.37E-07	9.77E-13	NA	3.00E-04	2.10E-05	NA	NA	2.61E-04	1.60E-02	NA	NA	1.63E-02	2%	98%	0%	0%	0%
Molybdenum	2.69E-06	1.16E-05	3.36E-11	NA	5.00E-03	1.90E-03	NA	NA	5.38E-04	6.09E-03	NA	NA	6.63E-03	8%	92%	0%	0%	0%
Nickel	1.42E-05	6.10E-05	1.77E-10	NA	2.00E-02	5.40E-03	NA	NA	7.09E-04	1.13E-02	NA	NA	1.20E-02	6%	94%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	1.27E-06	5.47E-06	1.59E-11	NA	5.00E-03	9.00E-04	NA	NA	2.54E-04	6.08E-03	NA	NA	6.34E-03	4%	96%	0%	0%	0%
Uranium	4.50E-04	1.94E-03	5.62E-09	NA	6.00E-04	5.10E-04	NA	NA	7.50E-01	3.80E+00	NA	NA	4.55E+00	16%	84%	0%	0%	50%
Vanadium	9.29E-06	4.00E-05	1.16E-10	NA	9.00E-03	1.80E-03	NA	NA	1.03E-03	2.22E-02	NA	NA	2.33E-02	4%	96%	0%	0%	0%
Zinc	5.57E-05	2.40E-04	6.96E-10	NA	3.00E-01	6.00E-02	NA	NA	1.86E-04	4.00E-03	NA	NA	4.19E-03	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	3.33E-07	3.72E-06	4.15E-12	NA	4.00E-02	1.24E-02	NA	NA	8.31E-06	3.00E-04	NA	NA	3.08E-04	3%	97%	0%	0%	0%
Pyrene	3.08E-07	2.65E-06	3.85E-12	NA	3.00E-02	9.30E-03	NA	NA	1.03E-05	2.85E-04	NA	NA	2.95E-04	3%	97%	0%	0%	0%
Total PCB (1)	5.38E-07	6.48E-06	6.72E-12	NA	2.00E-05	1.80E-05	NA	NA	2.69E-02	3.60E-01	NA	NA	3.87E-01	7%	93%	0%	0%	4%
Total PAH (2)	5.38E-07	6.02E-06	6.72E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**8.40E-01**	**8.34E+00**	**2.59E-04**	**NA**	**9.18E+00**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.31. Noncarcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 001 EU 13 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	4.34E-03	1.87E-02	5.42E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	4.34E-03	1.87E-01	3.79E-05	NA	1.91E-01	2%	98%	0%	0%	4%
Antimony	4.82E-06	2.08E-05	6.02E-11	NA	4.00E-04	8.00E-06	NA	NA	1.21E-02	2.59E+00	NA	NA	2.61E+00	0%	100%	0%	0%	54%
Arsenic	2.53E-06	1.09E-05	3.16E-11	NA	3.00E-04	1.23E-04	NA	NA	8.43E-03	8.85E-02	NA	NA	9.69E-02	9%	91%	0%	0%	2%
Barium	4.47E-05	1.92E-04	5.58E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	2.23E-04	1.37E-02	3.90E-06	NA	1.40E-02	2%	98%	0%	0%	0%
Beryllium	2.41E-07	1.04E-06	3.01E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	1.21E-04	5.19E-02	5.27E-07	NA	5.20E-02	0%	100%	0%	0%	1%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Chromium	2.13E-05	9.16E-05	2.66E-10	NA	1.50E+00	7.50E-03	NA	NA	1.42E-05	1.22E-02	NA	NA	1.22E-02	0%	100%	0%	0%	0%
Copper	6.31E-06	2.72E-05	7.88E-11	NA	4.00E-02	1.20E-02	NA	NA	1.58E-04	2.26E-03	NA	NA	2.42E-03	7%	93%	0%	0%	0%
Iron	7.43E-03	3.20E-02	9.28E-08	NA	3.00E-01	4.50E-02	NA	NA	2.48E-02	7.11E-01	NA	NA	7.36E-01	3%	97%	0%	0%	15%
Lead	1.07E-05	4.61E-05	1.34E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	3.85E-04	1.66E-03	4.81E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	2.75E-03	2.96E-01	3.36E-04	NA	2.99E-01	1%	99%	0%	0%	6%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	ND	ND	ND	NA	5.00E-03	1.90E-03	NA	NA	ND	ND	ND	ND	ND	0%	0%	0%	0%	0%
Nickel	6.21E-06	2.67E-05	7.75E-11	NA	2.00E-02	5.40E-03	NA	NA	3.11E-04	4.95E-03	NA	NA	5.26E-03	6%	94%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	1.21E-06	5.20E-06	1.51E-11	NA	5.00E-03	9.00E-04	NA	NA	2.42E-04	5.78E-03	NA	NA	6.02E-03	4%	96%	0%	0%	0%
Uranium	2.37E-05	1.02E-04	2.96E-10	NA	6.00E-04	5.10E-04	NA	NA	3.95E-02	2.00E-01	NA	NA	2.40E-01	16%	84%	0%	0%	5%
Vanadium	8.07E-06	3.47E-05	1.01E-10	NA	9.00E-03	1.80E-03	NA	NA	8.97E-04	1.93E-02	NA	NA	2.02E-02	4%	96%	0%	0%	0%
Zinc	5.48E-05	2.36E-04	6.84E-10	NA	3.00E-01	6.00E-02	NA	NA	1.83E-04	3.93E-03	NA	NA	4.11E-03	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.40E-07	2.06E-06	2.99E-12	NA	4.00E-02	1.24E-02	NA	NA	5.99E-06	1.66E-04	NA	NA	1.72E-04	3%	97%	0%	0%	0%
Pyrene	2.40E-07	2.06E-06	2.99E-12	NA	3.00E-02	9.30E-03	NA	NA	7.99E-06	2.22E-04	NA	NA	2.30E-04	3%	97%	0%	0%	0%
Total PCB (1)	1.61E-06	8.34E-06	2.01E-11	NA	2.00E-05	1.80E-05	NA	NA	8.07E-02	4.63E-01	NA	NA	5.44E-01	15%	85%	0%	0%	11%
Total PAH (2)	5.38E-07	4.63E-06	6.72E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**1.75E-01**	**4.65E+00**	**3.79E-04**	**NA**	**4.83E+00**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.32. Noncarcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 001 EU 14 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	3.99E-03	1.72E-02	4.98E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	3.99E-03	1.72E-01	3.49E-05	NA	1.76E-01	2%	98%	0%	0%	1%
Antimony	7.34E-06	3.16E-05	9.16E-11	NA	4.00E-04	8.00E-06	NA	NA	1.83E-02	3.95E+00	NA	NA	3.97E+00	0%	100%	0%	0%	31%
Arsenic	2.45E-06	6.32E-06	3.05E-11	NA	3.00E-04	1.23E-04	NA	NA	8.15E-03	5.13E-02	NA	NA	5.95E-02	14%	86%	0%	0%	0%
Barium	4.25E-05	1.83E-04	5.31E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	2.13E-04	1.31E-02	3.71E-06	NA	1.33E-02	2%	98%	0%	0%	0%
Beryllium	2.35E-07	1.01E-06	2.93E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	1.17E-04	5.05E-02	5.13E-07	NA	5.06E-02	0%	100%	0%	0%	0%
Cadmium	9.29E-07	8.00E-08	1.16E-11	NA	1.00E-03	1.00E-05	NA	NA	9.29E-04	8.00E-03	NA	NA	8.93E-03	10%	90%	0%	0%	0%
Chromium	3.47E-05	1.49E-04	4.34E-10	NA	1.50E+00	7.50E-03	NA	NA	2.31E-05	1.99E-02	NA	NA	2.00E-02	0%	100%	0%	0%	0%
Copper	2.10E-05	9.05E-05	2.63E-10	NA	4.00E-02	1.20E-02	NA	NA	5.26E-04	7.54E-03	NA	NA	8.07E-03	7%	93%	0%	0%	0%
Iron	5.64E-03	2.43E-02	7.04E-08	NA	3.00E-01	4.50E-02	NA	NA	1.88E-02	5.39E-01	NA	NA	5.58E-01	3%	97%	0%	0%	4%
Lead	1.12E-05	4.84E-05	1.40E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.66E-04	7.14E-04	2.07E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.18E-03	1.27E-01	1.45E-04	NA	1.29E-01	1%	99%	0%	0%	1%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	2.29E-06	9.85E-06	2.86E-11	NA	5.00E-03	1.90E-03	NA	NA	4.58E-04	5.18E-03	NA	NA	5.64E-03	8%	92%	0%	0%	0%
Nickel	7.82E-06	3.37E-05	9.77E-11	NA	2.00E-02	5.40E-03	NA	NA	3.91E-04	6.24E-03	NA	NA	6.63E-03	6%	94%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	1.17E-06	5.05E-06	1.47E-11	NA	5.00E-03	9.00E-04	NA	NA	2.35E-04	5.61E-03	NA	NA	5.85E-03	4%	96%	0%	0%	0%
Uranium	3.81E-06	1.64E-05	4.76E-11	NA	6.00E-04	5.10E-04	NA	NA	6.36E-03	3.22E-02	NA	NA	3.86E-02	16%	84%	0%	0%	0%
Vanadium	9.29E-06	4.00E-05	1.16E-10	NA	9.00E-03	1.80E-03	NA	NA	1.03E-03	2.22E-02	NA	NA	2.33E-02	4%	96%	0%	0%	0%
Zinc	7.58E-05	3.26E-04	9.46E-10	NA	3.00E-01	6.00E-02	NA	NA	2.53E-04	5.44E-03	NA	NA	5.69E-03	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	9.78E-05	1.09E-03	1.22E-09	NA	4.00E-02	1.24E-02	NA	NA	2.45E-03	8.83E-02	NA	NA	9.07E-02	3%	97%	0%	0%	1%
Pyrene	2.25E-05	1.94E-04	2.81E-10	NA	3.00E-02	9.30E-03	NA	NA	7.50E-04	2.08E-02	NA	NA	2.16E-02	3%	97%	0%	0%	0%
Total PCB (1)	1.08E-05	1.30E-04	1.34E-10	NA	2.00E-05	1.80E-05	NA	NA	5.38E-01	7.20E+00	NA	NA	7.74E+00	7%	93%	0%	0%	60%
Total PAH (2)	9.00E-05	1.01E-03	1.12E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**6.02E-01**	**1.23E+01**	**1.84E-04**	**NA**	**1.29E+01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are (mg/kg-day)-1 and for inhalation exposure are (mg/m3)-1.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.33. Noncarcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 001 EU 15 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	3.66E-03	1.58E-02	4.57E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	3.66E-03	1.58E-01	3.20E-05	NA	1.61E-01	2%	98%	0%	0%	1%
Antimony	4.79E-06	2.06E-05	5.98E-11	NA	4.00E-04	8.00E-06	NA	NA	1.20E-02	2.58E+00	NA	NA	2.59E+00	0%	100%	0%	0%	10%
Arsenic	4.67E-06	1.21E-05	5.83E-11	NA	3.00E-04	1.23E-04	NA	NA	1.56E-02	9.81E-02	NA	NA	1.14E-01	14%	86%	0%	0%	0%
Barium	2.37E-05	1.02E-04	2.96E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.18E-04	7.28E-03	2.07E-06	NA	7.40E-03	2%	98%	0%	0%	0%
Beryllium	ND	ND	ND	NA	2.00E-03	2.00E-05	5.71E-06	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Cadmium	1.37E-06	1.18E-07	1.71E-11	NA	1.00E-03	1.00E-05	NA	NA	1.37E-03	1.18E-02	NA	NA	1.32E-02	10%	90%	0%	0%	0%
Chromium	3.56E-05	1.53E-04	4.44E-10	NA	1.50E+00	7.50E-03	NA	NA	2.37E-05	2.04E-02	NA	NA	2.04E-02	0%	100%	0%	0%	0%
Copper	2.33E-05	1.00E-04	2.91E-10	NA	4.00E-02	1.20E-02	NA	NA	5.83E-04	8.37E-03	NA	NA	8.95E-03	7%	93%	0%	0%	0%
Iron	5.72E-03	2.46E-02	7.14E-08	NA	3.00E-01	4.50E-02	NA	NA	1.91E-02	5.47E-01	NA	NA	5.66E-01	3%	97%	0%	0%	2%
Lead	3.16E-05	1.36E-04	3.94E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.67E-04	7.20E-04	2.09E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.19E-03	1.29E-01	1.46E-04	NA	1.30E-01	1%	99%	0%	0%	1%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	1.17E-05	5.03E-05	1.46E-10	NA	5.00E-03	1.90E-03	NA	NA	2.34E-03	2.65E-02	NA	NA	2.88E-02	8%	92%	0%	0%	0%
Nickel	2.54E-04	1.09E-03	3.18E-09	NA	2.00E-02	5.40E-03	NA	NA	1.27E-02	2.03E-01	NA	NA	2.15E-01	6%	94%	0%	0%	1%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	1.20E-06	5.16E-06	1.50E-11	NA	5.00E-03	9.00E-04	NA	NA	2.40E-04	5.73E-03	NA	NA	5.97E-03	4%	96%	0%	0%	0%
Uranium	3.14E-04	1.35E-03	3.92E-09	NA	6.00E-04	5.10E-04	NA	NA	5.23E-01	2.65E+00	NA	NA	3.17E+00	16%	84%	0%	0%	12%
Vanadium	7.63E-06	3.28E-05	9.53E-11	NA	9.00E-03	1.80E-03	NA	NA	8.48E-04	1.82E-02	NA	NA	1.91E-02	4%	96%	0%	0%	0%
Zinc	6.70E-04	2.88E-03	8.37E-09	NA	3.00E-01	6.00E-02	NA	NA	2.23E-03	4.81E-02	NA	NA	5.03E-02	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	3.72E-06	4.16E-05	4.64E-11	NA	4.00E-02	1.24E-02	NA	NA	9.29E-05	3.35E-03	NA	NA	3.45E-03	3%	97%	0%	0%	0%
Pyrene	2.74E-06	2.36E-05	3.42E-11	NA	3.00E-02	9.30E-03	NA	NA	9.13E-05	2.54E-03	NA	NA	2.63E-03	3%	97%	0%	0%	0%
Total PCB (1)	2.54E-05	3.06E-04	3.18E-10	NA	2.00E-05	1.80E-05	NA	NA	1.27E+00	1.70E+01	NA	NA	1.83E+01	7%	93%	0%	0%	72%
Total PAH (2)	2.54E-06	2.85E-05	3.18E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**1.87E+00**	**2.35E+01**	**1.80E-04**	**NA**	**2.54E+01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are (mg/kg-day)-1 and for inhalation exposure are (mg/m3)-1.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.34. Noncarcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 001 EU 16 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	4.00E-03	1.72E-02	5.00E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	4.00E-03	1.72E-01	3.50E-05	NA	1.76E-01	2%	98%	0%	0%	1%
Antimony	4.70E-06	2.03E-05	5.87E-11	NA	4.00E-04	8.00E-06	NA	NA	1.18E-02	2.53E+00	NA	NA	2.54E+00	0%	100%	0%	0%	19%
Arsenic	5.23E-06	1.35E-05	6.53E-11	NA	3.00E-04	1.23E-04	NA	NA	1.74E-02	1.10E-01	NA	NA	1.27E-01	14%	86%	0%	0%	1%
Barium	3.47E-05	1.49E-04	4.34E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.74E-04	1.07E-02	3.03E-06	NA	1.09E-02	2%	98%	0%	0%	0%
Beryllium	3.24E-07	1.40E-06	4.05E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	1.62E-04	6.98E-02	7.09E-07	NA	6.99E-02	0%	100%	0%	0%	1%
Cadmium	9.44E-06	8.13E-07	1.18E-10	NA	1.00E-03	1.00E-05	NA	NA	9.44E-03	8.13E-02	NA	NA	9.07E-02	10%	90%	0%	0%	1%
Chromium	1.15E-05	4.95E-05	1.43E-10	NA	1.50E+00	7.50E-03	NA	NA	7.66E-06	6.60E-03	NA	NA	6.60E-03	0%	100%	0%	0%	0%
Copper	6.80E-06	2.93E-05	8.49E-11	NA	4.00E-02	1.20E-02	NA	NA	1.70E-04	2.44E-03	NA	NA	2.61E-03	7%	93%	0%	0%	0%
Iron	8.90E-02	3.83E-01	1.11E-06	NA	3.00E-01	4.50E-02	NA	NA	2.97E-01	8.51E+00	NA	NA	8.81E+00	3%	97%	0%	0%	67%
Lead	1.03E-05	4.44E-05	1.29E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	7.53E-04	3.24E-03	9.40E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	5.38E-03	5.79E-01	6.58E-04	NA	5.85E-01	1%	99%	0%	0%	4%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	ND	ND	ND	NA	5.00E-03	1.90E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Nickel	5.04E-06	2.17E-05	6.29E-11	NA	2.00E-02	5.40E-03	NA	NA	2.52E-04	4.02E-03	NA	NA	4.27E-03	6%	94%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	1.18E-06	5.07E-06	1.47E-11	NA	5.00E-03	9.00E-04	NA	NA	2.36E-04	5.64E-03	NA	NA	5.87E-03	4%	96%	0%	0%	0%
Uranium	6.99E-06	3.01E-05	8.73E-11	NA	6.00E-04	5.10E-04	NA	NA	1.17E-02	5.90E-02	NA	NA	7.07E-02	16%	84%	0%	0%	1%
Vanadium	1.24E-05	5.33E-05	1.54E-10	NA	9.00E-03	1.80E-03	NA	NA	1.37E-03	2.96E-02	NA	NA	3.10E-02	4%	96%	0%	0%	0%
Zinc	3.32E-05	1.43E-04	4.14E-10	NA	3.00E-01	6.00E-02	NA	NA	1.11E-04	2.38E-03	NA	NA	2.49E-03	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	5.38E-07	6.02E-06	6.72E-12	NA	4.00E-02	1.24E-02	NA	NA	1.34E-05	4.86E-04	NA	NA	4.99E-04	3%	97%	0%	0%	0%
Pyrene	5.87E-07	5.05E-06	7.33E-12	NA	3.00E-02	9.30E-03	NA	NA	1.96E-05	5.43E-04	NA	NA	5.63E-04	3%	97%	0%	0%	0%
Total PCB (1)	8.80E-07	1.06E-05	1.10E-11	NA	2.00E-05	1.80E-05	NA	NA	4.40E-02	5.89E-01	NA	NA	6.33E-01	7%	93%	0%	0%	5%
Total PAH (2)	6.85E-07	7.66E-06	8.55E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**4.03E-01**	**1.28E+01**	**6.96E-04**	**NA**	**1.32E+01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are (mg/kg-day)-1 and for inhalation exposure are (mg/m3)-1.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.35 Noncarcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 001 EU 18 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	5.62E-03	2.42E-02	7.02E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	5.62E-03	2.42E-01	4.91E-05	NA	2.48E-01	2%	98%	0%	0%	5%
Antimony	4.86E-06	2.09E-05	6.06E-11	NA	4.00E-04	8.00E-06	NA	NA	1.21E-02	2.61E+00	NA	NA	2.62E+00	0%	100%	0%	0%	50%
Arsenic	2.29E-06	5.91E-06	2.86E-11	NA	3.00E-04	1.23E-04	NA	NA	7.63E-03	4.81E-02	NA	NA	5.57E-02	14%	86%	0%	0%	1%
Barium	3.00E-05	1.29E-04	3.75E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.50E-04	9.23E-03	2.62E-06	NA	9.38E-03	2%	98%	0%	0%	0%
Beryllium	2.95E-07	1.27E-06	3.69E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	1.48E-04	6.36E-02	6.46E-07	NA	6.37E-02	0%	100%	0%	0%	1%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Chromium	1.06E-05	4.55E-05	1.32E-10	NA	1.50E+00	7.50E-03	NA	NA	7.04E-06	6.06E-03	NA	NA	6.07E-03	0%	100%	0%	0%	0%
Copper	2.40E-05	1.03E-04	2.99E-10	NA	4.00E-02	1.20E-02	NA	NA	5.99E-04	8.60E-03	NA	NA	9.19E-03	7%	93%	0%	0%	0%
Iron	7.68E-03	3.30E-02	9.59E-08	NA	3.00E-01	4.50E-02	NA	NA	2.56E-02	7.34E-01	NA	NA	7.60E-01	3%	97%	0%	0%	15%
Lead	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0%	0%	0%	0%	0%
Manganese	4.14E-04	1.78E-03	5.17E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	2.96E-03	3.18E-01	NA	NA	3.21E-01	1%	99%	0%	0%	6%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Molybdenum	1.03E-05	4.42E-05	1.28E-10	NA	5.00E-03	1.90E-03	NA	NA	2.05E-03	2.33E-02	NA	NA	2.53E-02	8%	92%	0%	0%	0%
Nickel	8.90E-05	3.83E-04	1.11E-09	NA	2.00E-02	5.40E-03	NA	NA	4.45E-03	7.09E-02	NA	NA	7.54E-02	6%	94%	0%	0%	1%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	1.21E-06	5.22E-06	1.51E-11	NA	5.00E-03	9.00E-04	NA	NA	2.43E-04	5.80E-03	NA	NA	6.04E-03	4%	96%	0%	0%	0%
Uranium	4.44E-05	1.91E-04	5.54E-10	NA	6.00E-04	5.10E-04	NA	NA	7.40E-02	3.75E-01	NA	NA	4.49E-01	16%	84%	0%	0%	9%
Vanadium	1.11E-05	4.78E-05	1.39E-10	NA	9.00E-03	1.80E-03	NA	NA	1.23E-03	2.65E-02	NA	NA	2.78E-02	4%	96%	0%	0%	1%
Zinc	4.24E-05	1.83E-04	5.29E-10	NA	3.00E-01	6.00E-02	NA	NA	1.41E-04	3.04E-03	NA	NA	3.18E-03	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.45E-07	2.74E-06	3.05E-12	NA	4.00E-02	1.24E-02	NA	NA	6.11E-06	2.21E-04	NA	NA	2.27E-04	3%	97%	0%	0%	0%
Pyrene	2.45E-07	2.11E-06	3.05E-12	NA	3.00E-02	9.30E-03	NA	NA	8.15E-06	2.26E-04	NA	NA	2.34E-04	3%	97%	0%	0%	0%
Total PCB (1)	7.34E-07	8.84E-06	9.16E-12	NA	2.00E-05	1.80E-05	NA	NA	3.67E-02	4.91E-01	NA	NA	5.28E-01	7%	93%	0%	0%	10%
Total PAH (2)	5.38E-07	6.02E-06	6.72E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**1.74E-01**	**5.04E+00**	**5.24E-05**	**NA**	**5.21E+00**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.36. Noncarcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 001 EU 20 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	4.42E-03	1.90E-02	5.52E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	4.42E-03	1.90E-01	3.86E-05	NA	1.95E-01	2%	98%	0%	0%	5%
Antimony	4.76E-06	2.05E-05	5.95E-11	NA	4.00E-04	8.00E-06	NA	NA	1.19E-02	2.56E+00	NA	NA	2.57E+00	0%	100%	0%	0%	65%
Arsenic	3.34E-06	8.64E-06	4.18E-11	NA	3.00E-04	1.23E-04	NA	NA	1.11E-02	7.02E-02	NA	NA	8.14E-02	14%	86%	0%	0%	2%
Barium	3.38E-05	1.46E-04	4.23E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.69E-04	1.04E-02	2.95E-06	NA	1.06E-02	2%	98%	0%	0%	0%
Beryllium	ND	ND	ND	NA	2.00E-03	2.00E-05	5.71E-06	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Chromium	5.57E-06	2.40E-05	6.96E-11	NA	1.50E+00	7.50E-03	NA	NA	3.72E-06	3.20E-03	NA	NA	3.20E-03	0%	100%	0%	0%	0%
Copper	ND	ND	ND	NA	4.00E-02	1.20E-02	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Iron	5.48E-03	2.36E-02	6.84E-08	NA	3.00E-01	4.50E-02	NA	NA	1.83E-02	5.24E-01	NA	NA	5.42E-01	3%	97%	0%	0%	14%
Lead	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	2.30E-04	9.91E-04	2.88E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.65E-03	1.77E-01	2.01E-04	NA	1.79E-01	1%	99%	0%	0%	5%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	ND	ND	ND	NA	5.00E-03	1.90E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Nickel	3.54E-06	1.52E-05	4.42E-11	NA	2.00E-02	5.40E-03	NA	NA	1.77E-04	2.82E-03	NA	NA	3.00E-03	6%	94%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	1.19E-06	5.14E-06	1.49E-11	NA	5.00E-03	9.00E-04	NA	NA	2.39E-04	5.71E-03	NA	NA	5.95E-03	4%	96%	0%	0%	0%
Uranium	9.49E-06	4.08E-05	1.18E-10	NA	6.00E-04	5.10E-04	NA	NA	1.58E-02	8.01E-02	NA	NA	9.59E-02	16%	84%	0%	0%	2%
Vanadium	9.58E-06	4.13E-05	1.20E-10	NA	9.00E-03	1.80E-03	NA	NA	1.06E-03	2.29E-02	NA	NA	2.40E-02	4%	96%	0%	0%	1%
Zinc	1.45E-05	6.25E-05	1.81E-10	NA	3.00E-01	6.00E-02	NA	NA	4.84E-05	1.04E-03	NA	NA	1.09E-03	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.40E-07	2.68E-06	2.99E-12	NA	4.00E-02	1.24E-02	NA	NA	5.99E-06	2.16E-04	NA	NA	2.22E-04	3%	97%	0%	0%	0%
Pyrene	2.40E-07	2.06E-06	2.99E-12	NA	3.00E-02	9.30E-03	NA	NA	7.99E-06	2.22E-04	NA	NA	2.30E-04	3%	97%	0%	0%	0%
Total PCB (1)	3.47E-07	4.18E-06	4.34E-12	NA	2.00E-05	1.80E-05	NA	NA	1.74E-02	2.32E-01	NA	NA	2.50E-01	7%	93%	0%	0%	6%
Total PAH (2)	5.38E-07	6.02E-06	6.72E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**8.23E-02**	**3.88E+00**	**2.43E-04**	**NA**	**3.97E+00**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.37 Noncarcinogenic Risk Results- (Future Industrial Worker) for Soil Within the Fence, Excluding the Hot Spots

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	3.51E-03	1.51E-02	4.38E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	3.51E-03	1.51E-01	3.06E-05	NA	1.54E-01	2%	98%	0%	0%	3%
Antimony	5.38E-06	2.32E-05	6.72E-11	NA	4.00E-04	8.00E-06	NA	NA	1.34E-02	2.89E+00	NA	NA	2.91E+00	0%	100%	0%	0%	56%
Arsenic	2.93E-06	7.58E-06	3.66E-11	NA	3.00E-04	1.23E-04	NA	NA	9.78E-03	6.16E-02	NA	NA	7.14E-02	14%	86%	0%	0%	1%
Barium	3.42E-05	1.47E-04	4.27E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.71E-04	1.05E-02	2.99E-06	NA	1.07E-02	2%	98%	0%	0%	0%
Beryllium	2.54E-07	1.09E-06	3.18E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	1.27E-04	5.47E-02	5.56E-07	NA	5.49E-02	0%	100%	0%	0%	1%
Cadmium	1.76E-06	1.52E-07	2.20E-11	NA	1.00E-03	1.00E-05	NA	NA	1.76E-03	1.52E-02	NA	NA	1.69E-02	10%	90%	0%	0%	0%
Chromium	8.31E-06	3.58E-05	1.04E-10	NA	1.50E+00	7.50E-03	NA	NA	5.54E-06	4.77E-03	NA	NA	4.78E-03	0%	100%	0%	0%	0%
Copper	5.38E-06	2.32E-05	6.72E-11	NA	4.00E-02	1.20E-02	NA	NA	1.34E-04	1.93E-03	NA	NA	2.06E-03	7%	93%	0%	0%	0%
Iron	5.24E-03	2.26E-02	6.55E-08	NA	3.00E-01	4.50E-02	NA	NA	1.75E-02	5.01E-01	NA	NA	5.19E-01	3%	97%	0%	0%	10%
Lead	1.03E-05	4.42E-05	1.28E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.69E-04	7.26E-04	2.11E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.21E-03	1.30E-01	1.47E-04	NA	1.31E-01	1%	99%	0%	0%	3%
Mercury	5.38E-08	2.32E-07	6.72E-13	NA	3.00E-04	2.10E-05	NA	NA	1.79E-04	1.10E-02	NA	NA	1.12E-02	2%	98%	0%	0%	0%
Molybdenum	3.08E-06	1.33E-05	3.85E-11	NA	5.00E-03	1.90E-03	NA	NA	6.16E-04	6.98E-03	NA	NA	7.60E-03	8%	92%	0%	0%	0%
Nickel	4.84E-06	2.08E-05	6.04E-11	NA	2.00E-02	5.40E-03	NA	NA	2.42E-04	3.86E-03	NA	NA	4.10E-03	6%	94%	0%	0%	0%
Selenium	9.78E-06	4.21E-05	1.22E-10	NA	5.00E-03	2.20E-03	NA	NA	1.96E-03	1.91E-02	NA	NA	2.11E-02	9%	91%	0%	0%	0%
Silver	1.27E-06	5.47E-06	1.59E-11	NA	5.00E-03	9.00E-04	NA	NA	2.54E-04	6.08E-03	NA	NA	6.34E-03	4%	96%	0%	0%	0%
Uranium	1.02E-04	4.38E-04	1.27E-09	NA	6.00E-04	5.10E-04	NA	NA	1.70E-01	8.59E-01	NA	NA	1.03E+00	16%	84%	0%	0%	20%
Vanadium	8.80E-06	3.79E-05	1.10E-10	NA	9.00E-03	1.80E-03	NA	NA	9.78E-04	2.11E-02	NA	NA	2.20E-02	4%	96%	0%	0%	0%
Zinc	3.52E-05	1.52E-04	4.40E-10	NA	3.00E-01	6.00E-02	NA	NA	1.17E-04	2.53E-03	NA	NA	2.64E-03	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	3.57E-07	4.00E-06	4.46E-12	NA	4.00E-02	1.24E-02	NA	NA	8.92E-06	3.22E-04	NA	NA	3.31E-04	3%	97%	0%	0%	0%
Pyrene	3.33E-07	2.86E-06	4.15E-12	NA	3.00E-02	9.30E-03	NA	NA	1.11E-05	3.08E-04	NA	NA	3.19E-04	3%	97%	0%	0%	0%
Total PCB (1)	3.08E-07	3.71E-06	3.85E-12	NA	2.00E-05	1.80E-05	NA	NA	1.54E-02	2.06E-01	NA	NA	2.22E-01	7%	93%	0%	0%	4%
Total PAH (2)	4.89E-07	5.47E-06	6.11E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
									Total HI =	**2.37E-01**	**4.96E+00**	**1.81E-04**	**NA**	**5.20E+00**				

NA: Not applicable.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.38 Noncarcinogenic Risk Results- (Future Industrial Worker) for Soil at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	3.96E-03	1.70E-02	4.94E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	3.96E-03	1.70E-01	3.46E-05	NA	1.74E-01	2%	98%	0%	0%	2%
Antimony	6.85E-06	2.95E-05	8.55E-11	NA	4.00E-04	8.00E-06	NA	NA	1.71E-02	3.68E+00	NA	NA	3.70E+00	0%	100%	0%	0%	49%
Arsenic	2.84E-06	7.33E-06	3.54E-11	NA	3.00E-04	1.23E-04	NA	NA	9.45E-03	5.96E-02	NA	NA	6.90E-02	14%	86%	0%	0%	1%
Barium	3.84E-05	1.65E-04	4.79E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.92E-04	1.18E-02	3.35E-06	NA	1.20E-02	2%	98%	0%	0%	0%
Beryllium	3.18E-07	1.37E-06	3.97E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	1.59E-04	6.84E-02	6.95E-07	NA	6.86E-02	0%	100%	0%	0%	1%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Chromium	4.14E-05	1.78E-04	5.17E-10	NA	1.50E+00	7.50E-03	NA	NA	2.76E-05	2.38E-02	NA	NA	2.38E-02	0%	100%	0%	0%	0%
Copper	6.01E-05	2.59E-04	7.51E-10	NA	4.00E-02	1.20E-02	NA	NA	1.50E-03	2.16E-02	NA	NA	2.31E-02	7%	93%	0%	0%	0%
Iron	5.47E-03	2.35E-02	6.82E-08	NA	3.00E-01	4.50E-02	NA	NA	1.82E-02	5.23E-01	NA	NA	5.41E-01	3%	97%	0%	0%	7%
Lead	1.03E-05	4.42E-05	1.28E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	2.04E-04	8.77E-04	2.54E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.46E-03	1.57E-01	1.78E-04	NA	1.58E-01	1%	99%	0%	0%	2%
Mercury	2.93E-07	1.26E-06	3.66E-12	NA	3.00E-04	2.10E-05	NA	NA	9.78E-04	6.01E-02	NA	NA	6.11E-02	2%	98%	0%	0%	1%
Molybdenum	4.06E-06	1.75E-05	5.07E-11	NA	5.00E-03	1.90E-03	NA	NA	8.12E-04	9.20E-03	NA	NA	1.00E-02	8%	92%	0%	0%	0%
Nickel	4.60E-05	1.98E-04	5.74E-10	NA	2.00E-02	5.40E-03	NA	NA	2.30E-03	3.66E-02	NA	NA	3.89E-02	6%	94%	0%	0%	1%
Selenium	9.78E-06	4.21E-05	1.22E-10	NA	5.00E-03	2.20E-03	NA	NA	1.96E-03	1.91E-02	NA	NA	2.11E-02	9%	91%	0%	0%	0%
Silver	1.66E-06	7.16E-06	2.08E-11	NA	5.00E-03	9.00E-04	NA	NA	3.33E-04	7.95E-03	NA	NA	8.28E-03	4%	96%	0%	0%	0%
Uranium	1.60E-04	6.90E-04	2.00E-09	NA	6.00E-04	5.10E-04	NA	NA	2.67E-01	1.35E+00	NA	NA	1.62E+00	16%	84%	0%	0%	22%
Vanadium	9.82E-06	4.23E-05	1.23E-10	NA	9.00E-03	1.80E-03	NA	NA	1.09E-03	2.35E-02	NA	NA	2.46E-02	4%	96%	0%	0%	0%
Zinc	5.00E-05	2.15E-04	6.24E-10	NA	3.00E-01	6.00E-02	NA	NA	1.67E-04	3.59E-03	NA	NA	3.75E-03	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	3.33E-07	3.72E-06	4.15E-12	NA	4.00E-02	1.24E-02	NA	NA	8.31E-06	3.00E-04	NA	NA	3.08E-04	3%	97%	0%	0%	0%
Pyrene	2.74E-07	2.36E-06	3.42E-12	NA	3.00E-02	9.30E-03	NA	NA	9.13E-06	2.54E-04	NA	NA	2.63E-04	3%	97%	0%	0%	0%
Total PCB (1)	1.32E-06	1.59E-05	1.65E-11	NA	2.00E-05	1.80E-05	NA	NA	6.60E-02	8.84E-01	NA	NA	9.50E-01	7%	93%	0%	0%	13%
Total PAH (2)	4.89E-07	5.47E-06	6.11E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**3.93E-01**	**7.12E+00**	**2.17E-04**	**NA**	**7.51E+00**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.39 Noncarcinogenic Risk Results- (Future Industrial Worker) for Soil at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	3.14E-03	1.35E-02	3.92E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	3.14E-03	1.35E-01	2.74E-05	NA	1.38E-01	2%	98%	0%	0%	3%
Antimony	4.89E-06	2.11E-05	6.11E-11	NA	4.00E-04	8.00E-06	NA	NA	1.22E-02	2.63E+00	NA	NA	2.64E+00	0%	100%	0%	0%	55%
Arsenic	2.93E-06	1.26E-05	3.66E-11	NA	3.00E-04	1.23E-04	NA	NA	9.78E-03	1.03E-01	NA	NA	1.12E-01	9%	91%	0%	0%	2%
Barium	3.23E-05	1.39E-04	4.03E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.61E-04	9.92E-03	2.82E-06	NA	1.01E-02	2%	98%	0%	0%	0%
Beryllium	2.84E-07	1.22E-06	3.54E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	1.42E-04	6.10E-02	6.20E-07	NA	6.12E-02	0%	100%	0%	0%	1%
Cadmium	1.03E-06	8.84E-07	1.28E-11	NA	1.00E-03	1.00E-05	NA	NA	1.03E-03	8.84E-02	NA	NA	8.94E-02	1%	99%	0%	0%	2%
Chromium	1.91E-05	8.21E-05	2.38E-10	NA	1.50E+00	7.50E-03	NA	NA	1.27E-05	1.09E-02	NA	NA	1.10E-02	0%	100%	0%	0%	0%
Copper	1.71E-05	7.37E-05	2.14E-10	NA	4.00E-02	1.20E-02	NA	NA	4.28E-04	6.14E-03	NA	NA	6.57E-03	7%	93%	0%	0%	0%
Iron	4.56E-03	1.96E-02	5.70E-08	NA	3.00E-01	4.50E-02	NA	NA	1.52E-02	4.36E-01	NA	NA	4.52E-01	3%	97%	0%	0%	9%
Lead	1.03E-05	4.42E-05	1.28E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	2.23E-04	9.60E-04	2.78E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.59E-03	1.71E-01	1.95E-04	NA	1.73E-01	1%	99%	0%	0%	4%
Mercury	5.38E-08	2.32E-07	6.72E-13	NA	3.00E-04	2.10E-05	NA	NA	1.79E-04	1.10E-02	NA	NA	1.12E-02	2%	98%	0%	0%	0%
Molybdenum	2.25E-06	9.68E-06	2.81E-11	NA	5.00E-03	1.90E-03	NA		4.50E-04	5.10E-03	NA	NA	5.55E-03	8%	92%	0%	0%	0%
Nickel	7.82E-06	3.37E-05	9.77E-11	NA	2.00E-02	5.40E-03	NA	NA	3.91E-04	6.24E-03	NA	NA	6.63E-03	6%	94%	0%	0%	0%
Selenium	1.08E-05	4.63E-05	1.34E-10	NA	5.00E-03	2.20E-03	NA	NA	2.15E-03	2.11E-02	NA	NA	2.32E-02	9%	91%	0%	0%	0%
Silver	1.42E-06	6.10E-06	1.77E-11	NA	5.00E-03	9.00E-04	NA	NA	2.84E-04	6.78E-03	NA	NA	7.07E-03	4%	96%	0%	0%	0%
Uranium	8.02E-05	3.45E-04	1.00E-09	NA	6.00E-04	5.10E-04	NA	NA	1.34E-01	6.77E-01	NA	NA	8.11E-01	16%	84%	0%	0%	17%
Vanadium	8.31E-06	3.58E-05	1.04E-10	NA	9.00E-03	1.80E-03	NA	NA	9.24E-04	1.99E-02	NA	NA	2.08E-02	4%	96%	0%	0%	0%
Zinc	1.86E-05	8.00E-05	2.32E-10	NA	3.00E-01	6.00E-02	NA	NA	6.19E-05	1.33E-03	NA	NA	1.40E-03	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.08E-06	9.26E-06	1.34E-11	NA	4.00E-02	1.24E-02	NA	NA	2.69E-05	7.47E-04	NA	NA	7.74E-04	3%	97%	0%	0%	0%
Pyrene	6.85E-07	5.89E-06	8.55E-12	NA	3.00E-02	9.30E-03	NA	NA	2.28E-05	6.34E-04	NA	NA	6.57E-04	3%	97%	0%	0%	0%
Total PCB (1)	5.38E-07	2.78E-06	6.72E-12	NA	2.00E-05	1.80E-05	NA	NA	2.69E-02	1.54E-01	NA	NA	1.81E-01	15%	85%	0%	0%	4%
Total PAH (2)	5.87E-07	5.05E-06	7.33E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**2.09E-01**	**4.56E+00**	**2.26E-04**	**NA**	**4.77E+00**					

NA: Not applicable.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.40. Noncarcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 008 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.41. Noncarcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 010 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.42. Noncarcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 011 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	4.16E-06	1.80E-05	2.31E-01	2.31E-01	100%	54%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	8.90E-06	4.50E-05	1.98E-01	1.98E-01	100%	46%
		Total HI =	**4.29E-01**	**4.29E-01**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are (mg/kg-day)-1.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.43. Noncarcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 015 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	7.54E-06	1.80E-05	4.19E-01	4.19E-01	100%	85%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	3.42E-06	4.50E-05	7.61E-02	7.61E-02	100%	15%
		Total HI =	**4.95E-01**	**4.95E-01**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are (mg/kg-day)-1.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.44. Noncarcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 001 EU 13 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.45. Noncarcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 001 EU 14 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	4.72E-05	1.80E-05	2.62E+00	2.62E+00	100%	100%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**2.62E+00**	**2.62E+00**		

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are (mg/kg-day)-1.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.46 Noncarcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 001 EU 15 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.47. Noncarcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 001 EU 16 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (SF) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are (mg/kg-day)-1.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.48 Noncarcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 001 EU 18 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.49 Noncarcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 001 EU 20 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.50. Noncarcinogenic Risk Results- (Future Industrial Worker) for Surface Water Within the Fence, Excluding the Hot Spots

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	4.72E-05	1.80E-05	2.62E+00	2.62E+00	100%	100%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	3.42E-06	4.50E-05	1.54E-10	1.54E-10	100%	0%
		Total HI =	**2.62E+00**	**2.62E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.51 Noncarcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake	Chronic Toxicity (RfD)	HI	Percent Risk by Pathway		
	Dermal Intake Hazard	Dermal	Dermal	**Chemical Total**	Dermal	**Percent Total**
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	100%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.52 Noncarcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	2.40E-06	4.50E-05	1.08E-10	1.08E-10	100%	100%
		Total HI =	**1.08E-10**	**1.08E-10**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.53. Noncarcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 008 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	3.17E-02	1.42E-02	4.12E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	3.17E-02	1.42E-01	2.88E-05	NA	1.73E-01	18%	82%	0%	0%	1%
Antimony	3.38E-05	1.51E-05	4.38E-11	NA	4.00E-04	8.00E-06	NA	NA	8.44E-02	1.89E+00	NA	NA	1.97E+00	4%	96%	0%	0%	11%
Arsenic	1.98E-05	5.32E-06	2.57E-11	NA	3.00E-04	1.23E-04	NA	NA	6.61E-02	4.32E-02	NA	NA	1.09E-01	60%	40%	0%	0%	1%
Barium	2.54E-04	1.14E-04	3.30E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.27E-03	8.11E-03	2.31E-06	NA	9.38E-03	14%	86%	0%	0%	0%
Beryllium	1.84E-06	8.24E-07	2.39E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	9.22E-04	4.12E-02	4.19E-07	NA	4.21E-02	2%	98%	0%	0%	0%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Chromium	4.87E-05	2.18E-05	6.32E-11	NA	1.50E+00	7.50E-03	NA	NA	3.25E-05	2.90E-03	NA	NA	2.94E-03	1%	99%	0%	0%	0%
Copper	6.26E-05	2.80E-05	8.13E-11	NA	4.00E-02	1.20E-02	NA	NA	1.57E-03	2.33E-03	NA	NA	3.90E-03	40%	60%	0%	0%	0%
Iron	4.32E-02	1.93E-02	5.61E-08	NA	3.00E-01	4.50E-02	NA	NA	1.44E-01	4.29E-01	NA	NA	5.73E-01	25%	75%	0%	0%	3%
Lead	7.66E-05	3.42E-05	9.94E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.63E-03	7.29E-04	2.12E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.17E-02	1.30E-01	1.48E-04	NA	1.42E-01	8%	92%	0%	0%	1%
Mercury	3.48E-07	1.56E-07	4.52E-13	NA	3.00E-04	2.10E-05	NA	NA	1.16E-03	7.40E-03	NA	NA	8.56E-03	14%	86%	0%	0%	0%
Molybdenum	2.85E-05	1.28E-05	3.70E-11	NA	5.00E-03	1.90E-03	NA	NA	5.71E-03	6.71E-03	NA	NA	1.24E-02	46%	54%	0%	0%	0%
Nickel	5.92E-05	2.64E-05	7.68E-11	NA	2.00E-02	5.40E-03	NA	NA	2.96E-03	4.90E-03	NA	NA	7.85E-03	38%	62%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	8.35E-06	3.73E-06	1.08E-11	NA	5.00E-03	9.00E-04	NA	NA	1.67E-03	4.15E-03	NA	NA	5.82E-03	29%	71%	0%	0%	0%
Uranium	3.34E-04	1.49E-04	4.34E-10	NA	6.00E-04	5.10E-04	NA	NA	5.57E-01	2.93E-01	NA	NA	8.50E-01	66%	34%	0%	0%	5%
Vanadium	7.31E-05	3.27E-05	9.49E-11	NA	9.00E-03	1.80E-03	NA	NA	8.12E-03	1.81E-02	NA	NA	2.63E-02	31%	69%	0%	0%	0%
Zinc	1.74E-04	7.78E-05	2.26E-10	NA	3.00E-01	6.00E-02	NA	NA	5.80E-04	1.30E-03	NA	NA	1.88E-03	31%	69%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.02E-06	2.34E-06	2.62E-12	NA	4.00E-02	1.24E-02	NA	NA	5.05E-05	1.89E-04	NA	NA	2.40E-04	21%	79%	0%	0%	0%
Pyrene	1.74E-06	1.56E-06	2.26E-12	NA	3.00E-02	9.30E-03	NA	NA	5.80E-05	1.67E-04	NA	NA	2.25E-04	26%	74%	0%	0%	0%
Total PCB (1)	1.11E-04	1.39E-04	1.45E-10	NA	2.00E-05	1.80E-05	NA	NA	5.57E+00	7.74E+00	NA	NA	1.33E+01	42%	58%	0%	0%	77%
Total PAH (2)	4.18E-06	4.85E-06	5.42E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**6.49E+00**	**1.08E+01**	**1.80E-04**	**NA**	**1.72E+01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.54. Noncarcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 010 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	4.49E-02	2.01E-02	5.83E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	4.49E-02	2.01E-01	4.07E-05	NA	2.46E-01	18%	82%	0%	0%	2%
Antimony	3.37E-05	1.50E-05	4.37E-11	NA	4.00E-04	8.00E-06	NA	NA	8.41E-02	1.88E+00	NA	NA	1.96E+00	4%	96%	0%	0%	17%
Arsenic	4.38E-05	1.18E-05	5.69E-11	NA	3.00E-04	1.23E-04	NA	NA	1.46E-01	9.56E-02	NA	NA	2.42E-01	60%	40%	0%	0%	2%
Barium	3.31E-04	1.48E-04	4.30E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.65E-03	1.06E-02	3.00E-06	NA	1.22E-02	14%	86%	0%	0%	0%
Beryllium	1.67E-06	7.46E-07	2.17E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	8.35E-04	3.73E-02	3.80E-07	NA	3.82E-02	2%	98%	0%	0%	0%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Chromium	8.11E-05	3.62E-05	1.05E-10	NA	1.50E+00	7.50E-03	NA	NA	5.41E-05	4.83E-03	NA	NA	4.88E-03	1%	99%	0%	0%	0%
Copper	6.37E-05	2.85E-05	8.27E-11	NA	4.00E-02	1.20E-02	NA	NA	1.59E-03	2.37E-03	NA	NA	3.96E-03	40%	60%	0%	0%	0%
Iron	5.43E-02	2.43E-02	7.05E-08	NA	3.00E-01	4.50E-02	NA	NA	1.81E-01	5.39E-01	NA	NA	7.20E-01	25%	75%	0%	0%	6%
Lead	2.62E-04	1.17E-04	3.40E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.12E-03	5.02E-04	1.46E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	8.03E-03	8.97E-02	1.02E-04	NA	9.78E-02	8%	92%	0%	0%	1%
Mercury	1.08E-06	4.82E-07	1.40E-12	NA	3.00E-04	2.10E-05	NA	NA	3.60E-03	2.30E-02	NA	NA	2.66E-02	14%	86%	0%	0%	0%
Molybdenum	4.84E-05	2.16E-05	6.28E-11	NA	5.00E-03	1.90E-03	NA	NA	9.67E-03	1.14E-02	NA	NA	2.11E-02	46%	54%	0%	0%	0%
Nickel	7.59E-05	3.39E-05	9.85E-11	NA	2.00E-02	5.40E-03	NA	NA	3.79E-03	6.28E-03	NA	NA	1.01E-02	38%	62%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	8.42E-06	3.76E-06	1.09E-11	NA	5.00E-03	9.00E-04	NA	NA	1.68E-03	4.18E-03	NA	NA	5.87E-03	29%	71%	0%	0%	0%
Uranium	9.19E-05	4.11E-05	1.19E-10	NA	6.00E-04	5.10E-04	NA	NA	1.53E-01	8.05E-02	NA	NA	2.34E-01	66%	34%	0%	0%	2%
Vanadium	9.67E-05	4.32E-05	1.26E-10	NA	9.00E-03	1.80E-03	NA	NA	1.07E-02	2.40E-02	NA	NA	3.48E-02	31%	69%	0%	0%	0%
Zinc	8.77E-04	3.92E-04	1.14E-09	NA	3.00E-01	6.00E-02	NA	NA	2.92E-03	6.53E-03	NA	NA	9.45E-03	31%	69%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.77E-05	2.06E-05	2.30E-11	NA	4.00E-02	1.24E-02	NA	NA	4.44E-04	1.66E-03	NA	NA	2.11E-03	21%	79%	0%	0%	0%
Pyrene	1.22E-05	1.09E-05	1.58E-11	NA	3.00E-02	9.30E-03	NA	NA	4.06E-04	1.17E-03	NA	NA	1.58E-03	26%	74%	0%	0%	0%
Total PCB (1)	6.61E-05	8.27E-05	8.58E-11	NA	2.00E-05	1.80E-05	NA	NA	3.31E+00	4.60E+00	NA	NA	7.90E+00	42%	58%	0%	0%	68%
Total PAH (2)	1.08E-05	1.25E-05	1.40E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**3.96E+00**	**7.61E+00**	**1.46E-04**	**NA**	**1.16E+01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.55. Noncarcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 011 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	3.61E-02	1.61E-02	4.69E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	3.61E-02	1.61E-01	3.28E-05	NA	1.98E-01	18%	82%	0%	0%	2%
Antimony	5.92E-05	2.64E-05	7.68E-11	NA	4.00E-04	8.00E-06	NA	NA	1.48E-01	3.30E+00	NA	NA	3.45E+00	4%	96%	0%	0%	27%
Arsenic	4.52E-05	1.21E-05	5.87E-11	NA	3.00E-04	1.23E-04	NA	NA	1.51E-01	9.86E-02	NA	NA	2.49E-01	60%	40%	0%	0%	2%
Barium	3.20E-04	1.43E-04	4.16E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.60E-03	1.02E-02	2.91E-06	NA	1.18E-02	14%	86%	0%	0%	0%
Beryllium	3.34E-06	1.49E-06	4.34E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	1.67E-03	7.46E-02	7.59E-07	NA	7.63E-02	2%	98%	0%	0%	1%
Cadmium	9.74E-06	8.71E-08	1.26E-11	NA	1.00E-03	1.00E-05	NA	NA	9.74E-03	8.71E-03	NA	NA	1.85E-02	53%	47%	0%	0%	0%
Chromium	5.19E-04	2.32E-04	6.73E-10	NA	1.50E+00	7.50E-03	NA	NA	3.46E-04	3.09E-02	NA	NA	3.12E-02	1%	99%	0%	0%	0%
Copper	7.03E-04	3.14E-04	9.12E-10	NA	4.00E-02	1.20E-02	NA	NA	1.76E-02	2.62E-02	NA	NA	4.37E-02	40%	60%	0%	0%	0%
Iron	8.12E-02	3.63E-02	1.05E-07	NA	3.00E-01	4.50E-02	NA	NA	2.71E-01	8.06E-01	NA	NA	1.08E+00	25%	75%	0%	0%	9%
Lead	1.81E-04	8.09E-05	2.35E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	2.07E-03	9.25E-04	2.69E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.48E-02	1.65E-01	1.88E-04	NA	1.80E-01	8%	92%	0%	0%	1%
Mercury	5.92E-07	2.64E-07	7.68E-13	NA	3.00E-04	2.10E-05	NA	NA	1.97E-03	1.26E-02	NA	NA	1.46E-02	14%	86%	0%	0%	0%
Molybdenum	2.54E-05	1.14E-05	3.30E-11	NA	5.00E-03	1.90E-03	NA	NA	5.08E-03	5.97E-03	NA	NA	1.11E-02	46%	54%	0%	0%	0%
Nickel	4.87E-05	2.18E-05	6.32E-11	NA	2.00E-02	5.40E-03	NA	NA	2.44E-03	4.03E-03	NA	NA	6.47E-03	38%	62%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	8.70E-06	3.89E-06	1.13E-11	NA	5.00E-03	9.00E-04	NA	NA	1.74E-03	4.32E-03	NA	NA	6.06E-03	29%	71%	0%	0%	0%
Uranium	1.53E-03	6.83E-04	1.98E-09	NA	6.00E-04	5.10E-04	NA	NA	2.55E+00	1.34E+00	NA	NA	3.88E+00	66%	34%	0%	0%	31%
Vanadium	1.46E-04	6.53E-05	1.90E-10	NA	9.00E-03	1.80E-03	NA	NA	1.62E-02	3.63E-02	NA	NA	5.25E-02	31%	69%	0%	0%	0%
Zinc	2.66E-03	1.19E-03	3.45E-09	NA	3.00E-01	6.00E-02	NA	NA	8.86E-03	1.98E-02	NA	NA	2.87E-02	31%	69%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.50E-04	1.74E-04	1.94E-10	NA	4.00E-02	1.24E-02	NA	NA	3.74E-03	1.40E-02	NA	NA	1.78E-02	21%	79%	0%	0%	0%
Pyrene	4.52E-04	4.04E-04	5.87E-10	NA	3.00E-02	9.30E-03	NA	NA	1.51E-02	4.35E-02	NA	NA	5.86E-02	26%	74%	0%	0%	0%
Total PCB (1)	2.64E-05	3.31E-05	3.43E-11	NA	2.00E-05	1.80E-05	NA	NA	1.32E+00	1.84E+00	NA	NA	3.16E+00	42%	58%	0%	0%	25%
Total PAH (2)	2.02E-04	2.34E-04	2.62E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**4.57E+00**	**8.00E+00**	**2.24E-04**	**NA**	**1.26E+01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.56. Noncarcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 015 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	2.34E-02	1.04E-02	3.04E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	2.34E-02	1.04E-01	2.12E-05	NA	1.28E-01	18%	82%	0%	0%	1%
Antimony	3.83E-05	1.71E-05	4.97E-11	NA	4.00E-04	8.00E-06	NA	NA	9.57E-02	2.14E+00	NA	NA	2.23E+00	4%	96%	0%	0%	18%
Arsenic	3.48E-05	9.33E-06	4.52E-11	NA	3.00E-04	1.23E-04	NA	NA	1.16E-01	7.59E-02	NA	NA	1.92E-01	60%	40%	0%	0%	2%
Barium	2.68E-04	1.20E-04	3.48E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.34E-03	8.55E-03	2.43E-06	NA	9.89E-03	14%	86%	0%	0%	0%
Beryllium	1.98E-06	8.86E-07	2.57E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	9.92E-04	4.43E-02	4.51E-07	NA	4.53E-02	2%	98%	0%	0%	0%
Cadmium	7.31E-06	6.53E-08	9.49E-12	NA	1.00E-03	1.00E-05	NA	NA	7.31E-03	6.53E-03	NA	NA	1.38E-02	53%	47%	0%	0%	0%
Chromium	8.00E-05	3.58E-05	1.04E-10	NA	1.50E+00	7.50E-03	NA	NA	5.34E-05	4.77E-03	NA	NA	4.82E-03	1%	99%	0%	0%	0%
Copper	6.96E-05	3.11E-05	9.03E-11	NA	4.00E-02	1.20E-02	NA	NA	1.74E-03	2.59E-03	NA	NA	4.33E-03	40%	60%	0%	0%	0%
Iron	5.10E-02	2.28E-02	6.62E-08	NA	3.00E-01	4.50E-02	NA	NA	1.70E-01	5.07E-01	NA	NA	6.77E-01	25%	75%	0%	0%	6%
Lead	1.57E-04	7.00E-05	2.03E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.84E-03	8.24E-04	2.39E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.32E-02	1.47E-01	1.67E-04	NA	1.61E-01	8%	92%	0%	0%	1%
Mercury	5.57E-07	2.49E-07	7.23E-13	NA	3.00E-04	2.10E-05	NA	NA	1.86E-03	1.18E-02	NA	NA	1.37E-02	14%	86%	0%	0%	0%
Molybdenum	1.91E-05	8.55E-06	2.48E-11	NA	5.00E-03	1.90E-03	NA	NA	3.83E-03	4.50E-03	NA	NA	8.33E-03	46%	54%	0%	0%	0%
Nickel	1.01E-04	4.51E-05	1.31E-10	NA	2.00E-02	5.40E-03	NA	NA	5.05E-03	8.35E-03	NA	NA	1.34E-02	38%	62%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	9.05E-06	4.04E-06	1.17E-11	NA	5.00E-03	9.00E-04	NA	NA	1.81E-03	4.49E-03	NA	NA	6.30E-03	29%	71%	0%	0%	0%
Uranium	3.20E-03	1.43E-03	4.16E-09	NA	6.00E-04	5.10E-04	NA	NA	5.34E+00	2.81E+00	NA	NA	8.14E+00	66%	34%	0%	0%	67%
Vanadium	6.61E-05	2.95E-05	8.58E-11	NA	9.00E-03	1.80E-03	NA	NA	7.35E-03	1.64E-02	NA	NA	2.38E-02	31%	69%	0%	0%	0%
Zinc	3.97E-04	1.77E-04	5.15E-10	NA	3.00E-01	6.00E-02	NA	NA	1.32E-03	2.95E-03	NA	NA	4.28E-03	31%	69%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.37E-06	2.75E-06	3.07E-12	NA	4.00E-02	1.24E-02	NA	NA	5.92E-05	2.22E-04	NA	NA	2.81E-04	21%	79%	0%	0%	0%
Pyrene	2.19E-06	1.96E-06	2.85E-12	NA	3.00E-02	9.30E-03	NA	NA	7.31E-05	2.11E-04	NA	NA	2.84E-04	26%	74%	0%	0%	0%
Total PCB (1)	3.83E-06	4.79E-06	4.97E-12	NA	2.00E-05	1.80E-05	NA	NA	1.91E-01	2.66E-01	NA	NA	4.57E-01	42%	58%	0%	0%	4%
Total PAH (2)	3.83E-06	4.45E-06	4.97E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**5.98E+00**	**6.16E+00**	**1.92E-04**	**NA**	**1.21E+01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.57. Noncarcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 001 EU 13 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	3.09E-02	2.76E-04	4.01E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	3.09E-02	2.76E-03	2.81E-05	NA	3.37E-02	92%	8%	0%	0%	2%
Antimony	3.43E-05	3.07E-07	4.45E-11	NA	4.00E-04	8.00E-06	NA	NA	8.58E-02	3.83E-02	NA	NA	1.24E-01	69%	31%	0%	0%	9%
Arsenic	1.80E-05	9.65E-08	2.34E-11	NA	3.00E-04	1.23E-04	NA	NA	6.00E-02	7.84E-04	NA	NA	6.08E-02	99%	1%	0%	0%	4%
Barium	3.18E-04	2.84E-06	4.13E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.59E-03	2.03E-04	2.89E-06	NA	1.80E-03	89%	11%	0%	0%	0%
Beryllium	1.72E-06	1.53E-08	2.23E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	8.58E-04	7.67E-04	3.90E-07	NA	1.62E-03	53%	47%	0%	0%	0%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Chromium	1.51E-04	1.35E-06	1.96E-10	NA	1.50E+00	7.50E-03	NA	NA	1.01E-04	1.80E-04	NA	NA	2.81E-04	36%	64%	0%	0%	0%
Copper	4.49E-05	4.01E-07	5.83E-11	NA	4.00E-02	1.20E-02	NA	NA	1.12E-03	3.34E-05	NA	NA	1.16E-03	97%	3%	0%	0%	0%
Iron	5.29E-02	4.73E-04	6.87E-08	NA	3.00E-01	4.50E-02	NA	NA	1.76E-01	1.05E-02	NA	NA	1.87E-01	94%	6%	0%	0%	13%
Lead	7.62E-05	6.81E-07	9.89E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	2.74E-03	2.45E-05	3.56E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.96E-02	4.38E-03	2.49E-04	NA	2.42E-02	81%	18%	1%	0%	2%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	ND	ND	ND	NA	5.00E-03	1.90E-03	NA	NA	ND	ND	ND	ND	ND	0%	0%	0%	0%	0%
Nickel	4.42E-05	3.95E-07	5.74E-11	NA	2.00E-02	5.40E-03	NA	NA	2.21E-03	7.31E-05	NA	NA	2.28E-03	97%	3%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	8.60E-06	7.68E-08	1.12E-11	NA	5.00E-03	9.00E-04	NA	NA	1.72E-03	8.54E-05	NA	NA	1.80E-03	95%	5%	0%	0%	0%
Uranium	1.69E-04	1.51E-06	2.19E-10	NA	6.00E-04	5.10E-04	NA	NA	2.81E-01	2.96E-03	NA	NA	2.84E-01	99%	1%	0%	0%	21%
Vanadium	5.74E-05	5.13E-07	7.45E-11	NA	9.00E-03	1.80E-03	NA	NA	6.38E-03	2.85E-04	NA	NA	6.67E-03	96%	4%	0%	0%	0%
Zinc	3.90E-04	3.48E-06	5.06E-10	NA	3.00E-01	6.00E-02	NA	NA	1.30E-03	5.81E-05	NA	NA	1.36E-03	96%	4%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.71E-06	1.98E-06	2.21E-12	NA	4.00E-02	1.24E-02	NA	NA	4.26E-05	1.60E-04	NA	NA	2.02E-04	21%	79%	0%	0%	0%
Pyrene	1.71E-06	1.52E-06	2.21E-12	NA	3.00E-02	9.30E-03	NA	NA	5.68E-05	1.64E-04	NA	NA	2.21E-04	26%	74%	0%	0%	0%
Total PCB (1)	1.15E-05	1.44E-06	1.49E-11	NA	2.00E-05	1.80E-05	NA	NA	5.74E-01	7.98E-02	NA	NA	6.54E-01	88%	12%	0%	0%	47%
Total PAH (2)	3.83E-06	4.45E-06	4.97E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**1.24E+00**	**1.42E-01**	**2.80E-04**	**NA**	**1.39E+00**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.58. Noncarcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 001 EU 14 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	2.62E-02	1.17E-02	3.41E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	2.62E-02	1.17E-01	2.38E-05	NA	1.44E-01	18%	82%	0%	0%	1%
Antimony	6.61E-05	2.95E-05	8.58E-11	NA	4.00E-04	8.00E-06	NA	NA	1.65E-01	3.69E+00	NA	NA	3.86E+00	4%	96%	0%	0%	27%
Arsenic	1.84E-05	4.94E-06	2.39E-11	NA	3.00E-04	1.23E-04	NA	NA	6.15E-02	4.02E-02	NA	NA	1.02E-01	60%	40%	0%	0%	1%
Barium	3.17E-04	1.42E-04	4.11E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.58E-03	1.01E-02	2.87E-06	NA	1.17E-02	14%	86%	0%	0%	0%
Beryllium	1.71E-06	7.62E-07	2.21E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	8.53E-04	3.81E-02	3.88E-07	NA	3.90E-02	2%	98%	0%	0%	0%
Cadmium	6.96E-06	6.22E-08	9.03E-12	NA	1.00E-03	1.00E-05	NA	NA	6.96E-03	6.22E-03	NA	NA	1.32E-02	53%	47%	0%	0%	0%
Chromium	2.68E-04	1.20E-04	3.48E-10	NA	1.50E+00	7.50E-03	NA	NA	1.79E-04	1.60E-02	NA	NA	1.61E-02	1%	99%	0%	0%	0%
Copper	1.53E-04	6.84E-05	1.99E-10	NA	4.00E-02	1.20E-02	NA	NA	3.83E-03	5.70E-03	NA	NA	9.53E-03	40%	60%	0%	0%	0%
Iron	4.06E-02	1.81E-02	5.27E-08	NA	3.00E-01	4.50E-02	NA	NA	1.35E-01	4.03E-01	NA	NA	5.38E-01	25%	75%	0%	0%	4%
Lead	7.66E-05	3.42E-05	9.94E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.23E-03	5.50E-04	1.60E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	8.80E-03	9.83E-02	1.12E-04	NA	1.07E-01	8%	92%	0%	0%	1%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	1.64E-05	7.31E-06	2.12E-11	NA	5.00E-03	1.90E-03	NA	NA	3.27E-03	3.85E-03	NA	NA	7.12E-03	46%	54%	0%	0%	0%
Nickel	6.61E-05	2.95E-05	8.58E-11	NA	2.00E-02	5.40E-03	NA	NA	3.31E-03	5.47E-03	NA	NA	8.78E-03	38%	62%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	8.70E-06	3.89E-06	1.13E-11	NA	5.00E-03	9.00E-04	NA	NA	1.74E-03	4.32E-03	NA	NA	6.06E-03	29%	71%	0%	0%	0%
Uranium	2.71E-05	1.21E-05	3.52E-11	NA	6.00E-04	5.10E-04	NA	NA	4.52E-02	2.38E-02	NA	NA	6.90E-02	66%	34%	0%	0%	0%
Vanadium	7.31E-05	3.27E-05	9.49E-11	NA	9.00E-03	1.80E-03	NA	NA	8.12E-03	1.81E-02	NA	NA	2.63E-02	31%	69%	0%	0%	0%
Zinc	5.74E-04	2.57E-04	7.45E-10	NA	3.00E-01	6.00E-02	NA	NA	1.91E-03	4.28E-03	NA	NA	6.19E-03	31%	69%	0%	0%	0%
Organic Compounds																		
Fluoranthene	6.96E-04	8.09E-04	9.03E-10	NA	4.00E-02	1.24E-02	NA	NA	1.74E-02	6.52E-02	NA	NA	8.26E-02	21%	79%	0%	0%	1%
Pyrene	1.60E-04	1.43E-04	2.08E-10	NA	3.00E-02	9.30E-03	NA	NA	5.34E-03	1.54E-02	NA	NA	2.07E-02	26%	74%	0%	0%	0%
Total PCB (1)	7.66E-05	9.58E-05	9.94E-11	NA	2.00E-05	1.80E-05	NA	NA	3.83E+00	5.32E+00	NA	NA	9.15E+00	42%	58%	0%	0%	64%
Total PAH (2)	6.40E-04	7.44E-04	8.31E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**4.32E+00**	**9.89E+00**	**1.39E-04**	**NA**	**1.42E+01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.59. Noncarcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 001 EU 15 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	2.61E-02	1.16E-02	3.38E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	2.61E-02	1.16E-01	2.37E-05	NA	1.43E-01	18%	82%	0%	0%	0%
Antimony	3.41E-05	1.52E-05	4.42E-11	NA	4.00E-04	8.00E-06	NA	NA	8.52E-02	1.90E+00	NA	NA	1.99E+00	4%	96%	0%	0%	6%
Arsenic	3.32E-05	8.91E-06	4.31E-11	NA	3.00E-04	1.23E-04	NA	NA	1.11E-01	7.24E-02	NA	NA	1.83E-01	60%	40%	0%	0%	1%
Barium	1.68E-04	7.53E-05	2.19E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	8.42E-04	5.38E-03	1.53E-06	NA	6.22E-03	14%	86%	0%	0%	0%
Beryllium	ND	ND	ND	NA	2.00E-03	2.00E-05	5.71E-06	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Cadmium	9.74E-06	8.71E-08	1.26E-11	NA	1.00E-03	1.00E-05	NA	NA	9.74E-03	8.71E-03	NA	NA	1.85E-02	53%	47%	0%	0%	0%
Chromium	2.53E-04	1.13E-04	3.28E-10	NA	1.50E+00	7.50E-03	NA	NA	1.69E-04	1.51E-02	NA	NA	1.52E-02	1%	99%	0%	0%	0%
Copper	1.66E-04	7.42E-05	2.15E-10	NA	4.00E-02	1.20E-02	NA	NA	4.15E-03	6.18E-03	NA	NA	1.03E-02	40%	60%	0%	0%	0%
Iron	4.07E-02	1.82E-02	5.29E-08	NA	3.00E-01	4.50E-02	NA	NA	1.36E-01	4.04E-01	NA	NA	5.40E-01	25%	75%	0%	0%	2%
Lead	2.25E-04	1.00E-04	2.92E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.19E-03	5.32E-04	1.54E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	8.50E-03	9.50E-02	1.08E-04	NA	1.04E-01	8%	92%	0%	0%	0%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	8.32E-05	3.72E-05	1.08E-10	NA	5.00E-03	1.90E-03	NA	NA	1.66E-02	1.96E-02	NA	NA	3.62E-02	46%	54%	0%	0%	0%
Nickel	1.81E-03	8.09E-04	2.35E-09	NA	2.00E-02	5.40E-03	NA	NA	9.05E-02	1.50E-01	NA	NA	2.40E-01	38%	62%	0%	0%	1%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	8.53E-06	3.81E-06	1.11E-11	NA	5.00E-03	9.00E-04	NA	NA	1.71E-03	4.23E-03	NA	NA	5.94E-03	29%	71%	0%	0%	0%
Uranium	2.23E-03	9.98E-04	2.90E-09	NA	6.00E-04	5.10E-04	NA	NA	3.72E+00	1.96E+00	NA	NA	5.68E+00	66%	34%	0%	0%	19%
Vanadium	5.43E-05	2.43E-05	7.05E-11	NA	9.00E-03	1.80E-03	NA	NA	6.03E-03	1.35E-02	NA	NA	1.95E-02	31%	69%	0%	0%	0%
Zinc	4.77E-03	2.13E-03	6.19E-09	NA	3.00E-01	6.00E-02	NA	NA	1.59E-02	3.55E-02	NA	NA	5.14E-02	31%	69%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.64E-05	3.07E-05	3.43E-11	NA	4.00E-02	1.24E-02	NA	NA	6.61E-04	2.48E-03	NA	NA	3.14E-03	21%	79%	0%	0%	0%
Pyrene	1.95E-05	1.74E-05	2.53E-11	NA	3.00E-02	9.30E-03	NA	NA	6.50E-04	1.87E-03	NA	NA	2.52E-03	26%	74%	0%	0%	0%
Total PCB (1)	1.81E-04	2.26E-04	2.35E-10	NA	2.00E-05	1.80E-05	NA	NA	9.05E+00	1.26E+01	NA	NA	2.16E+01	42%	58%	0%	0%	71%
Total PAH (2)	1.81E-05	2.10E-05	2.35E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =					**1.33E+01**	**1.74E+01**	**1.33E-04**	**NA**					**3.07E+01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.60. Noncarcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 001 EU 16 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	2.85E-02	1.27E-02	3.70E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	2.85E-02	1.27E-01	2.59E-05	NA	1.56E-01	18%	82%	0%	0%	1%
Antimony	3.35E-05	1.50E-05	4.35E-11	NA	4.00E-04	8.00E-06	NA	NA	8.37E-02	1.87E+00	NA	NA	1.95E+00	4%	96%	0%	0%	16%
Arsenic	3.72E-05	9.98E-06	4.83E-11	NA	3.00E-04	1.23E-04	NA	NA	1.24E-01	8.12E-02	NA	NA	2.05E-01	60%	40%	0%	0%	2%
Barium	2.47E-04	1.10E-04	3.21E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.24E-03	7.89E-03	2.24E-06	NA	9.12E-03	14%	86%	0%	0%	0%
Beryllium	2.31E-06	1.03E-06	2.99E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	1.15E-03	5.15E-02	5.24E-07	NA	5.27E-02	2%	98%	0%	0%	0%
Cadmium	6.72E-05	6.00E-07	8.72E-11	NA	1.00E-03	1.00E-05	NA	NA	6.72E-02	6.00E-02	NA	NA	1.27E-01	53%	47%	0%	0%	0%
Chromium	8.18E-05	3.65E-05	1.06E-10	NA	1.50E+00	7.50E-03	NA	NA	5.45E-05	4.87E-03	NA	NA	4.93E-03	1%	99%	0%	0%	0%
Copper	4.84E-05	2.16E-05	6.28E-11	NA	4.00E-02	1.20E-02	NA	NA	1.21E-03	1.80E-03	NA	NA	3.01E-03	40%	60%	0%	0%	0%
Iron	6.33E-01	2.83E-01	8.22E-07	NA	3.00E-01	4.50E-02	NA	NA	2.11E+00	6.29E+00	NA	NA	8.40E+00	25%	75%	0%	0%	68%
Lead	7.34E-05	3.28E-05	9.53E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	5.36E-03	2.39E-03	6.96E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	3.83E-02	4.28E-01	4.86E-04	NA	4.66E-01	8%	92%	0%	0%	4%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	ND	ND	ND	NA	5.00E-03	1.90E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Nickel	3.58E-05	1.60E-05	4.65E-11	NA	2.00E-02	5.40E-03	NA	NA	1.79E-03	2.97E-03	NA	NA	4.76E-03	38%	62%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	8.39E-06	3.75E-06	1.09E-11	NA	5.00E-03	9.00E-04	NA	NA	1.68E-03	4.16E-03	NA	NA	5.84E-03	29%	71%	0%	0%	0%
Uranium	4.98E-05	2.22E-05	6.46E-11	NA	6.00E-04	5.10E-04	NA	NA	8.29E-02	4.36E-02	NA	NA	1.27E-01	66%	34%	0%	0%	1%
Vanadium	8.80E-05	3.93E-05	1.14E-10	NA	9.00E-03	1.80E-03	NA	NA	9.78E-03	2.19E-02	NA	NA	3.16E-02	31%	69%	0%	0%	0%
Zinc	2.36E-04	1.05E-04	3.06E-10	NA	3.00E-01	6.00E-02	NA	NA	7.86E-04	1.76E-03	NA	NA	2.54E-03	31%	69%	0%	0%	0%
Organic Compounds																		
Fluoranthene	3.83E-06	4.45E-06	4.97E-12	NA	4.00E-02	1.24E-02	NA	NA	9.57E-05	3.59E-04	NA	NA	4.54E-04	21%	79%	0%	0%	0%
Pyrene	4.18E-06	3.73E-06	5.42E-12	NA	3.00E-02	9.30E-03	NA	NA	1.39E-04	4.01E-04	NA	NA	5.40E-04	26%	74%	0%	0%	0%
Total PCB (1)	6.26E-06	7.84E-06	8.13E-12	NA	2.00E-05	1.80E-05	NA	NA	3.13E-01	4.35E-01	NA	NA	7.49E-01	42%	58%	0%	0%	6%
Total PAH (2)	4.87E-06	5.66E-06	6.32E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**2.87E+00**	**9.43E+00**	**5.15E-04**	**NA**	**1.23E+01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.61. Noncarcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 001 EU 18 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent of Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	4.00E-02	1.79E-02	5.19E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	4.00E-02	1.79E-01	3.63E-05	NA	2.19E-01	18%	82%	0%	0%	4%
Antimony	3.46E-05	1.54E-05	4.49E-11	NA	4.00E-04	8.00E-06	NA	NA	8.64E-02	1.93E+00	NA	NA	2.02E+00	4%	96%	0%	0%	41%
Arsenic	1.63E-05	4.37E-06	2.11E-11	NA	3.00E-04	1.23E-04	NA	NA	5.43E-02	3.55E-02	NA	NA	8.98E-02	60%	40%	0%	0%	2%
Barium	2.14E-04	9.55E-05	2.77E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.07E-03	6.82E-03	1.94E-06	NA	7.89E-03	14%	86%	0%	0%	0%
Beryllium	2.10E-06	9.39E-07	2.73E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	1.05E-03	4.70E-02	4.78E-07	NA	4.80E-02	2%	98%	0%	0%	1%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Chromium	7.52E-05	3.36E-05	9.76E-11	NA	1.50E+00	7.50E-03	NA	NA	5.01E-05	4.48E-03	NA	NA	4.53E-03	1%	99%	0%	0%	0%
Copper	1.71E-04	7.62E-05	2.21E-10	NA	4.00E-02	1.20E-02	NA	NA	4.26E-03	6.35E-03	NA	NA	1.06E-02	40%	60%	0%	0%	0%
Iron	5.46E-02	2.44E-02	7.09E-08	NA	3.00E-01	4.50E-02	NA	NA	1.82E-01	5.43E-01	NA	NA	7.25E-01	25%	75%	0%	0%	15%
Lead	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	2.95E-03	1.32E-03	3.83E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	2.11E-02	2.35E-01	2.68E-04	NA	2.57E-01	8%	92%	0%	0%	5%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	7.31E-05	3.27E-05	9.49E-11	NA	5.00E-03	1.90E-03	NA	NA	1.46E-02	1.72E-02	NA	NA	3.18E-02	46%	54%	0%	0%	1%
Nickel	6.33E-04	2.83E-04	8.22E-10	NA	2.00E-02	5.40E-03	NA	NA	3.17E-02	5.24E-02	NA	NA	8.41E-02	38%	62%	0%	0%	2%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	8.63E-06	3.86E-06	1.12E-11	NA	5.00E-03	9.00E-04	NA	NA	1.73E-03	4.28E-03	NA	NA	6.01E-03	29%	71%	0%	0%	0%
Uranium	3.16E-04	1.41E-04	4.10E-10	NA	6.00E-04	5.10E-04	NA	NA	5.27E-01	2.77E-01	NA	NA	8.03E-01	66%	34%	0%	0%	16%
Vanadium	7.90E-05	3.53E-05	1.03E-10	NA	9.00E-03	1.80E-03	NA	NA	8.78E-03	1.96E-02	NA	NA	2.84E-02	31%	69%	0%	0%	1%
Zinc	3.02E-04	1.35E-04	3.92E-10	NA	3.00E-01	6.00E-02	NA	NA	1.01E-03	2.25E-03	NA	NA	3.25E-03	31%	69%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.74E-06	2.02E-06	2.26E-12	NA	4.00E-02	1.24E-02	NA	NA	4.35E-05	1.63E-04	NA	NA	2.07E-04	21%	79%	0%	0%	0%
Pyrene	1.74E-06	1.56E-06	2.26E-12	NA	3.00E-02	9.30E-03	NA	NA	5.80E-05	1.67E-04	NA	NA	2.25E-04	26%	74%	0%	0%	0%
Total PCB (1)	5.22E-06	6.53E-06	6.78E-12	NA	2.00E-05	1.80E-05	NA	NA	2.61E-01	3.63E-01	NA	NA	6.24E-01	42%	58%	0%	0%	13%
Total PAH (2)	3.83E-06	4.45E-06	4.97E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**1.24E+00**	**3.72E+00**	**3.06E-04**	**NA**	**4.96E+00**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.62. Noncarcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 001 EU 20 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	3.15E-02	1.41E-02	4.08E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	3.15E-02	1.41E-01	2.86E-05	NA	1.72E-01	18%	82%	0%	0%	5%
Antimony	3.39E-05	1.51E-05	4.40E-11	NA	4.00E-04	8.00E-06	NA	NA	8.47E-02	1.89E+00	NA	NA	1.98E+00	4%	96%	0%	0%	57%
Arsenic	2.38E-05	6.38E-06	3.09E-11	NA	3.00E-04	1.23E-04	NA	NA	7.93E-02	5.19E-02	NA	NA	1.31E-01	60%	40%	0%	0%	4%
Barium	2.41E-04	1.08E-04	3.13E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.20E-03	7.69E-03	2.19E-06	NA	8.89E-03	14%	86%	0%	0%	0%
Beryllium	ND	ND	ND	NA	2.00E-03	2.00E-05	5.71E-06	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Chromium	3.97E-05	1.77E-05	5.15E-11	NA	1.50E+00	7.50E-03	NA	NA	2.64E-05	2.36E-03	NA	NA	2.39E-03	1%	99%	0%	0%	0%
Copper	ND	ND	ND	NA	4.00E-02	1.20E-02	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Iron	3.90E-02	1.74E-02	5.06E-08	NA	3.00E-01	4.50E-02	NA	NA	1.30E-01	3.87E-01	NA	NA	5.17E-01	25%	75%	0%	0%	15%
Lead	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.64E-03	7.32E-04	2.13E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.17E-02	1.31E-01	1.49E-04	NA	1.43E-01	8%	92%	0%	0%	4%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	ND	ND	ND	NA	5.00E-03	1.90E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Nickel	2.52E-05	1.13E-05	3.27E-11	NA	2.00E-02	5.40E-03	NA	NA	1.26E-03	2.08E-03	NA	NA	3.34E-03	38%	62%	0%	0%	0%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Silver	8.49E-06	3.79E-06	1.10E-11	NA	5.00E-03	9.00E-04	NA	NA	1.70E-03	4.22E-03	NA	NA	5.91E-03	29%	71%	0%	0%	0%
Uranium	6.75E-05	3.02E-05	8.76E-11	NA	6.00E-04	5.10E-04	NA	NA	1.13E-01	5.92E-02	NA	NA	1.72E-01	66%	34%	0%	0%	5%
Vanadium	6.82E-05	3.05E-05	8.85E-11	NA	9.00E-03	1.80E-03	NA	NA	7.58E-03	1.69E-02	NA	NA	2.45E-02	31%	69%	0%	0%	1%
Zinc	1.03E-04	4.62E-05	1.34E-10	NA	3.00E-01	6.00E-02	NA	NA	3.45E-04	7.70E-04	NA	NA	1.11E-03	31%	69%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.71E-06	1.98E-06	2.21E-12	NA	4.00E-02	1.24E-02	NA	NA	4.26E-05	1.60E-04	NA	NA	2.02E-04	21%	79%	0%	0%	0%
Pyrene	1.71E-06	1.52E-06	2.21E-12	NA	3.00E-02	9.30E-03	NA	NA	5.68E-05	1.64E-04	NA	NA	2.21E-04	26%	74%	0%	0%	0%
Total PCB (1)	2.47E-06	3.09E-06	3.21E-12	NA	2.00E-05	1.80E-05	NA	NA	1.24E-01	1.72E-01	NA	NA	2.95E-01	42%	58%	0%	0%	9%
Total PAH (2)	3.83E-06	4.45E-06	4.97E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**5.85E-01**	**2.87E+00**	**1.80E-04**	**NA**	**3.45E+00**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.63. Noncarcinogenic Risk Results-Current/Future Excavation Worker for Soil Within the Fence, Excluding the Hot Spots

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	2.50E-02	1.11E-02	3.24E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	2.50E-02	1.11E-01	2.26E-05	NA	1.36E-01	18%	82%	0%	0%	3%
Antimony	3.83E-05	1.71E-05	4.97E-11	NA	4.00E-04	8.00E-06	NA	NA	9.57E-02	2.14E+00	NA	NA	2.23E+00	4%	96%	0%	0%	42%
Arsenic	2.09E-05	5.60E-06	2.71E-11	NA	3.00E-04	1.23E-04	NA	NA	6.96E-02	4.55E-02	NA	NA	1.15E-01	60%	40%	0%	0%	2%
Barium	2.44E-04	1.09E-04	3.16E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.22E-03	7.78E-03	2.21E-06	NA	9.00E-03	14%	86%	0%	0%	0%
Beryllium	1.81E-06	8.09E-07	2.35E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	9.05E-04	4.04E-02	4.11E-07	NA	4.13E-02	2%	98%	0%	0%	1%
Cadmium	1.25E-05	1.12E-07	1.63E-11	NA	1.00E-03	1.00E-05	NA	NA	1.25E-02	1.12E-02	NA	NA	2.37E-02	53%	47%	0%	0%	0%
Chromium	5.92E-05	2.64E-05	7.68E-11	NA	1.50E+00	7.50E-03	NA	NA	3.94E-05	3.52E-03	NA	NA	3.56E-03	1%	99%	0%	0%	0%
Copper	3.83E-05	1.71E-05	4.97E-11	NA	4.00E-02	1.20E-02	NA	NA	9.57E-04	1.43E-03	NA	NA	2.38E-03	40%	60%	0%	0%	0%
Iron	3.73E-02	1.67E-02	4.84E-08	NA	3.00E-01	4.50E-02	NA	NA	1.24E-01	3.70E-01	NA	NA	4.95E-01	25%	75%	0%	0%	9%
Lead	7.31E-05	3.27E-05	9.49E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.20E-03	5.36E-04	1.56E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	8.58E-03	9.58E-02	1.09E-04	NA	1.04E-01	8%	92%	0%	0%	2%
Mercury	3.83E-07	1.71E-07	4.97E-13	NA	3.00E-04	2.10E-05	NA	NA	1.28E-03	8.15E-03	NA	NA	9.42E-03	14%	86%	0%	0%	0%
Molybdenum	2.19E-05	9.80E-06	2.85E-11	NA	5.00E-03	1.90E-03	NA	NA	4.38E-03	5.16E-03	NA	NA	9.54E-03	46%	54%	0%	0%	0%
Nickel	3.45E-05	1.54E-05	4.47E-11	NA	2.00E-02	5.40E-03	NA	NA	1.72E-03	2.85E-03	NA	NA	4.57E-03	38%	62%	0%	0%	0%
Selenium	6.96E-05	3.11E-05	9.03E-11	NA	5.00E-03	2.20E-03	NA	NA	1.39E-02	1.41E-02	NA	NA	2.81E-02	50%	50%	0%	0%	1%
Silver	9.05E-06	4.04E-06	1.17E-11	NA	5.00E-03	9.00E-04	NA	NA	1.81E-03	4.49E-03	NA	NA	6.30E-03	29%	71%	0%	0%	0%
Uranium	7.24E-04	3.23E-04	9.40E-10	NA	6.00E-04	5.10E-04	NA	NA	1.21E+00	6.34E-01	NA	NA	1.84E+00	66%	34%	0%	0%	34%
Vanadium	6.26E-05	2.80E-05	8.13E-11	NA	9.00E-03	1.80E-03	NA	NA	6.96E-03	1.56E-02	NA	NA	2.25E-02	31%	69%	0%	0%	0%
Zinc	2.51E-04	1.12E-04	3.25E-10	NA	3.00E-01	6.00E-02	NA	NA	8.35E-04	1.87E-03	NA	NA	2.70E-03	31%	69%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.54E-06	2.95E-06	3.30E-12	NA	4.00E-02	1.24E-02	NA	NA	6.35E-05	2.38E-04	NA	NA	3.02E-04	21%	79%	0%	0%	0%
Pyrene	2.37E-06	2.11E-06	3.07E-12	NA	3.00E-02	9.30E-03	NA	NA	7.89E-05	2.27E-04	NA	NA	3.06E-04	26%	74%	0%	0%	0%
Total PCB (1)	2.19E-06	2.74E-06	2.85E-12	NA	2.00E-05	1.80E-05	NA	NA	1.10E-01	1.52E-01	NA	NA	2.62E-01	42%	58%	0%	0%	5%
Total PAH (2)	3.48E-06	4.04E-06	4.52E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**1.69E+00**	**3.66E+00**	**1.34E-04**	**NA**	**5.35E+00**					

NA: Not applicable.

Units for radionuclides are pCi/g. All others are mg/kg.

Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.

Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.

Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].

(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.

(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.64. Noncarcinogenic Risk Results-Current/Future Excavation Worker for Soil at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	2.92E-02	1.31E-02	3.79E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	2.92E-02	1.31E-01	2.65E-05	NA	1.60E-01	18%	82%	0%	0%	2%
Antimony	5.92E-05	2.64E-05	7.68E-11	NA	4.00E-04	8.00E-06	NA	NA	1.48E-01	3.30E+00	NA	NA	3.45E+00	4%	96%	0%	0%	40%
Arsenic	1.88E-05	5.04E-06	2.44E-11	NA	3.00E-04	1.23E-04	NA	NA	6.26E-02	4.10E-02	NA	NA	1.04E-01	60%	40%	0%	0%	1%
Barium	2.58E-04	1.15E-04	3.34E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.29E-03	8.22E-03	2.34E-06	NA	9.51E-03	14%	86%	0%	0%	0%
Beryllium	1.81E-06	8.09E-07	2.35E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	9.05E-04	4.04E-02	4.11E-07	NA	4.13E-02	2%	98%	0%	0%	0%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	NA	NA	ND	0%	0%	0%	0%	0%
Chromium	2.05E-04	9.17E-05	2.67E-10	NA	1.50E+00	7.50E-03	NA	NA	1.37E-04	1.22E-02	NA	NA	1.24E-02	1%	99%	0%	0%	0%
Copper	1.81E-04	8.09E-05	2.35E-10	NA	4.00E-02	1.20E-02	NA	NA	4.52E-03	6.74E-03	NA	NA	1.13E-02	40%	60%	0%	0%	0%
Iron	4.15E-02	1.86E-02	5.39E-08	NA	3.00E-01	4.50E-02	NA	NA	1.38E-01	4.12E-01	NA	NA	5.51E-01	25%	75%	0%	0%	6%
Lead	7.31E-05	3.27E-05	9.49E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.25E-03	5.57E-04	1.62E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	8.90E-03	9.94E-02	1.13E-04	NA	1.08E-01	8%	92%	0%	0%	1%
Mercury	1.46E-06	6.53E-07	1.90E-12	NA	3.00E-04	2.10E-05	NA	NA	4.87E-03	3.11E-02	NA	NA	3.60E-02	14%	86%	0%	0%	0%
Molybdenum	2.89E-05	1.29E-05	3.75E-11	NA	5.00E-03	1.90E-03	NA	NA	5.78E-03	6.79E-03	NA	NA	1.26E-02	46%	54%	0%	0%	0%
Nickel	2.26E-04	1.01E-04	2.94E-10	NA	2.00E-02	5.40E-03	NA	NA	1.13E-02	1.87E-02	NA	NA	3.00E-02	38%	62%	0%	0%	0%
Selenium	6.96E-05	3.11E-05	9.03E-11	NA	5.00E-03	2.20E-03	NA	NA	1.39E-02	1.41E-02	NA	NA	2.81E-02	50%	50%	0%	0%	0%
Silver	1.18E-05	5.29E-06	1.54E-11	NA	5.00E-03	9.00E-04	NA	NA	2.37E-03	5.87E-03	NA	NA	8.24E-03	29%	71%	0%	0%	0%
Uranium	1.14E-03	5.10E-04	1.48E-09	NA	6.00E-04	5.10E-04	NA	NA	1.90E+00	1.00E+00	NA	NA	2.90E+00	66%	34%	0%	0%	34%
Vanadium	8.35E-05	3.73E-05	1.08E-10	NA	9.00E-03	1.80E-03	NA	NA	9.28E-03	2.07E-02	NA	NA	3.00E-02	31%	69%	0%	0%	0%
Zinc	2.61E-04	1.17E-04	3.39E-10	NA	3.00E-01	6.00E-02	NA	NA	8.70E-04	1.94E-03	NA	NA	2.81E-03	31%	69%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.37E-06	2.75E-06	3.07E-12	NA	4.00E-02	1.24E-02	NA	NA	5.92E-05	2.22E-04	NA	NA	2.81E-04	21%	79%	0%	0%	0%
Pyrene	1.84E-06	1.65E-06	2.39E-12	NA	3.00E-02	9.30E-03	NA	NA	6.15E-05	1.77E-04	NA	NA	2.39E-04	26%	74%	0%	0%	0%
Total PCB (1)	9.40E-06	1.18E-05	1.22E-11	NA	2.00E-05	1.80E-05	NA	NA	4.70E-01	6.53E-01	NA	NA	1.12E+00	42%	58%	0%	0%	13%
Total PAH (2)	2.30E-06	2.67E-06	2.98E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**2.81E+00**	**5.81E+00**	**1.42E-04**	**NA**	**8.62E+00**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.65. Noncarcinogenic Risk Results-Current/Future Excavation Worker for Soil at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	2.31E-02	2.06E-04	3.00E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	2.31E-02	2.06E-03	2.10E-05	NA	2.52E-02	92%	8%	0%	0%	1%
Antimony	3.83E-05	3.42E-07	4.97E-11	NA	4.00E-04	8.00E-06	NA	NA	9.57E-02	4.28E-02	NA	NA	1.38E-01	69%	31%	0%	0%	7%
Arsenic	2.09E-05	1.12E-07	2.71E-11	NA	3.00E-04	1.23E-04	NA	NA	6.96E-02	9.10E-04	NA	NA	7.05E-02	99%	1%	0%	0%	4%
Barium	2.40E-04	2.15E-06	3.12E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	1.20E-03	1.53E-04	2.18E-06	NA	1.36E-03	89%	11%	0%	0%	0%
Beryllium	2.05E-06	1.83E-08	2.67E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	1.03E-03	9.17E-04	4.67E-07	NA	1.94E-03	53%	47%	0%	0%	0%
Cadmium	6.96E-06	1.24E-09	9.03E-12	NA	1.00E-03	1.00E-05	NA	NA	6.96E-03	1.24E-04	NA	NA	7.08E-03	98%	2%	0%	0%	0%
Chromium	1.39E-04	1.24E-06	1.81E-10	NA	1.50E+00	7.50E-03	NA	NA	9.28E-05	1.66E-04	NA	NA	2.59E-04	36%	64%	0%	0%	0%
Copper	1.22E-04	1.09E-06	1.58E-10	NA	4.00E-02	1.20E-02	NA	NA	3.05E-03	9.07E-05	NA	NA	3.14E-03	97%	3%	0%	0%	0%
Iron	3.24E-02	2.89E-04	4.20E-08	NA	3.00E-01	4.50E-02	NA	NA	1.08E-01	6.43E-03	NA	NA	1.14E-01	94%	6%	0%	0%	6%
Lead	7.31E-05	6.53E-07	9.49E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.56E-03	1.39E-05	2.02E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.11E-02	2.48E-03	1.41E-04	NA	1.37E-02	81%	18%	1%	0%	1%
Mercury	4.52E-07	4.04E-09	5.87E-13	NA	3.00E-04	2.10E-05	NA	NA	1.51E-03	1.93E-04	NA	NA	1.70E-03	89%	11%	0%	0%	0%
Molybdenum	1.60E-05	1.43E-07	2.08E-11	NA	5.00E-03	1.90E-03	NA	NA	3.20E-03	7.53E-05	NA	NA	3.28E-03	98%	2%	0%	0%	0%
Nickel	6.26E-05	5.60E-07	8.13E-11	NA	2.00E-02	5.40E-03	NA	NA	3.13E-03	1.04E-04	NA	NA	3.24E-03	97%	3%	0%	0%	0%
Selenium	9.40E-05	8.40E-07	1.22E-10	NA	5.00E-03	2.20E-03	NA	NA	1.88E-02	3.82E-04	NA	NA	1.92E-02	98%	2%	0%	0%	1%
Silver	1.08E-05	9.64E-08	1.40E-11	NA	5.00E-03	9.00E-04	NA	NA	2.16E-03	1.07E-04	NA	NA	2.26E-03	95%	5%	0%	0%	0%
Uranium	8.14E-04	7.28E-06	1.06E-09	NA	6.00E-04	5.10E-04	NA	NA	1.36E+00	1.43E-02	NA	NA	1.37E+00	99%	1%	0%	0%	68%
Vanadium	6.26E-05	5.60E-07	8.13E-11	NA	9.00E-03	1.80E-03	NA	NA	6.96E-03	3.11E-04	NA	NA	7.27E-03	96%	4%	0%	0%	0%
Zinc	1.36E-04	1.21E-06	1.76E-10	NA	3.00E-01	6.00E-02	NA	NA	4.52E-04	2.02E-05	NA	NA	4.73E-04	96%	4%	0%	0%	0%
	0.00E+00	0.00E+00	0.00E+00	0.00E+00														
Organic Compounds	0.00E+00	0.00E+00	0.00E+00	0.00E+00														
Fluoranthene	7.66E-06	8.89E-06	9.94E-12	NA	4.00E-02	1.24E-02	NA	NA	1.91E-04	7.17E-04	NA	NA	9.09E-04	21%	79%	0%	0%	0%
Pyrene	4.52E-06	4.04E-06	5.87E-12	NA	3.00E-02	9.30E-03	NA	NA	1.51E-04	4.35E-04	NA	NA	5.86E-04	26%	74%	0%	0%	0%
Total PCB (1)	3.83E-06	4.79E-07	4.97E-12	NA	2.00E-05	1.80E-05	NA	NA	1.91E-01	2.66E-02	NA	NA	2.18E-01	88%	12%	0%	0%	11%
Total PAH (2)	4.18E-06	4.85E-06	5.42E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
	0.00E+00	0.00E+00	0.00E+00	0.00E+00														
Radionuclides	0.00E+00	0.00E+00	0.00E+00	0.00E+00														
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**1.90E+00**	**9.93E-02**	**1.65E-04**	**NA**	**2.00E+00**					

NA: Not applicable.

Units for radionuclides are pCi/g. All others are mg/kg.

Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.

Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.

Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].

(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.

(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.66. Noncarcinogenic Risk Results-Current/future Recreational User-Adult for Sediment at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	6.86E-04	5.75E-03	1.28E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	6.86E-04	5.75E-02	8.98E-06	NA	5.82E-02	1%	99%	0%	0%	2%
Antimony	1.19E-06	9.94E-06	2.22E-11	NA	4.00E-04	8.00E-06	NA	NA	2.97E-03	1.24E+00	NA	NA	1.25E+00	0%	100%	0%	0%	51%
Arsenic	4.92E-07	2.47E-06	9.20E-12	NA	3.00E-04	1.23E-04	NA	NA	1.64E-03	2.01E-02	NA	NA	2.17E-02	8%	92%	0%	0%	1%
Barium	6.65E-06	5.57E-05	1.24E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	3.33E-05	3.98E-03	8.70E-07	NA	4.01E-03	1%	99%	0%	0%	0%
Beryllium	5.51E-08	4.62E-07	1.03E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	2.76E-05	2.31E-02	1.81E-07	NA	2.31E-02	0%	100%	0%	0%	1%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	7.18E-06	6.01E-05	1.34E-10	NA	1.50E+00	7.50E-03	NA	NA	NA	8.02E-03	NA	NA	8.02E-03	0%	100%	0%	0%	0%
Copper	1.04E-05	8.73E-05	1.95E-10	NA	4.00E-02	1.20E-02	NA	NA	2.61E-04	7.28E-03	NA	NA	7.54E-03	3%	97%	0%	0%	0%
Iron	9.48E-04	7.94E-03	1.77E-08	NA	3.00E-01	4.50E-02	NA	NA	3.16E-03	1.76E-01	NA	NA	1.80E-01	2%	98%	0%	0%	7%
Lead	1.78E-06	1.49E-05	3.33E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	3.53E-05	2.96E-04	6.61E-10	NA	1.40E-01	5.60E-03	1.43E-05	NA	2.52E-04	5.28E-02	4.62E-05	NA	5.31E-02	0%	99%	0%	0%	2%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Molybdenum	7.04E-07	5.89E-06	1.32E-11	NA	5.00E-03	1.90E-03	NA	NA	1.41E-04	3.10E-03	NA	NA	3.24E-03	4%	96%	0%	0%	0%
Nickel	7.97E-06	6.67E-05	1.49E-10	NA	2.00E-02	5.40E-03	NA	NA	3.99E-04	1.24E-02	NA	NA	1.28E-02	3%	97%	0%	0%	1%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Silver	2.88E-07	2.41E-06	5.39E-12	NA	5.00E-03	9.00E-04	NA	NA	5.77E-05	2.68E-03	NA	NA	2.74E-03	2%	98%	0%	0%	0%
Uranium	2.78E-05	2.33E-04	5.20E-10	NA	6.00E-04	5.10E-04	NA	NA	4.64E-02	4.57E-01	NA	NA	5.03E-01	9%	91%	0%	0%	21%
Vanadium	1.70E-06	1.43E-05	3.18E-11	NA	9.00E-03	1.80E-03	NA	NA	1.89E-04	7.92E-03	NA	NA	8.11E-03	2%	98%	0%	0%	0%
Zinc	8.67E-06	7.26E-05	1.62E-10	NA	3.00E-01	6.00E-02	NA	NA	2.89E-05	1.21E-03	NA	NA	1.24E-03	2%	98%	0%	0%	0%
Organic Compounds																		
Fluoranthene	5.77E-08	1.26E-06	1.08E-12	NA	4.00E-02	1.24E-02	NA	NA	1.44E-06	1.01E-04	NA	NA	1.03E-04	1%	99%	0%	0%	0%
Pyrene	4.75E-08	7.95E-07	8.88E-13	NA	3.00E-02	9.30E-03	NA	NA	1.58E-06	8.55E-05	NA	NA	8.71E-05	2%	98%	0%	0%	0%
Total PCB (1)	2.29E-07	5.37E-06	4.28E-12	NA	2.00E-05	1.80E-05	NA	NA	1.14E-02	2.98E-01	NA	NA	3.10E-01	4%	96%	0%	0%	13%
Total PAH (2)	8.48E-08	1.85E-06	1.59E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**6.77E-02**	**2.37E+00**	**5.62E-05**	**NA**	**2.44E+00**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.67. Noncarcinogenic Risk Results-Current/Future Recreational User-Adult) for Sediment at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	5.45E-04	4.56E-03	1.02E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	5.45E-04	4.56E-02	7.12E-06	NA	4.62E-02	1%	99%	0%	0%	3%
Antimony	8.48E-07	7.10E-06	1.59E-11	NA	4.00E-04	8.00E-06	NA	NA	2.12E-03	8.88E-01	NA	NA	8.90E-01	0%	100%	0%	0%	56%
Arsenic	5.09E-07	2.56E-06	9.51E-12	NA	3.00E-04	1.23E-04	NA	NA	1.70E-03	2.08E-02	NA	NA	2.25E-02	8%	92%	0%	0%	1%
Barium	5.60E-06	4.69E-05	1.05E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	2.80E-05	3.35E-03	7.32E-07	NA	3.38E-03	1%	99%	0%	0%	0%
Beryllium	4.92E-08	4.12E-07	9.20E-13	NA	2.00E-03	2.00E-05	5.71E-06	NA	2.46E-05	2.06E-02	1.61E-07	NA	2.06E-02	0%	100%	0%	0%	1%
Cadmium	1.78E-07	2.98E-08	3.33E-12	NA	1.00E-03	1.00E-05	NA	NA	1.78E-04	2.98E-03	NA	NA	3.16E-03	6%	94%	0%	0%	0%
Chromium	3.31E-06	2.77E-05	6.18E-11	NA	1.50E+00	7.50E-03	NA	NA	2.20E-06	3.69E-03	NA	NA	3.69E-03	0%	100%	0%	0%	0%
Copper	2.97E-06	2.49E-05	5.55E-11	NA	4.00E-02	1.20E-02	NA	NA	7.42E-05	2.07E-03	NA	NA	2.15E-03	3%	97%	0%	0%	0%
Iron	7.91E-04	6.63E-03	1.48E-08	NA	3.00E-01	4.50E-02	NA	NA	2.64E-03	1.47E-01	NA	NA	1.50E-01	2%	98%	0%	0%	9%
Lead	1.78E-06	1.49E-05	3.33E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	3.87E-05	3.24E-04	7.23E-10	NA	1.40E-01	5.60E-03	1.43E-05	NA	2.76E-04	5.78E-02	5.06E-05	NA	5.81E-02	0%	99%	0%	0%	4%
Mercury	9.33E-09	7.81E-08	1.74E-13	NA	3.00E-04	2.10E-05	NA	NA	3.11E-05	3.72E-03	NA	NA	3.75E-03	1%	99%	0%	0%	0%
Molybdenum	3.90E-07	3.27E-06	7.29E-12	NA	5.00E-03	1.90E-03	NA	NA	7.80E-05	1.72E-03	NA	NA	1.80E-03	4%	96%	0%	0%	0%
Nickel	1.36E-06	1.14E-05	2.54E-11	NA	2.00E-02	5.40E-03	NA	NA	6.78E-05	2.10E-03	NA	NA	2.17E-03	3%	97%	0%	0%	0%
Selenium	1.87E-06	1.56E-05	3.49E-11	NA	5.00E-03	2.20E-03	NA	NA	3.73E-04	7.10E-03	NA	NA	7.47E-03	5%	95%	0%	0%	0%
Silver	2.46E-07	2.06E-06	4.60E-12	NA	5.00E-03	9.00E-04	NA	NA	4.92E-05	2.29E-03	NA	NA	2.34E-03	2%	98%	0%	0%	0%
Uranium	1.39E-05	1.16E-04	2.60E-10	NA	6.00E-04	5.10E-04	NA	NA	2.32E-02	2.28E-01	NA	NA	2.51E-01	9%	91%	0%	0%	16%
Vanadium	1.44E-06	1.21E-05	2.70E-11	NA	9.00E-03	1.80E-03	NA	NA	1.60E-04	6.71E-03	NA	NA	6.87E-03	2%	98%	0%	0%	0%
Zinc	3.22E-06	2.70E-05	6.03E-11	NA	3.00E-01	6.00E-02	NA	NA	1.07E-05	4.50E-04	NA	NA	4.60E-04	2%	98%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.87E-07	4.06E-06	3.49E-12	NA	4.00E-02	1.24E-02	NA	NA	4.66E-06	3.28E-04	NA	NA	3.32E-04	1%	99%	0%	0%	0%
Pyrene	1.19E-07	1.99E-06	2.22E-12	NA	3.00E-02	9.30E-03	NA	NA	3.96E-06	2.14E-04	NA	NA	2.18E-04	2%	98%	0%	0%	0%
Total PCB (1)	9.33E-08	2.19E-06	1.74E-12	NA	2.00E-05	1.80E-05	NA	NA	4.66E-03	1.21E-01	NA	NA	1.26E-01	4%	96%	0%	0%	8%
Total PAH (2)	1.02E-07	2.22E-06	1.90E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**3.62E-02**	**1.57E+00**	**5.86E-05**	**NA**	**1.60E+00**					

NA: Not applicable.

Units for radionuclides are pCi/g. All others are mg/kg.

Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.

Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.

Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].

(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.

(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.68. Noncarcinogenic Risk Results-Current/Future Recreational User-Adult for Surface Water at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake	Chronic Toxicity (RfD)	HI		Percent Risk by Pathway	
	Dermal Intake Hazard	Dermal	Dermal	Chemical Total	Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.69. Noncarcinogenic Risk Results-Current/Future Recreational User-Adult for Surface Water at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	1.08E-06	4.50E-05	4.87E-11	4.87E-11	100%	100%
		Total HI =	**4.87E-11**	**4.87E-11**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.70. Noncarcinogenic Risk Results-Current/Future Recreational User-Adult for Game at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake			Chronic Toxicity (RfD)	HI				Percent Risk by Pathway			
	Ingestion Intake Hazard - Deer	Ingestion Intake Hazard - Quail	Ingestion Intake Hazard Rabbit	Ingestion	Ingestion - Deer	Ingestion - Quail	Ingestion - Rabbit	**Chemical Total**	Ingestion - Deer	Ingestion - Quail	Ingestion - Rabbit	**Percent Total**
Inorganic Chemicals (Metals)												
Aluminum	NA	3.88E-07	NA	1.00E+00	NA	3.88E-07	NA	3.88E-07	0%	100%	0%	0%
Antimony	3.84E-10	2.63E-11	4.20E-09	4.00E-04	9.59E-07	6.58E-08	1.05E-05	1.15E-05	8%	1%	91%	0%
Arsenic	NA	4.20E-10	NA	3.00E-04	NA	1.40E-06	NA	1.40E-06	0%	100%	0%	0%
Barium	1.24E-08	2.85E-08	1.34E-07	2.00E-01	6.22E-08	1.42E-07	6.70E-07	8.75E-07	7%	16%	77%	0%
Beryllium	NA	2.55E-11	NA	2.00E-03	NA	1.27E-08	NA	1.27E-08	0%	100%	0%	0%
Cadmium	ND	ND	ND	1.00E-03	ND	ND	ND	ND	0%	0%	0%	0%
Chromium	5.06E-07	2.70E-08	5.56E-06	1.50E+00	3.37E-07	1.80E-08	3.71E-06	4.06E-06	8%	0%	91%	0%
Copper	2.54E-06	6.19E-06	2.55E-05	4.00E-02	6.35E-05	1.55E-04	6.37E-04	8.55E-04	7%	18%	74%	7%
Iron	1.34E-04	3.64E-04	1.49E-03	3.00E-01	4.47E-04	1.21E-03	4.98E-03	6.63E-03	7%	18%	75%	55%
Lead	6.48E-09	3.33E-10	7.00E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Manganese	4.24E-07	1.90E-06	4.28E-06	1.40E-01	3.03E-06	1.35E-05	3.06E-05	4.71E-05	6%	29%	65%	0%
Mercury	NA	2.13E-09	NA	3.00E-04	NA	7.09E-06	NA	7.09E-06	0%	100%	0%	0%
Molybdenum	1.19E-08	5.46E-07	1.22E-07	5.00E-03	2.38E-06	1.09E-04	2.45E-05	1.36E-04	2%	80%	18%	1%
Nickel	4.53E-07	NA	4.79E-06	2.00E-02	2.27E-05	NA	2.40E-04	2.62E-04	9%	0%	91%	2%
Selenium	NA	1.34E-05	NA	5.00E-03	NA	2.68E-03	NA	2.68E-03	0%	100%	0%	0%
Silver	2.78E-08	8.03E-07	2.77E-07	5.00E-03	5.55E-06	1.61E-04	5.54E-05	2.22E-04	3%	72%	25%	2%
Uranium	NA	NA	NA	6.00E-04	NA	NA	NA	NA	0%	0%	0%	0%
Vanadium	NA	NA	NA	9.00E-03	NA	NA	NA	NA	0%	0%	0%	0%
Zinc	2.76E-05	8.39E-05	2.76E-04	3.00E-01	9.21E-05	2.80E-04	9.18E-04	1.29E-03	7%	22%	71%	11%
Organic Compounds												
Fluoranthene	NA	NA	NA	4.00E-02	NA	NA	NA	NA	0%	0%	0%	0%
Pyrene	NA	NA	NA	3.00E-02	NA	NA	NA	NA	0%	0%	0%	0%
Total PCB (1)	NA	NA	NA	2.00E-05	NA	NA	NA	NA	0%	0%	0%	0%
Total PAH (2)	NA	5.53E-08	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Radionuclides												
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
				Total HI =	**6.37E-04**	**4.62E-03**	**6.90E-03**	**1.22E-02**				

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.71. Noncarcinogenic Risk Results-Current/Future Recreational User-Adult for Game at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake			Chronic Toxicity (RfD)	HI				Percent Risk by Pathway			
	Ingestion Intake Hazard - Deer	Ingestion Intake Hazard - Quail	Ingestion Intake Hazard Rabbit	Ingestion	Ingestion - Deer	Ingestion - Quail	Ingestion - Rabbit	**Chemical Total**	Ingestion-Deer	Ingestion-Quail	Ingestion-Rabbit	**Percent Total**
Inorganic Chemicals (Metals)												
Aluminum	NA	3.08E-07	NA	1.00E+00	NA	3.08E-07	NA	3.08E-07	0%	100%	0%	0%
Antimony	2.74E-10	1.88E-11	3.00E-09	4.00E-04	6.85E-07	4.70E-08	7.50E-06	8.24E-06	8%	1%	91%	0%
Arsenic	NA	4.34E-10	NA	3.00E-04	NA	1.45E-06	NA	1.45E-06	0%	100%	0%	0%
Barium	1.05E-08	2.40E-08	1.13E-07	2.00E-01	5.23E-08	1.20E-07	5.64E-07	7.36E-07	7%	16%	77%	0%
Beryllium	NA	2.27E-11	NA	2.00E-03	NA	1.14E-08	NA	1.14E-08	0%	100%	0%	0%
Cadmium	1.48E-09	1.47E-07	1.50E-08	1.00E-03	1.48E-06	1.47E-04	1.50E-05	1.63E-04	1%	90%	9%	2%
Chromium	2.33E-07	1.24E-08	2.56E-06	1.50E+00	1.55E-07	8.27E-09	1.71E-06	1.87E-06	8%	0%	91%	0%
Copper	7.22E-07	1.76E-06	7.25E-06	4.00E-02	1.81E-05	4.40E-05	1.81E-04	2.43E-04	7%	18%	74%	2%
Iron	1.12E-04	3.04E-04	1.25E-03	3.00E-01	3.73E-04	1.01E-03	4.15E-03	5.54E-03	7%	18%	75%	57%
Lead	6.48E-09	3.33E-10	7.00E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Manganese	4.64E-07	2.07E-06	4.68E-06	1.40E-01	3.32E-06	1.48E-05	3.34E-05	5.16E-05	6%	29%	65%	1%
Mercury	NA	3.90E-10	NA	3.00E-04	NA	1.30E-06	NA	1.30E-06	0%	100%	0%	0%
Molybdenum	6.60E-09	3.03E-07	6.78E-08	5.00E-03	1.32E-06	6.06E-05	1.36E-05	7.54E-05	2%	80%	18%	1%
Nickel	7.71E-08	NA	8.15E-07	2.00E-02	3.86E-06	NA	4.08E-05	4.46E-05	9%	0%	91%	0%
Selenium	NA	1.48E-05	NA	5.00E-03	NA	2.95E-03	NA	2.95E-03	0%	100%	0%	0%
Silver	2.37E-08	6.85E-07	2.36E-07	5.00E-03	4.74E-06	1.37E-04	4.72E-05	1.89E-04	3%	72%	25%	2%
Uranium	NA	NA	NA	6.00E-04	NA	NA	NA	NA	0%	0%	0%	0%
Vanadium	NA	NA	NA	9.00E-03	NA	NA	NA	NA	0%	0%	0%	0%
Zinc	1.03E-05	3.12E-05	1.02E-04	3.00E-01	3.42E-05	1.04E-04	3.41E-04	4.79E-04	7%	22%	71%	5%
Organic Compounds												
Fluoranthene	NA	NA	NA	4.00E-02	NA	NA	NA	NA	0%	0%	0%	0%
Pyrene	NA	NA	NA	3.00E-02	NA	NA	NA	NA	0%	0%	0%	0%
Total PCB (1)	NA	NA	NA	2.00E-05	NA	NA	NA	NA	0%	0%	0%	0%
Total PAH (2)	NA	6.64E-08	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Radionuclides												
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
				Total HI =	**4.41E-04**	**4.47E-03**	**4.84E-03**	**9.75E-03**				

NA: Not applicable.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.72. Noncarcinogenic Risk Results-Current/Future Recreational User-Teen for Sediment at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	1.51E-03	2.67E-02	2.82E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	1.51E-03	2.67E-01	1.98E-05	NA	2.69E-01	1%	99%	0%	0%	2%
Antimony	2.60E-06	4.62E-05	4.88E-11	NA	4.00E-04	8.00E-06	NA	NA	6.51E-03	5.78E+00	NA	NA	5.78E+00	0%	100%	0%	0%	52%
Arsenic	1.08E-06	1.15E-05	2.02E-11	NA	3.00E-04	1.23E-04	NA	NA	3.60E-03	9.34E-02	NA	NA	9.70E-02	4%	96%	0%	0%	1%
Barium	1.46E-05	2.59E-04	2.74E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	7.30E-05	1.85E-02	1.91E-06	NA	1.86E-02	0%	100%	0%	0%	0%
Beryllium	1.21E-07	2.15E-06	2.27E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	6.05E-05	1.07E-01	3.97E-07	NA	1.07E-01	0%	100%	0%	0%	1%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	1.58E-05	2.80E-04	2.96E-10	NA	1.50E+00	7.50E-03	NA	NA	NA	3.73E-02	NA	NA	3.73E-02	0%	100%	0%	0%	0%
Copper	2.29E-05	4.06E-04	4.29E-10	NA	4.00E-02	1.20E-02	NA	NA	5.72E-04	3.38E-02	NA	NA	3.44E-02	2%	98%	0%	0%	0%
Iron	2.08E-03	3.69E-02	3.90E-08	NA	3.00E-01	4.50E-02	NA	NA	6.93E-03	8.20E-01	NA	NA	8.27E-01	1%	99%	0%	0%	7%
Lead	3.91E-06	6.93E-05	7.33E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	7.75E-05	1.38E-03	1.45E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	5.54E-04	2.46E-01	1.02E-04	NA	2.46E-01	0%	100%	0%	0%	2%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Molybdenum	1.54E-06	2.74E-05	2.90E-11	NA	5.00E-03	1.90E-03	NA	NA	3.09E-04	1.44E-02	NA	NA	1.47E-02	2%	98%	0%	0%	0%
Nickel	1.75E-05	3.10E-04	3.28E-10	NA	2.00E-02	5.40E-03	NA	NA	8.74E-04	5.74E-02	NA	NA	5.83E-02	1%	99%	0%	0%	1%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Silver	6.32E-07	1.12E-05	1.19E-11	NA	5.00E-03	9.00E-04	NA	NA	1.26E-04	1.25E-02	NA	NA	1.26E-02	1%	99%	0%	0%	0%
Uranium	6.10E-05	1.08E-03	1.14E-09	NA	6.00E-04	5.10E-04	NA	NA	1.02E-01	2.12E+00	NA	NA	2.22E+00	5%	95%	0%	0%	20%
Vanadium	3.73E-06	6.62E-05	7.00E-11	NA	9.00E-03	1.80E-03	NA	NA	4.15E-04	3.68E-02	NA	NA	3.72E-02	1%	99%	0%	0%	0%
Zinc	1.90E-05	3.37E-04	3.57E-10	NA	3.00E-01	6.00E-02	NA	NA	6.34E-05	5.62E-03	NA	NA	5.69E-03	1%	99%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.26E-07	5.83E-06	2.37E-12	NA	4.00E-02	1.24E-02	NA	NA	3.16E-06	4.71E-04	NA	NA	4.74E-04	1%	99%	0%	0%	0%
Pyrene	1.04E-07	3.70E-06	1.95E-12	NA	3.00E-02	9.30E-03	NA	NA	3.47E-06	3.97E-04	NA	NA	4.01E-04	1%	99%	0%	0%	0%
Total PCB (1)	5.02E-07	2.49E-05	9.42E-12	NA	2.00E-05	1.80E-05	NA	NA	2.51E-02	1.39E+00	NA	NA	1.41E+00	2%	98%	0%	0%	13%
Total PAH (2)	1.86E-07	8.58E-06	3.49E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
									Total HI =	**1.48E-01**	**1.10E+01**	**1.24E-04**	**NA**	**1.12E+01**				

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.73. Noncarcinogenic Risk Results-Current/Future Recreational User-Teen for Sediment at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	1.20E-03	2.12E-02	2.24E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	1.20E-03	2.12E-01	1.57E-05	NA	2.13E-01	1%	99%	0%	0%	3%
Antimony	1.86E-06	3.30E-05	3.49E-11	NA	4.00E-04	8.00E-06	NA	NA	4.65E-03	4.13E+00	NA	NA	4.13E+00	0%	100%	0%	0%	56%
Arsenic	1.12E-06	1.19E-05	2.09E-11	NA	3.00E-04	1.23E-04	NA	NA	3.72E-03	9.66E-02	NA	NA	1.00E-01	4%	96%	0%	0%	1%
Barium	1.23E-05	2.18E-04	2.30E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	6.14E-05	1.56E-02	1.61E-06	NA	1.56E-02	0%	100%	0%	0%	0%
Beryllium	1.08E-07	1.91E-06	2.02E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	5.39E-05	9.57E-02	3.54E-07	NA	9.58E-02	0%	100%	0%	0%	1%
Cadmium	3.91E-07	1.39E-07	7.33E-12	NA	1.00E-03	1.00E-05	NA	NA	3.91E-04	1.39E-02	NA	NA	1.43E-02	3%	97%	0%	0%	0%
Chromium	7.25E-06	1.29E-04	1.36E-10	NA	1.50E+00	7.50E-03	NA	NA	4.84E-06	1.72E-02	NA	NA	1.72E-02	0%	100%	0%	0%	0%
Copper	6.51E-06	1.16E-04	1.22E-10	NA	4.00E-02	1.20E-02	NA	NA	1.63E-04	9.63E-03	NA	NA	9.79E-03	2%	98%	0%	0%	0%
Iron	1.74E-03	3.08E-02	3.26E-08	NA	3.00E-01	4.50E-02	NA	NA	5.79E-03	6.84E-01	NA	NA	6.90E-01	1%	99%	0%	0%	9%
Lead	3.91E-06	6.93E-05	7.33E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	8.48E-05	1.50E-03	1.59E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	6.06E-04	2.69E-01	1.11E-04	NA	2.69E-01	0%	100%	0%	0%	4%
Mercury	2.05E-08	3.63E-07	3.84E-13	NA	3.00E-04	2.10E-05	NA	NA	6.82E-05	1.73E-02	NA	NA	1.74E-02	0%	100%	0%	0%	0%
Molybdenum	8.56E-07	1.52E-05	1.60E-11	NA	5.00E-03	1.90E-03	NA	NA	1.71E-04	7.99E-03	NA	NA	8.16E-03	2%	98%	0%	0%	0%
Nickel	2.98E-06	5.28E-05	5.58E-11	NA	2.00E-02	5.40E-03	NA	NA	1.49E-04	9.78E-03	NA	NA	9.93E-03	1%	99%	0%	0%	0%
Selenium	4.09E-06	7.26E-05	7.68E-11	NA	5.00E-03	2.20E-03	NA	NA	8.18E-04	3.30E-02	NA	NA	3.38E-02	2%	98%	0%	0%	0%
Silver	5.39E-07	9.57E-06	1.01E-11	NA	5.00E-03	9.00E-04	NA	NA	1.08E-04	1.06E-02	NA	NA	1.07E-02	1%	99%	0%	0%	0%
Uranium	3.05E-05	5.41E-04	5.72E-10	NA	6.00E-04	5.10E-04	NA	NA	5.08E-02	1.06E+00	NA	NA	1.11E+00	5%	95%	0%	0%	15%
Vanadium	3.16E-06	5.61E-05	5.93E-11	NA	9.00E-03	1.80E-03	NA	NA	3.51E-04	3.12E-02	NA	NA	3.15E-02	1%	99%	0%	0%	0%
Zinc	7.07E-06	1.25E-04	1.33E-10	NA	3.00E-01	6.00E-02	NA	NA	2.36E-05	2.09E-03	NA	NA	2.11E-03	1%	99%	0%	0%	0%
Organic Compounds																		
Fluoranthene	4.09E-07	1.89E-05	7.68E-12	NA	4.00E-02	1.24E-02	NA	NA	1.02E-05	1.52E-03	NA	NA	1.53E-03	1%	99%	0%	0%	0%
Pyrene	2.60E-07	9.24E-06	4.88E-12	NA	3.00E-02	9.30E-03	NA	NA	8.68E-06	9.94E-04	NA	NA	1.00E-03	1%	99%	0%	0%	0%
Total PCB (1)	2.05E-07	1.02E-05	3.84E-12	NA	2.00E-05	1.80E-05	NA	NA	1.02E-02	5.65E-01	NA	NA	5.75E-01	2%	98%	0%	0%	8%
Total PAH (2)	2.23E-07	1.03E-05	4.19E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**7.94E-02**	**7.28E+00**	**1.29E-04**	**NA**	**7.36E+00**					

NA: Not applicable.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.74. Noncarcinogenic Risk Results-Current/Future Recreational User-Teen for Surface Water at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.75. Noncarcinogenic Risk Results-Current/Future Recreational User-Teen for Surface Water at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (SF) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	3.78E-06	4.50E-05	1.70E-10	1.70E-10	100%	100%
		Total HI =	**1.70E-10**	**1.70E-10**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.76. Noncarcinogenic Risk Results-Current/Future Recreational User-Teen for Game at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake			Chronic Toxicity (RfD)	HI				Percent Risk by Pathway			
	Ingestion Intake Hazard - Deer	Ingestion Intake Hazard - Quail	Ingestion Intake Hazard Rabbit	Ingestion	Ingestion - Deer	Ingestion - Quail	Ingestion - Rabbit	**Chemical Total**	Ingestion - Deer	Ingestion - Quail	Ingestion - Rabbit	**Percent Total**
Inorganic Chemicals (Metals)												
Aluminum	NA	3.22E-07	NA	1.00E+00	NA	3.22E-07	NA	3.22E-07	0%	100%	0%	0%
Antimony	6.26E-10	2.19E-11	3.40E-09	4.00E-04	1.56E-06	5.46E-08	8.51E-06	1.01E-05	15%	1%	84%	0%
Arsenic	NA	3.49E-10	NA	3.00E-04	NA	1.16E-06	NA	1.16E-06	0%	100%	0%	0%
Barium	2.03E-08	2.37E-08	1.08E-07	2.00E-01	1.01E-07	1.18E-07	5.42E-07	7.62E-07	13%	16%	71%	0%
Beryllium	NA	2.12E-11	NA	2.00E-03	NA	1.06E-08	NA	1.06E-08	0%	100%	0%	0%
Cadmium	ND	ND	ND	1.00E-03	ND	ND	ND	ND	0%	0%	0%	0%
Chromium	8.25E-07	2.24E-08	4.50E-06	1.50E+00	5.50E-07	1.49E-08	3.00E-06	3.57E-06	15%	0%	84%	0%
Copper	4.14E-06	5.14E-06	2.06E-05	4.00E-02	1.03E-04	1.29E-04	5.16E-04	7.48E-04	14%	17%	69%	7%
Iron	2.18E-04	3.02E-04	1.21E-03	3.00E-01	7.28E-04	1.01E-03	4.03E-03	5.76E-03	13%	17%	70%	55%
Lead	1.06E-08	2.77E-10	5.67E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Manganese	6.92E-07	1.57E-06	3.46E-06	1.40E-01	4.94E-06	1.12E-05	2.47E-05	4.09E-05	12%	27%	60%	0%
Mercury	NA	1.77E-09	NA	3.00E-04	NA	5.89E-06	NA	5.89E-06	0%	100%	0%	0%
Molybdenum	1.94E-08	4.54E-07	9.91E-08	5.00E-03	3.89E-06	9.08E-05	1.98E-05	1.14E-04	3%	79%	17%	1%
Nickel	7.39E-07	NA	3.88E-06	2.00E-02	3.69E-05	NA	1.94E-04	2.31E-04	16%	0%	84%	2%
Selenium	NA	1.11E-05	NA	5.00E-03	NA	2.23E-03	NA	2.23E-03	0%	100%	0%	0%
Silver	4.53E-08	6.67E-07	2.24E-07	5.00E-03	9.05E-06	1.33E-04	4.49E-05	1.87E-04	5%	71%	24%	2%
Uranium	NA	NA	NA	6.00E-04	NA	NA	NA	NA	0%	0%	0%	0%
Vanadium	NA	NA	NA	9.00E-03	NA	NA	NA	NA	0%	0%	0%	0%
Zinc	4.50E-05	6.97E-05	2.23E-04	3.00E-01	1.50E-04	2.32E-04	7.44E-04	1.13E-03	13%	21%	66%	11%
Organic Compounds												
Fluoranthene	NA	NA	NA	4.00E-02	NA	NA	NA	NA	0%	0%	0%	0%
Pyrene	NA	NA	NA	3.00E-02	NA	NA	NA	NA	0%	0%	0%	0%
Total PCB (1)	NA	NA	NA	2.00E-05	NA	NA	NA	NA	0%	0%	0%	0%
Total PAH (2)	NA	4.60E-08	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Radionuclides												
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
				Total HI =	**1.04E-03**	**3.84E-03**	**5.58E-03**	**1.05E-02**				

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.77. Noncarcinogenic Risk Results-Current/Future Recreational User-Teen for Game at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake			Chronic Toxicity (RfD)	HI				Percent Risk by Pathway			
	Ingestion Intake Hazard - Deer	Ingestion Intake Hazard - Quail	Ingestion Intake Hazard Rabbit	Ingestion	Ingestion - Deer	Ingestion - Quail	Ingestion - Rabbit	**Chemical Total**	Ingestion-Deer	Ingestion-Quail	Ingestion-Rabbit	**Percent Total**
Inorganic Chemicals (Metals)												
Aluminum	NA	2.56E-07	NA	1.00E+00	NA	2.56E-07	NA	2.56E-07	0%	100%	0%	0%
Antimony	4.47E-10	1.56E-11	2.43E-09	4.00E-04	1.12E-06	3.90E-08	6.08E-06	7.23E-06	15%	1%	84%	0%
Arsenic	NA	3.61E-10	NA	3.00E-04	NA	1.20E-06	NA	1.20E-06	0%	100%	0%	0%
Barium	1.71E-08	1.99E-08	9.13E-08	2.00E-01	8.53E-08	9.96E-08	4.56E-07	6.41E-07	13%	16%	71%	0%
Beryllium	NA	1.89E-11	NA	2.00E-03	NA	9.44E-09	NA	9.44E-09	0%	100%	0%	0%
Cadmium	2.41E-09	1.22E-07	1.21E-08	1.00E-03	2.41E-06	1.22E-04	1.21E-05	1.37E-04	2%	89%	9%	2%
Chromium	3.80E-07	1.03E-08	2.07E-06	1.50E+00	2.53E-07	6.87E-09	1.38E-06	1.64E-06	15%	0%	84%	0%
Copper	1.18E-06	1.46E-06	5.87E-06	4.00E-02	2.94E-05	3.66E-05	1.47E-04	2.13E-04	14%	17%	69%	3%
Iron	1.82E-04	2.52E-04	1.01E-03	3.00E-01	6.08E-04	8.41E-04	3.36E-03	4.81E-03	13%	17%	70%	58%
Lead	1.06E-08	2.77E-10	5.67E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Manganese	7.57E-07	1.72E-06	3.79E-06	1.40E-01	5.41E-06	1.23E-05	2.71E-05	4.48E-05	12%	27%	60%	1%
Mercury	NA	3.24E-10	NA	3.00E-04	NA	1.08E-06	NA	1.08E-06	0%	100%	0%	0%
Molybdenum	1.08E-08	2.52E-07	5.49E-08	5.00E-03	2.15E-06	5.03E-05	1.10E-05	6.34E-05	3%	79%	17%	1%
Nickel	1.26E-07	NA	6.60E-07	2.00E-02	6.29E-06	NA	3.30E-05	3.93E-05	16%	0%	84%	0%
Selenium	NA	1.23E-05	NA	5.00E-03	NA	2.45E-03	NA	2.45E-03	0%	100%	0%	0%
Silver	3.86E-08	5.69E-07	1.91E-07	5.00E-03	7.72E-06	1.14E-04	3.83E-05	1.60E-04	5%	71%	24%	2%
Uranium	NA	NA	NA	6.00E-04	NA	NA	NA	NA	0%	0%	0%	0%
Vanadium	NA	NA	NA	9.00E-03	NA	NA	NA	NA	0%	0%	0%	0%
Zinc	1.67E-05	2.59E-05	8.29E-05	3.00E-01	5.58E-05	8.64E-05	2.76E-04	4.18E-04	13%	21%	66%	5%
Organic Compounds												
Fluoranthene	NA	NA	NA	4.00E-02	NA	NA	NA	NA	0%	0%	0%	0%
Pyrene	NA	NA	NA	3.00E-02	NA	NA	NA	NA	0%	0%	0%	0%
Total PCB (1)	NA	NA	NA	2.00E-05	NA	NA	NA	NA	0%	0%	0%	0%
Total PAH (2)	NA	5.52E-08	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Radionuclides												
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
				Total HI =	**7.19E-04**	**3.72E-03**	**3.92E-03**	**8.35E-03**				

NA: Not applicable.

Units for radionuclides are pCi/g. All others are mg/kg.

Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.

Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.

Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].

(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.

(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.78 Noncarcinogenic Risk Results- (Current Recreational User - Child) for Sediment at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	5.10E-03	2.85E-03	4.77E-09	NA	1.00E+00	1.00E-01	1.43E-03	NA	5.10E-03	2.85E-02	3.33E-06	NA	3.36E-02	15%	85%	0%	0%	2%
Antimony	8.82E-06	4.94E-06	8.24E-12	NA	4.00E-04	8.00E-06	NA	NA	2.21E-02	6.17E-01	NA	NA	6.39E-01	3%	97%	0%	0%	38%
Arsenic	3.65E-06	1.23E-06	3.41E-12	NA	3.00E-04	1.23E-04	NA	NA	1.22E-02	9.97E-03	NA	NA	2.22E-02	55%	45%	0%	0%	1%
Barium	4.94E-05	2.77E-05	4.62E-11	NA	2.00E-01	1.40E-02	1.43E-04	NA	2.47E-04	1.98E-03	3.23E-07	NA	2.22E-03	11%	89%	0%	0%	0%
Beryllium	4.10E-07	2.29E-07	3.83E-13	NA	2.00E-03	2.00E-05	5.71E-06	NA	2.05E-04	1.15E-02	6.70E-08	NA	1.17E-02	2%	98%	0%	0%	1%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	5.34E-05	2.99E-05	4.99E-11	NA	1.50E+00	7.50E-03	NA	NA	3.56E-05	3.98E-03	NA	NA	4.02E-03	1%	99%	0%	0%	0%
Copper	7.75E-05	4.34E-05	7.24E-11	NA	4.00E-02	1.20E-02	NA	NA	1.94E-03	3.61E-03	NA	NA	5.55E-03	35%	65%	0%	0%	0%
Iron	7.04E-03	3.94E-03	6.58E-09	NA	3.00E-01	4.50E-02	NA	NA	2.35E-02	8.76E-02	NA	NA	1.11E-01	21%	79%	0%	0%	7%
Lead	1.32E-05	7.40E-06	1.24E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	2.63E-04	1.47E-04	2.45E-10	NA	1.40E-01	5.60E-03	1.43E-05	NA	1.88E-03	2.62E-02	1.72E-05	NA	2.81E-02	7%	93%	0%	0%	2%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Molybdenum	5.23E-06	2.93E-06	4.89E-12	NA	5.00E-03	1.90E-03	NA	NA	1.05E-03	1.54E-03	NA	NA	2.59E-03	40%	60%	0%	0%	0%
Nickel	5.92E-05	3.31E-05	5.53E-11	NA	2.00E-02	5.40E-03	NA	NA	2.96E-03	6.14E-03	NA	NA	9.10E-03	33%	67%	0%	0%	1%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Silver	2.14E-06	1.20E-06	2.00E-12	NA	5.00E-03	9.00E-04	NA	NA	4.28E-04	1.33E-03	NA	NA	1.76E-03	24%	76%	0%	0%	0%
Uranium	2.07E-04	1.16E-04	1.93E-10	NA	6.00E-04	5.10E-04	NA	NA	3.44E-01	2.27E-01	NA	NA	5.71E-01	60%	40%	0%	0%	34%
Vanadium	1.26E-05	7.08E-06	1.18E-11	NA	9.00E-03	1.80E-03	NA	NA	1.41E-03	3.93E-03	NA	NA	5.34E-03	26%	74%	0%	0%	0%
Zinc	6.44E-05	3.60E-05	6.02E-11	NA	3.00E-01	6.00E-02	NA	NA	2.15E-04	6.01E-04	NA	NA	8.16E-04	26%	74%	0%	0%	0%
Organic Compounds																		
Fluoranthene	4.28E-07	6.23E-07	4.00E-13	NA	4.00E-02	1.24E-02	NA	NA	1.07E-05	5.03E-05	NA	NA	6.10E-05	18%	82%	0%	0%	0%
Pyrene	3.53E-07	3.95E-07	3.30E-13	NA	3.00E-02	9.30E-03	NA	NA	1.18E-05	4.25E-05	NA	NA	5.42E-05	22%	78%	0%	0%	0%
Total PCB (1)	1.70E-06	2.66E-06	1.59E-12	NA	2.00E-05	1.80E-05	NA	NA	8.51E-02	1.48E-01	NA	NA	2.33E-01	36%	64%	0%	0%	14%
Total PAH (2)	6.30E-07	9.17E-07	5.89E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
									Total HI =	**5.03E-01**	**1.18E+00**	**2.09E-05**	**NA**	**1.68E+00**				

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.79 Noncarcinogenic Risk Results- (Current Recreational User - Child) for Sediment at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	4.05E-03	2.26E-03	3.78E-09	NA	1.00E+00	1.00E-01	1.43E-03	NA	4.05E-03	2.26E-02	2.65E-06	NA	2.67E-02	15%	85%	0%	0%	3%
Antimony	6.30E-06	3.53E-06	5.89E-12	NA	4.00E-04	8.00E-06	NA	NA	1.58E-02	4.41E-01	NA	NA	4.56E-01	3%	97%	0%	0%	44%
Arsenic	3.78E-06	1.27E-06	3.53E-12	NA	3.00E-04	1.23E-04	NA	NA	1.26E-02	1.03E-02	NA	NA	2.29E-02	55%	45%	0%	0%	2%
Barium	4.16E-05	2.33E-05	3.89E-11	NA	2.00E-01	1.40E-02	1.43E-04	NA	2.08E-04	1.66E-03	2.72E-07	NA	1.87E-03	11%	89%	0%	0%	0%
Beryllium	3.65E-07	2.04E-07	3.41E-13	NA	2.00E-03	2.00E-05	5.71E-06	NA	1.83E-04	1.02E-02	5.98E-08	NA	1.04E-02	2%	98%	0%	0%	1%
Cadmium	1.32E-06	1.48E-08	1.24E-12	NA	1.00E-03	1.00E-05	NA	NA	1.32E-03	1.48E-03	NA	NA	2.80E-03	47%	53%	0%	0%	0%
Chromium	2.46E-05	1.37E-05	2.30E-11	NA	1.50E+00	7.50E-03	NA	NA	1.64E-05	1.83E-03	NA	NA	1.85E-03	1%	99%	0%	0%	0%
Copper	2.21E-05	1.23E-05	2.06E-11	NA	4.00E-02	1.20E-02	NA	NA	5.51E-04	1.03E-03	NA	NA	1.58E-03	35%	65%	0%	0%	0%
Iron	5.88E-03	3.29E-03	5.49E-09	NA	3.00E-01	4.50E-02	NA	NA	1.96E-02	7.31E-02	NA	NA	9.27E-02	21%	79%	0%	0%	9%
Lead	1.32E-05	7.40E-06	1.24E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	2.87E-04	1.61E-04	2.68E-10	NA	1.40E-01	5.60E-03	1.43E-05	NA	2.05E-03	2.87E-02	1.88E-05	NA	3.08E-02	7%	93%	0%	0%	3%
Mercury	6.93E-08	3.88E-08	6.48E-14	NA	3.00E-04	2.10E-05	NA	NA	2.31E-04	1.85E-03	NA	NA	2.08E-03	11%	89%	0%	0%	0%
Molybdenum	2.90E-06	1.62E-06	2.71E-12	NA	5.00E-03	1.90E-03	NA	NA	5.80E-04	8.53E-04	NA	NA	1.43E-03	40%	60%	0%	0%	0%
Nickel	1.01E-05	5.64E-06	9.42E-12	NA	2.00E-02	5.40E-03	NA	NA	5.04E-04	1.04E-03	NA	NA	1.55E-03	33%	67%	0%	0%	0%
Selenium	1.39E-05	7.76E-06	1.30E-11	NA	5.00E-03	2.20E-03	NA	NA	2.77E-03	3.53E-03	NA	NA	6.30E-03	44%	56%	0%	0%	1%
Silver	1.83E-06	1.02E-06	1.71E-12	NA	5.00E-03	9.00E-04	NA	NA	3.65E-04	1.14E-03	NA	NA	1.50E-03	24%	76%	0%	0%	0%
Uranium	1.03E-04	5.78E-05	9.66E-11	NA	6.00E-04	5.10E-04	NA	NA	1.72E-01	1.13E-01	NA	NA	2.86E-01	60%	40%	0%	0%	27%
Vanadium	1.07E-05	5.99E-06	1.00E-11	NA	9.00E-03	1.80E-03	NA	NA	1.19E-03	3.33E-03	NA	NA	4.52E-03	26%	74%	0%	0%	0%
Zinc	2.39E-05	1.34E-05	2.24E-11	NA	3.00E-01	6.00E-02	NA	NA	7.98E-05	2.23E-04	NA	NA	3.03E-04	26%	74%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.39E-06	2.02E-06	1.30E-12	NA	4.00E-02	1.24E-02	NA	NA	3.47E-05	1.63E-04	NA	NA	1.97E-04	18%	82%	0%	0%	0%
Pyrene	8.82E-07	9.87E-07	8.24E-13	NA	3.00E-02	9.30E-03	NA	NA	2.94E-05	1.06E-04	NA	NA	1.36E-04	22%	78%	0%	0%	0%
Total PCB (1)	6.93E-07	1.09E-06	6.48E-13	NA	2.00E-05	1.80E-05	NA	NA	3.47E-02	6.03E-02	NA	NA	9.50E-02	36%	64%	0%	0%	9%
Total PAH (2)	7.56E-07	1.10E-06	7.07E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total HI =									**2.69E-01**	**7.78E-01**	**2.18E-05**	**NA**	**1.05E+00**					

NA: Not applicable.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.80. Noncarcinogenic Risk Results- (Current Recreational User - Child) for Surface Water at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.81 Noncarcinogenic Risk Results- (Current Recreational User - Child) for Surface Water at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	6.20E-07	4.50E-05	2.79E-11	2.79E-11	100%	100%
		Total HI =	**2.79E-11**	**2.79E-11**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.82. Noncarcinogenic Risk Results-Future Recreational User-Child for Sediment at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	8.90E-03	3.99E-02	8.35E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	8.90E-03	3.99E-01	5.84E-05	NA	4.08E-01	2%	98%	0%	0%	2%
Antimony	1.54E-05	6.91E-05	1.44E-10	NA	4.00E-04	8.00E-06	NA	NA	3.85E-02	8.64E+00	NA	NA	8.67E+00	0%	100%	0%	0%	50%
Arsenic	6.38E-06	1.72E-05	5.98E-11	NA	3.00E-04	1.23E-04	NA	NA	2.13E-02	1.40E-01	NA	NA	1.61E-01	13%	87%	0%	0%	1%
Barium	8.63E-05	3.87E-04	8.09E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	4.32E-04	2.77E-02	5.66E-06	NA	2.81E-02	2%	98%	0%	0%	0%
Beryllium	7.15E-07	3.21E-06	6.70E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	3.58E-04	1.60E-01	1.17E-06	NA	1.61E-01	0%	100%	0%	0%	1%
Cadmium	ND	ND	ND	NA	1.00E-03	1.00E-05	NA	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	9.32E-05	4.18E-04	8.73E-10	NA	1.50E+00	7.50E-03	NA	NA	6.21E-05	5.57E-02	NA	NA	5.58E-02	0%	100%	0%	0%	0%
Copper	1.35E-04	6.07E-04	1.27E-09	NA	4.00E-02	1.20E-02	NA	NA	3.38E-03	5.06E-02	NA	NA	5.40E-02	6%	94%	0%	0%	0%
Iron	1.23E-02	5.52E-02	1.15E-07	NA	3.00E-01	4.50E-02	NA	NA	4.10E-02	1.23E+00	NA	NA	1.27E+00	3%	97%	0%	0%	7%
Lead	2.31E-05	1.04E-04	2.17E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	4.58E-04	2.06E-03	4.30E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	3.27E-03	3.67E-01	3.00E-04	NA	3.71E-01	1%	99%	0%	0%	2%
Mercury	ND	ND	ND	NA	3.00E-04	2.10E-05	NA	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Molybdenum	9.13E-06	4.10E-05	8.56E-11	NA	5.00E-03	1.90E-03	NA	NA	1.83E-03	2.16E-02	NA	NA	2.34E-02	8%	92%	0%	0%	0%
Nickel	1.03E-04	4.64E-04	9.69E-10	NA	2.00E-02	5.40E-03	NA	NA	5.17E-03	8.59E-02	NA	NA	9.11E-02	6%	94%	0%	0%	1%
Selenium	ND	ND	ND	NA	5.00E-03	2.20E-03	NA	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Silver	3.74E-06	1.68E-05	3.51E-11	NA	5.00E-03	9.00E-04	NA	NA	7.48E-04	1.86E-02	NA	NA	1.94E-02	4%	96%	0%	0%	0%
Uranium	3.61E-04	1.62E-03	3.38E-09	NA	6.00E-04	5.10E-04	NA	NA	6.01E-01	3.17E+00	NA	NA	3.78E+00	16%	84%	0%	0%	22%
Vanadium	2.21E-05	9.91E-05	2.07E-10	NA	9.00E-03	1.80E-03	NA	NA	2.45E-03	5.50E-02	NA	NA	5.75E-02	4%	96%	0%	0%	0%
Zinc	1.12E-04	5.05E-04	1.05E-09	NA	3.00E-01	6.00E-02	NA	NA	3.75E-04	8.41E-03	NA	NA	8.79E-03	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	7.48E-07	8.73E-06	7.01E-12	NA	4.00E-02	1.24E-02	NA	NA	1.87E-05	7.04E-04	NA	NA	7.22E-04	3%	97%	0%	0%	0%
Pyrene	6.16E-07	5.53E-06	5.77E-12	NA	3.00E-02	9.30E-03	NA	NA	2.05E-05	5.94E-04	NA	NA	6.15E-04	3%	97%	0%	0%	0%
Total PCB (1)	2.97E-06	3.73E-05	2.78E-11	NA	2.00E-05	1.80E-05	NA	NA	1.49E-01	2.07E+00	NA	NA	2.22E+00	7%	93%	0%	0%	13%
Total PAH (2)	1.10E-06	1.28E-05	1.03E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**8.78E-01**	**1.65E+01**	**3.66E-04**	**NA**	**1.74E+01**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.83. Noncarcinogenic Risk Results-Future Recreational User-Child for Sediment at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Chronic Toxicity (RfD)				HI				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	7.07E-03	3.17E-02	6.63E-08	NA	1.00E+00	1.00E-01	1.43E-03	NA	7.07E-03	3.17E-01	4.63E-05	NA	3.24E-01	2%	98%	0%	0%	3%
Antimony	1.10E-05	4.94E-05	1.03E-10	NA	4.00E-04	8.00E-06	NA	NA	2.75E-02	6.17E+00	NA	NA	6.20E+00	0%	100%	0%	0%	55%
Arsenic	6.60E-06	1.78E-05	6.19E-11	NA	3.00E-04	1.23E-04	NA	NA	2.20E-02	1.44E-01	NA	NA	1.66E-01	13%	87%	0%	0%	1%
Barium	7.26E-05	3.26E-04	6.81E-10	NA	2.00E-01	1.40E-02	1.43E-04	NA	3.63E-04	2.33E-02	4.76E-06	NA	2.36E-02	2%	98%	0%	0%	0%
Beryllium	6.38E-07	2.86E-06	5.98E-12	NA	2.00E-03	2.00E-05	5.71E-06	NA	3.19E-04	1.43E-01	1.05E-06	NA	1.43E-01	0%	100%	0%	0%	1%
Cadmium	2.31E-06	2.07E-07	2.17E-11	NA	1.00E-03	1.00E-05	NA	NA	2.31E-03	2.07E-02	NA	NA	2.30E-02	10%	90%	0%	0%	0%
Chromium	4.29E-05	1.92E-04	4.02E-10	NA	1.50E+00	7.50E-03	NA	NA	2.86E-05	2.57E-02	NA	NA	2.57E-02	0%	100%	0%	0%	0%
Copper	3.85E-05	1.73E-04	3.61E-10	NA	4.00E-02	1.20E-02	NA	NA	9.63E-04	1.44E-02	NA	NA	1.54E-02	6%	94%	0%	0%	0%
Iron	1.03E-02	4.60E-02	9.62E-08	NA	3.00E-01	4.50E-02	NA	NA	3.42E-02	1.02E+00	NA	NA	1.06E+00	3%	97%	0%	0%	9%
Lead	2.31E-05	1.04E-04	2.17E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	5.02E-04	2.25E-03	4.70E-09	NA	1.40E-01	5.60E-03	1.43E-05	NA	3.58E-03	4.02E-01	3.29E-04	NA	4.06E-01	1%	99%	0%	0%	4%
Mercury	1.21E-07	5.43E-07	1.13E-12	NA	3.00E-04	2.10E-05	NA	NA	4.03E-04	2.59E-02	NA	NA	2.63E-02	2%	98%	0%	0%	0%
Molybdenum	5.06E-06	2.27E-05	4.74E-11	NA	5.00E-03	1.90E-03	NA	NA	1.01E-03	1.19E-02	NA	NA	1.30E-02	8%	92%	0%	0%	0%
Nickel	1.76E-05	7.90E-05	1.65E-10	NA	2.00E-02	5.40E-03	NA	NA	8.80E-04	1.46E-02	NA	NA	1.55E-02	6%	94%	0%	0%	0%
Selenium	2.42E-05	1.09E-04	2.27E-10	NA	5.00E-03	2.20E-03	NA	NA	4.84E-03	4.94E-02	NA	NA	5.42E-02	9%	91%	0%	0%	0%
Silver	3.19E-06	1.43E-05	2.99E-11	NA	5.00E-03	9.00E-04	NA	NA	6.38E-04	1.59E-02	NA	NA	1.65E-02	4%	96%	0%	0%	0%
Uranium	1.80E-04	8.09E-04	1.69E-09	NA	6.00E-04	5.10E-04	NA	NA	3.01E-01	1.59E+00	NA	NA	1.89E+00	16%	84%	0%	0%	17%
Vanadium	1.87E-05	8.39E-05	1.75E-10	NA	9.00E-03	1.80E-03	NA	NA	2.08E-03	4.66E-02	NA	NA	4.87E-02	4%	96%	0%	0%	0%
Zinc	4.18E-05	1.88E-04	3.92E-10	NA	3.00E-01	6.00E-02	NA	NA	1.39E-04	3.13E-03	NA	NA	3.26E-03	4%	96%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.42E-06	2.82E-05	2.27E-11	NA	4.00E-02	1.24E-02	NA	NA	6.05E-05	2.28E-03	NA	NA	2.34E-03	3%	97%	0%	0%	0%
Pyrene	1.54E-06	1.38E-05	1.44E-11	NA	3.00E-02	9.30E-03	NA	NA	5.13E-05	1.49E-03	NA	NA	1.54E-03	3%	97%	0%	0%	0%
Total PCB (1)	1.21E-06	1.52E-05	1.13E-11	NA	2.00E-05	1.80E-05	NA	NA	6.05E-02	8.44E-01	NA	NA	9.05E-01	7%	93%	0%	0%	8%
Total PAH (2)	1.32E-06	1.54E-05	1.24E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Radionuclides																		
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
								Total HI =	**4.70E-01**	**1.09E+01**	**3.81E-04**	**NA**	**1.14E+01**					

NA: Not applicable.

Units for radionuclides are pCi/g. All others are mg/kg.

Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.

Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.

Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].

(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.

(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.84. Noncarcinogenic Risk Results-Future Recreational User-Child for Surface Water at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	4.50E-05	NA	NA	0%	0%
		Total HI =	**NA**	**0.00E+00**	0%	0%

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.85. Noncarcinogenic Risk Results-Future Recreational User-Child for Surface Water at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Chronic Toxicity (RfD) Dermal	HI Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	1.00E-01	NA	NA	0%	0%
Antimony	NA	8.00E-06	NA	NA	0%	0%
Arsenic	NA	1.23E-04	NA	NA	0%	0%
Barium	NA	1.40E-02	NA	NA	0%	0%
Beryllium	NA	2.00E-05	NA	NA	0%	0%
Cadmium	NA	1.00E-05	NA	NA	0%	0%
Chromium	NA	7.50E-03	NA	NA	0%	0%
Copper	NA	1.20E-02	NA	NA	0%	0%
Iron	NA	4.50E-02	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	5.60E-03	NA	NA	0%	0%
Mercury	NA	2.10E-05	NA	NA	0%	0%
Molybdenum	NA	1.90E-03	NA	NA	0%	0%
Nickel	NA	5.40E-03	NA	NA	0%	0%
Selenium	NA	2.20E-03	NA	NA	0%	0%
Silver	NA	9.00E-04	NA	NA	0%	0%
Uranium	NA	5.10E-04	NA	NA	0%	0%
Vanadium	NA	1.80E-03	NA	NA	0%	0%
Zinc	NA	6.00E-02	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	1.24E-02	NA	NA	0%	0%
Pyrene	NA	9.30E-03	NA	NA	0%	0%
Total PCB (1)	NA	1.80E-05	NA	NA	0%	0%
Total PAH (2)	NA	NA	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	NA	NA	NA	0%	0%
Cesium-137	NA	NA	NA	NA	0%	0%
Cobalt-60	NA	NA	NA	NA	0%	0%
Neptunium-237	NA	NA	NA	NA	0%	0%
Plutonium-239/240	NA	NA	NA	NA	0%	0%
Technetium-99	NA	NA	NA	NA	0%	0%
Thorium-228	NA	NA	NA	NA	0%	0%
Thorium-230	NA	NA	NA	NA	0%	0%
Thorium-232	NA	NA	NA	NA	0%	0%
Uranium-234	NA	NA	NA	NA	0%	0%
Uranium-235	NA	NA	NA	NA	0%	0%
Uranium-238	NA	NA	NA	NA	0%	0%
VOCs						
Trichloroethene	5.65E-06	4.50E-05	2.54E-10	2.54E-10	100%	100%
		Total HI =	**2.54E-10**	**2.54E-10**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.86. Noncarcinogenic Risk Results-Current/Future Recreational User-Child for Game at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake			Chronic Toxicity (RfD)	HI				Percent Risk by Pathway			
	Ingestion Intake Hazard - Deer	Ingestion Intake Hazard - Quail	Ingestion Intake Hazard Rabbit	Ingestion	Ingestion - Deer	Ingestion - Quail	Ingestion - Rabbit	**Chemical Total**	Ingestion - Deer	Ingestion - Quail	Ingestion - Rabbit	**Percent Total**
Inorganic Chemicals (Metals)												
Aluminum	NA	3.75E-07	NA	1.00E+00	NA	3.75E-07	NA	3.75E-07	0%	100%	0%	0%
Antimony	4.06E-10	2.54E-11	4.05E-09	4.00E-04	1.01E-06	6.35E-08	1.01E-05	1.12E-05	9%	1%	90%	0%
Arsenic	NA	4.06E-10	NA	3.00E-04	NA	1.35E-06	NA	1.35E-06	0%	100%	0%	0%
Barium	1.31E-08	2.75E-08	1.29E-07	2.00E-01	6.57E-08	1.38E-07	6.46E-07	8.50E-07	8%	16%	76%	0%
Beryllium	NA	2.46E-11	NA	2.00E-03	NA	1.23E-08	NA	1.23E-08	0%	100%	0%	0%
Cadmium	NA	NA	NA	1.00E-03	ND	ND	ND	ND	0%	0%	0%	0%
Chromium	5.35E-07	2.60E-08	5.37E-06	1.50E+00	3.57E-07	1.74E-08	3.58E-06	3.95E-06	9%	0%	91%	0%
Copper	2.68E-06	5.98E-06	2.46E-05	4.00E-02	6.71E-05	1.49E-04	6.14E-04	8.31E-04	8%	18%	74%	7%
Iron	1.42E-04	3.51E-04	1.44E-03	3.00E-01	4.72E-04	1.17E-03	4.80E-03	6.44E-03	7%	18%	74%	55%
Lead	6.85E-09	3.22E-10	6.75E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Manganese	4.48E-07	1.83E-06	4.13E-06	1.40E-01	3.20E-06	1.31E-05	2.95E-05	4.58E-05	7%	29%	64%	0%
Mercury	NA	2.05E-09	NA	3.00E-04	NA	6.84E-06	NA	6.84E-06	0%	100%	0%	0%
Molybdenum	1.26E-08	5.28E-07	1.18E-07	5.00E-03	2.52E-06	1.06E-04	2.36E-05	1.32E-04	2%	80%	18%	1%
Nickel	4.79E-07	NA	4.62E-06	2.00E-02	2.39E-05	NA	2.31E-04	2.55E-04	9%	0%	91%	2%
Selenium	NA	1.30E-05	NA	5.00E-03	NA	2.59E-03	NA	2.59E-03	0%	100%	0%	0%
Silver	2.94E-08	7.76E-07	2.67E-07	5.00E-03	5.87E-06	1.55E-04	5.34E-05	2.14E-04	3%	72%	25%	2%
Uranium	NA	NA	NA	6.00E-04	NA	NA	NA	NA	0%	0%	0%	0%
Vanadium	NA	NA	NA	9.00E-03	NA	NA	NA	NA	0%	0%	0%	0%
Zinc	2.92E-05	8.11E-05	2.66E-04	3.00E-01	9.73E-05	2.70E-04	8.86E-04	1.25E-03	8%	22%	71%	11%
Organic Compounds												
Fluoranthene	NA	NA	NA	4.00E-02	NA	NA	NA	NA	0%	0%	0%	0%
Pyrene	NA	NA	NA	3.00E-02	NA	NA	NA	NA	0%	0%	0%	0%
Total PCB (1)	NA	NA	NA	2.00E-05	NA	NA	NA	NA	0%	0%	0%	0%
Total PAH (2)	NA	5.35E-08	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Radionuclides												
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
				Total HI =	**6.74E-04**	**4.47E-03**	**6.65E-03**	**1.18E-02**				

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are (mg/kg-day)-1 and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.87. Noncarcinogenic Risk Results-Current/Future Recreational User-Child for Game at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake			Chronic Toxicity (RfD)	HI				Percent Risk by Pathway			
	Ingestion Intake Hazard - Deer	Ingestion Intake Hazard - Quail	Ingestion Intake Hazard Rabbit	Ingestion	Ingestion - Deer	Ingestion - Quail	Ingestion - Rabbit	**Chemical Total**	Ingestion-Deer	Ingestion-Quail	Ingestion-Rabbit	**Percent Total**
Inorganic Chemicals (Metals)												
Aluminum	NA	2.97E-07	NA	1.00E+00	NA	2.97E-07	NA	2.97E-07	0%	100%	0%	0%
Antimony	2.90E-10	1.82E-11	2.90E-09	4.00E-04	7.24E-07	4.54E-08	7.24E-06	8.01E-06	9%	1%	90%	0%
Arsenic	NA	4.20E-10	NA	3.00E-04	NA	1.40E-06	NA	1.40E-06	0%	100%	0%	0%
Barium	1.11E-08	2.32E-08	1.09E-07	2.00E-01	5.53E-08	1.16E-07	5.44E-07	7.15E-07	8%	16%	76%	0%
Beryllium	NA	2.20E-11	NA	2.00E-03	NA	1.10E-08	NA	1.10E-08	0%	100%	0%	0%
Cadmium	1.56E-09	1.42E-07	1.45E-08	1.00E-03	1.56E-06	1.42E-04	1.45E-05	1.58E-04	1%	90%	9%	2%
Chromium	2.46E-07	1.20E-08	2.47E-06	1.50E+00	1.64E-07	7.99E-09	1.65E-06	1.82E-06	9%	0%	91%	0%
Copper	7.64E-07	1.70E-06	6.99E-06	4.00E-02	1.91E-05	4.25E-05	1.75E-04	2.36E-04	8%	18%	74%	3%
Iron	1.18E-04	2.93E-04	1.20E-03	3.00E-01	3.94E-04	9.78E-04	4.01E-03	5.38E-03	7%	18%	74%	57%
Lead	6.85E-09	3.22E-10	6.75E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Manganese	4.91E-07	2.00E-06	4.52E-06	1.40E-01	3.51E-06	1.43E-05	3.23E-05	5.01E-05	7%	29%	64%	1%
Mercury	NA	3.76E-10	NA	3.00E-04	NA	1.25E-06	NA	1.25E-06	0%	100%	0%	0%
Molybdenum	6.98E-09	2.92E-07	6.54E-08	5.00E-03	1.40E-06	5.85E-05	1.31E-05	7.30E-05	2%	80%	18%	1%
Nickel	8.15E-08	NA	7.87E-07	2.00E-02	4.08E-06	NA	3.93E-05	4.34E-05	9%	0%	91%	0%
Selenium	NA	1.43E-05	NA	5.00E-03	NA	2.85E-03	NA	2.85E-03	0%	100%	0%	0%
Silver	2.50E-08	6.62E-07	2.28E-07	5.00E-03	5.01E-06	1.32E-04	4.56E-05	1.83E-04	3%	72%	25%	2%
Uranium	NA	NA	NA	6.00E-04	NA	NA	NA	NA	0%	0%	0%	0%
Vanadium	NA	NA	NA	9.00E-03	NA	NA	NA	NA	0%	0%	0%	0%
Zinc	1.08E-05	3.01E-05	9.88E-05	3.00E-01	3.62E-05	1.00E-04	3.29E-04	4.66E-04	8%	22%	71%	5%
Organic Compounds												
Fluoranthene	NA	NA	NA	4.00E-02	NA	NA	NA	NA	0%	0%	0%	0%
Pyrene	NA	NA	NA	3.00E-02	NA	NA	NA	NA	0%	0%	0%	0%
Total PCB (1)	NA	NA	NA	2.00E-05	NA	NA	NA	NA	0%	0%	0%	0%
Total PAH (2)	NA	6.41E-08	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Radionuclides												
Americium-241	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Cesium-137	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Cobalt-60	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Plutonium-239/240	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Technetium-99	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-228	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-230	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-232	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-234	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-238	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
				Total HI =	**4.66E-04**	**4.32E-03**	**4.66E-03**	**9.45E-03**				

NA: Not applicable.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.88. Carcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 008 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	8.91E-05	3.83E-04	1.11E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	9.49E-08	4.08E-07	1.18E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	5.57E-08	1.44E-07	6.94E-13	NA	1.50E+00	3.66E+00	1.51E+01	NA	8.36E-08	5.26E-07	1.05E-11	NA	6.10E-07	14%	86%	0%	0%	4%
Barium	7.14E-07	3.07E-06	8.89E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	5.18E-09	2.23E-08	6.46E-14	NA	NA	NA	8.40E+00	NA	NA	NA	5.42E-13	NA	5.42E-13	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	NA	NA	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	1.37E-07	5.89E-07	1.71E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	1.76E-07	7.57E-07	2.19E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.21E-04	5.22E-04	1.51E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	2.15E-07	9.25E-07	2.68E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	4.59E-06	1.97E-05	5.71E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	9.78E-10	4.21E-09	1.22E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	8.02E-08	3.45E-07	9.99E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	1.66E-07	7.15E-07	2.07E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	2.35E-08	1.01E-07	2.92E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	9.39E-07	4.04E-06	1.17E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	2.05E-07	8.83E-07	2.56E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	4.89E-07	2.10E-06	6.09E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	5.67E-09	6.34E-08	7.06E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	4.89E-09	4.21E-08	6.09E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	3.13E-07	3.77E-06	3.90E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	6.26E-07	8.37E-06	7.80E-12	NA	9.00E-06	7%	93%	0%	0%	62%
Total PAH (2)	1.17E-08	1.31E-07	1.46E-13	NA	7.30E+00	2.35E+01	3.08E+00	NA	8.57E-08	3.09E-06	4.50E-13	NA	3.18E-06	3%	97%	0%	0%	22%
Radionuclides																		
Americium-241	1.75E+01	NA	2.18E-04	2.56E-01	2.17E-10	2.17E-10	2.81E-08	2.76E-08	3.80E-09	NA	6.13E-12	7.07E-09	1.09E-08	35%	0%	0%	65%	0%
Cesium-137	9.63E+00	NA	1.20E-04	1.41E-01	3.64E-13	3.64E-13	4.11E-14	4.46E-08	3.50E-12	NA	4.93E-18	6.28E-09	6.28E-09	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.16E+01	NA	1.44E-04	1.69E-01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.87E-09	NA	2.55E-12	1.35E-07	1.37E-07	1%	0%	0%	99%	1%
Plutonium-239/240	1.59E+02	NA	1.98E-03	2.33E+00	2.76E-10	2.76E-10	3.33E-08	2.00E-10	4.40E-08	NA	6.61E-11	4.66E-10	4.45E-08	99%	0%	0%	1%	0%
Technetium-99	1.30E+02	NA	1.61E-03	1.89E+00	7.66E-12	7.66E-12	1.41E-11	8.14E-11	9.92E-10	NA	2.28E-14	1.54E-10	1.15E-09	87%	0%	0%	13%	0%
Thorium-228	1.03E+01	NA	1.29E-04	1.51E-01	8.09E-10	8.09E-10	1.43E-07	7.76E-06	8.35E-09	NA	1.84E-11	1.17E-06	1.18E-06	1%	0%	0%	99%	8%
Thorium-230	1.47E+03	NA	1.83E-02	2.15E+01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	2.97E-07	NA	5.22E-10	1.76E-08	3.15E-07	94%	0%	0%	6%	2%
Thorium-232	1.17E+01	NA	1.46E-04	1.72E-01	2.31E-10	2.31E-10	4.33E-08	3.42E-10	2.71E-09	NA	6.33E-12	5.87E-11	2.77E-09	98%	0%	0%	2%	0%
Uranium-234	5.43E+01	NA	6.76E-04	7.94E-01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	8.57E-09	NA	7.71E-12	2.00E-10	8.78E-09	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	8.05E+01	NA	1.00E-03	1.18E+00	1.43E-10	1.43E-10	9.32E-09	4.99E-11	1.15E-08	NA	9.35E-12	5.88E-11	1.16E-08	99%	0%	0%	1%	0%
									Total ELCR =		**1.17E-06**	**1.20E-05**	**6.58E-10**	**1.34E-06**	**1.45E-05**			

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.89. Carcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 010 Hot Spot

	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
COPC	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	1.26E-04	5.42E-04	1.57E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	9.46E-08	4.07E-07	1.18E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.23E-07	3.18E-07	1.53E-12	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.85E-07	1.16E-06	2.32E-11	NA	1.35E-06	14%	86%	0%	0%	9%
Barium	9.30E-07	4.00E-06	1.16E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	4.69E-09	2.02E-08	5.85E-14	NA	NA	NA	8.40E+00	NA	NA	NA	4.91E-13	NA	4.91E-13	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	NA	NA	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	2.28E-07	9.80E-07	2.84E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	1.79E-07	7.70E-07	2.23E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.53E-04	6.56E-04	1.90E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	7.35E-07	3.16E-06	9.16E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	3.16E-06	1.36E-05	3.93E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	3.03E-09	1.30E-08	3.78E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	1.36E-07	5.84E-07	1.69E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	2.13E-07	9.17E-07	2.66E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	2.37E-08	1.02E-07	2.95E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	2.58E-07	1.11E-06	3.22E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	2.72E-07	1.17E-06	3.39E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	2.46E-06	1.06E-05	3.07E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	4.99E-08	5.58E-07	6.21E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	3.42E-08	2.94E-07	4.26E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	1.86E-07	2.24E-06	2.31E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	3.72E-07	4.97E-06	4.63E-12	NA	5.34E-06	7%	93%	0%	0%	34%
Total PAH (2)	3.03E-08	3.39E-07	3.78E-13	NA	7.30E+00	2.35E+01	3.08E+00	NA	2.21E-07	7.98E-06	1.16E-12	NA	8.20E-06	3%	97%	0%	0%	53%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	1.27E+01	NA	1.58E-04	1.86E-01	3.64E-13	3.64E-13	4.11E-14	4.46E-08	4.62E-12	NA	6.51E-18	8.29E-09	8.29E-09	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.11E+00	NA	1.39E-05	1.63E-02	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.80E-10	NA	2.45E-13	1.30E-08	1.32E-08	1%	0%	0%	99%	0%
Plutonium-239/240	1.91E+00	NA	2.38E-05	2.79E-02	2.76E-10	2.76E-10	3.33E-08	2.00E-10	5.26E-10	NA	7.92E-13	5.58E-12	5.33E-10	99%	0%	0%	1%	0%
Technetium-99	1.48E+02	NA	1.84E-03	2.16E+00	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.13E-09	NA	2.60E-14	1.76E-10	1.31E-09	87%	0%	0%	13%	0%
Thorium-228	5.74E+00	NA	7.15E-05	8.40E-02	8.09E-10	8.09E-10	1.43E-07	7.76E-06	4.64E-09	NA	1.02E-11	6.52E-07	6.56E-07	1%	0%	0%	99%	4%
Thorium-230	1.44E+01	NA	1.79E-04	2.10E-01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	2.90E-09	NA	5.10E-12	1.72E-10	3.08E-09	94%	0%	0%	6%	0%
Thorium-232	4.74E+00	NA	5.91E-05	6.94E-02	2.31E-10	2.31E-10	4.33E-08	3.42E-10	1.10E-09	NA	2.56E-12	2.37E-11	1.12E-09	98%	0%	0%	2%	0%
Uranium-234	1.30E+02	NA	1.62E-03	1.90E+00	1.58E-10	1.58E-10	1.14E-08	2.52E-10	2.05E-08	NA	1.84E-11	4.79E-10	2.10E-08	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	1.54E+02	NA	1.92E-03	2.26E+00	1.43E-10	1.43E-10	9.32E-09	4.99E-11	2.20E-08	NA	1.79E-11	1.13E-10	2.22E-08	99%	0%	0%	1%	0%
									Total ELCR =	**8.31E-07**	**1.41E-05**	**8.48E-11**	**6.74E-07**	**1.56E-05**				

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.90. Carcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 011 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	1.01E-04	4.36E-04	1.26E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.66E-07	7.15E-07	2.07E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.27E-07	3.28E-07	1.58E-12	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.91E-07	1.20E-06	2.39E-11	NA	1.39E-06	14%	86%	0%	0%	1%
Barium	9.00E-07	3.87E-06	1.12E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	9.39E-09	4.04E-08	1.17E-13	NA	NA	NA	8.40E+00	NA	NA	NA	9.82E-13	NA	9.82E-13	0%	0%	100%	0%	0%
Cadmium	2.74E-08	2.35E-09	3.41E-13	NA	NA	NA	6.30E+00	NA	NA	NA	2.15E-12	NA	2.15E-12	0%	0%	100%	0%	0%
Chromium	1.46E-06	6.27E-06	1.81E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	1.98E-06	8.49E-06	2.46E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	2.28E-04	9.81E-04	2.84E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	5.09E-07	2.19E-06	6.33E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	5.82E-06	2.50E-05	7.25E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	1.66E-09	7.15E-09	2.07E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	7.14E-08	3.07E-07	8.89E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	1.37E-07	5.89E-07	1.71E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	2.45E-08	1.05E-07	3.05E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	4.29E-06	1.85E-05	5.35E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	4.11E-07	1.77E-06	5.12E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	7.47E-06	3.21E-05	9.31E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	4.21E-07	4.70E-06	5.24E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	1.27E-06	1.09E-05	1.58E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	7.43E-08	8.95E-07	9.26E-13	NA	2.00E+00	2.22E+00	2.00E+00	NA	1.49E-07	1.99E-06	1.85E-12	NA	2.14E-06	7%	93%	0%	0%	1%
Total PAH (2)	5.67E-07	6.34E-06	7.06E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	4.14E-06	1.49E-04	2.18E-11	NA	1.53E-04	3%	97%	0%	0%	97%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	9.45E+00	NA	1.18E-04	1.38E-01	3.64E-13	3.64E-13	4.11E-14	4.46E-08	3.44E-12	NA	4.84E-18	6.17E-09	6.17E-09	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	ND	NA	ND	ND	1.62E-10	1.62E-10	1.77E-08	7.97E-07	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Plutonium-239/240	8.05E-01	NA	1.00E-05	1.18E-02	2.76E-10	2.76E-10	3.33E-08	2.00E-10	2.22E-10	NA	3.34E-13	2.36E-12	2.25E-10	99%	0%	0%	1%	0%
Technetium-99	1.31E+02	NA	1.64E-03	1.92E+00	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.01E-09	NA	2.31E-14	1.56E-10	1.16E-09	87%	0%	0%	13%	0%
Thorium-228	8.40E+00	NA	1.05E-04	1.23E-01	8.09E-10	8.09E-10	1.43E-07	7.76E-06	6.80E-09	NA	1.50E-11	9.54E-07	9.60E-07	1%	0%	0%	99%	1%
Thorium-230	1.93E+01	NA	2.40E-04	2.82E-01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	3.89E-09	NA	6.84E-12	2.31E-10	4.13E-09	94%	0%	0%	6%	0%
Thorium-232	8.75E+00	NA	1.09E-04	1.28E-01	2.31E-10	2.31E-10	4.33E-08	3.42E-10	2.02E-09	NA	4.72E-12	4.38E-11	2.07E-09	98%	0%	0%	2%	0%
Uranium-234	5.43E+01	NA	6.76E-04	7.94E-01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	8.57E-09	NA	7.71E-12	2.00E-10	8.78E-09	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	2.98E+02	NA	3.71E-03	4.35E+00	1.43E-10	1.43E-10	9.32E-09	4.99E-11	4.25E-08	NA	3.46E-11	2.17E-10	4.28E-08	99%	0%	0%	1%	0%
Total ELCR =									**4.55E-06**	**1.53E-04**	**1.20E-10**	**9.61E-07**	**1.58E-04**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.91. Carcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 015 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	6.57E-05	2.83E-04	8.19E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.08E-07	4.63E-07	1.34E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	9.78E-08	2.52E-07	1.22E-12	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.47E-07	9.23E-07	1.84E-11	NA	1.07E-06	14%	86%	0%	0%	16%
Barium	7.53E-07	3.24E-06	9.38E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	5.57E-09	2.40E-08	6.94E-14	NA	NA	NA	8.40E+00	NA	NA	NA	5.83E-13	NA	5.83E-13	0%	0%	100%	0%	0%
Cadmium	2.05E-08	1.77E-09	2.56E-13	NA	NA	NA	6.30E+00	NA	NA	NA	1.61E-12	NA	1.61E-12	0%	0%	100%	0%	0%
Chromium	2.25E-07	9.67E-07	2.80E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	1.96E-07	8.41E-07	2.44E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.43E-04	6.17E-04	1.79E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	4.40E-07	1.89E-06	5.48E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	5.18E-06	2.23E-05	6.46E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	1.56E-09	6.73E-09	1.95E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	5.38E-08	2.31E-07	6.70E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	2.84E-07	1.22E-06	3.53E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0%	0%	0%	0%	0%
Silver	2.54E-08	1.09E-07	3.17E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	9.00E-06	3.87E-05	1.12E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	1.86E-07	7.99E-07	2.31E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	1.11E-06	4.79E-06	1.39E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	6.65E-09	7.43E-08	8.28E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	6.16E-09	5.30E-08	7.67E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	1.08E-08	1.30E-07	1.34E-13	NA	2.00E+00	2.22E+00	2.00E+00	NA	2.15E-08	2.88E-07	2.68E-13	NA	3.09E-07	7%	93%	0%	0%	5%
Total PAH (2)	1.08E-08	1.20E-07	1.34E-13	NA	7.30E+00	2.35E+01	3.08E+00	NA	7.85E-08	2.83E-06	4.13E-13	NA	2.91E-06	3%	97%	0%	0%	44%
Radionuclides																		
Americium-241	9.80E+00	NA	1.22E-04	1.43E-01	2.17E-10	2.17E-10	2.81E-08	2.76E-08	2.13E-09	NA	3.43E-12	3.96E-09	6.09E-09	35%	0%	0%	65%	0%
Cesium-137	5.43E+02	NA	6.76E-03	7.94E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	1.97E-10	NA	2.78E-16	3.54E-07	3.54E-07	0%	0%	0%	100%	5%
Cobalt-60	3.15E+00	NA	3.93E-05	4.61E-02	4.03E-11	4.03E-11	3.58E-11	1.24E-05	1.27E-10	NA	1.41E-15	5.71E-07	5.72E-07	0%	0%	0%	100%	9%
Neptunium-237	7.35E+00	NA	9.16E-05	1.08E-01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.19E-09	NA	1.62E-12	8.57E-08	8.69E-08	1%	0%	0%	99%	1%
Plutonium-239/240	4.73E+02	NA	5.89E-03	6.91E+00	2.76E-10	2.76E-10	3.33E-08	2.00E-10	1.30E-07	NA	1.96E-10	1.38E-09	1.32E-07	99%	0%	0%	1%	2%
Technetium-99	3.68E+02	NA	4.58E-03	5.38E+00	7.66E-12	7.66E-12	1.41E-11	8.14E-11	2.82E-09	NA	6.46E-14	4.38E-10	3.25E-09	87%	0%	0%	13%	0%
Thorium-228	8.93E+00	NA	1.11E-04	1.31E-01	8.09E-10	8.09E-10	1.43E-07	7.76E-06	7.22E-09	NA	1.59E-11	1.01E-06	1.02E-06	1%	0%	0%	99%	15%
Thorium-230	2.80E+02	NA	3.49E-03	4.10E+00	2.02E-10	2.02E-10	2.85E-08	8.19E-10	5.66E-08	NA	9.94E-11	3.35E-09	6.00E-08	94%	0%	0%	6%	1%
Thorium-232	9.63E+00	NA	1.20E-04	1.41E-01	2.31E-10	2.31E-10	4.33E-08	3.42E-10	2.22E-09	NA	5.19E-12	4.82E-11	2.28E-09	98%	0%	0%	2%	0%
Uranium-234	1.07E+02	NA	1.33E-03	1.56E+00	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.69E-08	NA	1.52E-11	3.94E-10	1.73E-08	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	5.78E+02	NA	7.20E-03	8.45E+00	1.43E-10	1.43E-10	9.32E-09	4.99E-11	8.26E-08	NA	6.71E-11	4.22E-10	8.31E-08	99%	0%	0%	1%	1%
									Total ELCR =		**5.49E-07**	**4.04E-06**	**4.25E-10**	**2.03E-06**	**6.63E-06**			

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.92. Carcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 001 EU 13 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	8.68E-05	3.73E-04	1.08E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	9.64E-08	4.15E-07	1.20E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	5.06E-08	1.30E-07	6.30E-13	NA	1.50E+00	3.66E+00	1.51E+01	NA	7.58E-08	4.77E-07	9.51E-12	NA	5.53E-07	14%	86%	0%	0%	10%
Barium	8.94E-07	3.84E-06	1.11E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	4.82E-09	2.07E-08	6.01E-14	NA	NA	NA	8.40E+00	NA	NA	NA	5.04E-13	NA	5.04E-13	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	NA	NA	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	4.25E-07	1.83E-06	5.30E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	1.26E-07	5.42E-07	1.57E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.49E-04	6.39E-04	1.85E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	2.14E-07	9.21E-07	2.67E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	7.71E-06	3.31E-05	9.60E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	1.24E-07	5.34E-07	1.55E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	2.42E-08	1.04E-07	3.01E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	4.74E-07	2.04E-06	5.91E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	1.61E-07	6.94E-07	2.01E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	1.10E-06	4.71E-06	1.36E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	4.79E-09	5.36E-08	5.97E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	4.79E-09	4.12E-08	5.97E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	3.23E-08	3.89E-07	4.02E-13	NA	2.00E+00	2.22E+00	2.00E+00	NA	6.45E-08	8.63E-07	8.04E-13	NA	9.28E-07	7%	93%	0%	0%	18%
Total PAH (2)	1.08E-08	1.20E-07	1.34E-13	NA	7.30E+00	2.35E+01	3.08E+00	NA	7.85E-08	2.83E-06	4.13E-13	NA	2.91E-06	3%	97%	0%	0%	55%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	5.27E+00	NA	6.56E-05	7.71E-02	3.64E-13	3.64E-13	4.11E-14	4.46E-08	1.92E-12	NA	2.70E-18	3.44E-09	3.44E-09	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.05E+01	NA	1.31E-04	1.54E-01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.70E-09	NA	2.32E-12	1.22E-07	1.24E-07	1%	0%	0%	99%	2%
Plutonium-239/240	1.22E+00	NA	1.52E-05	1.79E-02	2.76E-10	2.76E-10	3.33E-08	2.00E-10	3.38E-10	NA	5.08E-13	3.58E-12	3.42E-10	99%	0%	0%	1%	0%
Technetium-99	1.80E+02	NA	2.25E-03	2.64E+00	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.38E-09	NA	3.17E-14	2.15E-10	1.60E-09	87%	0%	0%	13%	0%
Thorium-228	6.07E+00	NA	7.57E-05	8.88E-02	8.09E-10	8.09E-10	1.43E-07	7.76E-06	4.91E-09	NA	1.08E-11	6.89E-07	6.94E-07	1%	0%	0%	99%	13%
Thorium-230	5.22E+01	NA	6.50E-04	7.63E-01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	1.05E-08	NA	1.85E-11	6.25E-10	1.12E-08	94%	0%	0%	6%	0%
Thorium-232	7.84E+00	NA	9.77E-05	1.15E-01	2.31E-10	2.31E-10	4.33E-08	3.42E-10	1.81E-09	NA	4.23E-12	3.92E-11	1.85E-09	98%	0%	0%	2%	0%
Uranium-234	7.70E+01	NA	9.60E-04	1.13E+00	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.22E-08	NA	1.09E-11	2.84E-10	1.25E-08	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	2.85E+02	NA	3.55E-03	4.17E+00	1.43E-10	1.43E-10	9.32E-09	4.99E-11	4.08E-08	NA	3.31E-11	2.08E-10	4.10E-08	99%	0%	0%	1%	1%
								Total ELCR =	**2.93E-07**	**4.17E-06**	**9.17E-11**	**8.17E-07**	**5.28E-06**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are (mg/kg-day)-1 and for inhalation exposure are (mg/m3)-1.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.93. Carcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 001 EU 14 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	7.98E-05	3.43E-04	9.94E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.47E-07	6.31E-07	1.83E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	4.89E-08	1.26E-07	6.09E-13	NA	1.50E+00	3.66E+00	1.51E+01	NA	7.34E-08	4.62E-07	9.20E-12	NA	5.35E-07	14%	86%	0%	0%	0%
Barium	8.51E-07	3.66E-06	1.06E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	4.69E-09	2.02E-08	5.85E-14	NA	NA	NA	8.40E+00	NA	NA	NA	4.91E-13	NA	4.91E-13	0%	0%	100%	0%	0%
Cadmium	1.86E-08	1.60E-09	2.31E-13	NA	NA	NA	6.30E+00	NA	NA	NA	1.46E-12	NA	1.46E-12	0%	0%	100%	0%	0%
Chromium	6.94E-07	2.99E-06	8.65E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	4.21E-07	1.81E-06	5.24E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.13E-04	4.85E-04	1.40E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	2.25E-07	9.67E-07	2.80E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	3.32E-06	1.43E-05	4.13E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	4.58E-08	1.97E-07	5.70E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	1.56E-07	6.73E-07	1.95E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	2.35E-08	1.01E-07	2.92E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	7.63E-08	3.28E-07	9.50E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	1.86E-07	7.99E-07	2.31E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	1.52E-06	6.52E-06	1.89E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.96E-06	2.19E-05	2.44E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	4.50E-07	3.87E-06	5.60E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	2.15E-07	2.59E-06	2.68E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	4.30E-07	5.76E-06	5.36E-12	NA	6.19E-06	7%	93%	0%	0%	1%
Total PAH (2)	1.80E-06	2.01E-05	2.24E-11	NA	7.30E+00	2.35E+01	3.08E+00	NA	1.31E-05	4.74E-04	6.90E-11	NA	4.87E-04	3%	97%	0%	0%	98%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	2.10E+00	NA	2.62E-05	3.07E-02	3.64E-13	3.64E-13	4.11E-14	4.46E-08	7.64E-13	NA	1.08E-18	1.37E-09	1.37E-09	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.19E+00	NA	1.48E-05	1.74E-02	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.93E-10	NA	2.62E-13	1.39E-08	1.41E-08	1%	0%	0%	99%	0%
Plutonium-239/240	1.38E+00	NA	1.72E-05	2.02E-02	2.76E-10	2.76E-10	3.33E-08	2.00E-10	3.82E-10	NA	5.74E-13	4.04E-12	3.86E-10	99%	0%	0%	1%	0%
Technetium-99	8.23E+01	NA	1.02E-03	1.20E+00	7.66E-12	7.66E-12	1.41E-11	8.14E-11	6.30E-10	NA	1.45E-14	9.79E-11	7.28E-10	87%	0%	0%	13%	0%
Thorium-228	6.83E+00	NA	8.50E-05	9.98E-02	8.09E-10	8.09E-10	1.43E-07	7.76E-06	5.52E-09	NA	1.22E-11	7.75E-07	7.80E-07	1%	0%	0%	99%	0%
Thorium-230	3.15E+01	NA	3.93E-04	4.61E-01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	6.36E-09	NA	1.12E-11	3.77E-10	6.75E-09	94%	0%	0%	6%	0%
Thorium-232	7.70E+00	NA	9.60E-05	1.13E-01	2.31E-10	2.31E-10	4.33E-08	3.42E-10	1.78E-09	NA	4.15E-12	3.85E-11	1.82E-09	98%	0%	0%	2%	0%
Uranium-234	3.50E+01	NA	4.36E-04	5.12E-01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	5.53E-09	NA	4.97E-12	1.29E-10	5.66E-09	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	4.55E+01	NA	5.67E-04	6.66E-01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	6.51E-09	NA	5.28E-12	3.32E-11	6.54E-09	99%	0%	0%	1%	0%
									Total ELCR =	**1.37E-05**	**4.80E-04**	**1.24E-10**	**7.91E-07**	**4.94E-04**				

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.94. Carcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 001 EU 15 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	7.33E-05	3.15E-04	9.12E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	9.57E-08	4.12E-07	1.19E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	9.34E-08	2.41E-07	1.16E-12	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.40E-07	8.82E-07	1.76E-11	NA	1.02E-06	14%	86%	0%	0%	3%
Barium	4.73E-07	2.04E-06	5.90E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	ND	ND	ND	NA	NA	NA	8.40E+00	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Cadmium	2.74E-08	2.35E-09	3.41E-13	NA	NA	NA	6.30E+00	NA	NA	NA	2.15E-12	NA	2.15E-12	0%	0%	100%	0%	0%
Chromium	7.11E-07	3.06E-06	8.86E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	4.67E-07	2.01E-06	5.81E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.14E-04	4.92E-04	1.43E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	6.32E-07	2.72E-06	7.87E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	3.34E-06	1.44E-05	4.17E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	2.34E-07	1.00E-06	2.91E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	5.09E-06	2.19E-05	6.33E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	2.40E-08	1.03E-07	2.98E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	6.28E-06	2.70E-05	7.82E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	1.53E-07	6.56E-07	1.90E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	1.34E-05	5.76E-05	1.67E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	7.43E-08	8.31E-07	9.26E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	5.48E-08	4.71E-07	6.82E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	5.09E-07	6.12E-06	6.33E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	1.02E-06	1.36E-05	1.27E-11	NA	1.46E-05	7%	93%	0%	0%	48%
Total PAH (2)	5.09E-08	5.69E-07	6.33E-13	NA	7.30E+00	2.35E+01	3.08E+00	NA	3.71E-07	1.34E-05	1.95E-12	NA	1.38E-05	3%	97%	0%	0%	46%
Radionuclides																		
Americium-241	2.22E+00	NA	2.77E-05	3.25E-02	2.17E-10	2.17E-10	2.81E-08	2.76E-08	4.82E-10	NA	7.78E-13	8.97E-10	1.38E-09	35%	0%	0%	65%	0%
Cesium-137	1.19E+01	NA	1.49E-04	1.74E-01	3.64E-13	3.64E-13	4.11E-14	4.46E-08	4.34E-12	NA	6.10E-18	7.78E-09	7.78E-09	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	5.86E+00	NA	7.31E-05	8.58E-02	1.62E-10	1.62E-10	1.77E-08	7.97E-07	9.50E-10	NA	1.29E-12	6.84E-08	6.93E-08	1%	0%	0%	99%	0%
Plutonium-239/240	1.09E+01	NA	1.36E-04	1.60E-01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	3.02E-09	NA	4.54E-12	3.20E-11	3.06E-09	99%	0%	0%	1%	0%
Technetium-99	6.39E+02	NA	7.96E-03	9.34E+00	7.66E-12	7.66E-12	1.41E-11	8.14E-11	4.89E-09	NA	1.12E-13	7.61E-10	5.65E-09	87%	0%	0%	13%	0%
Thorium-228	5.67E+00	NA	7.07E-05	8.29E-02	8.09E-10	8.09E-10	1.43E-07	7.76E-06	4.59E-09	NA	1.01E-11	6.44E-07	6.48E-07	1%	0%	0%	99%	2%
Thorium-230	7.56E+01	NA	9.42E-04	1.11E+00	2.02E-10	2.02E-10	2.85E-08	8.19E-10	1.53E-08	NA	2.68E-11	9.06E-10	1.62E-08	94%	0%	0%	6%	0%
Thorium-232	6.11E+00	NA	7.61E-05	8.93E-02	2.31E-10	2.31E-10	4.33E-08	3.42E-10	1.41E-09	NA	3.30E-12	3.06E-11	1.44E-09	98%	0%	0%	2%	0%
Uranium-234	2.00E+02	NA	2.49E-03	2.92E+00	1.58E-10	1.58E-10	1.14E-08	2.52E-10	3.15E-08	NA	2.83E-11	7.35E-10	3.23E-08	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	2.01E+02	NA	2.51E-03	2.94E+00	1.43E-10	1.43E-10	9.32E-09	4.99E-11	2.88E-08	NA	2.34E-11	1.47E-10	2.89E-08	99%	0%	0%	1%	0%
												Total ELCR =	**1.62E-06**	**2.79E-05**	**1.33E-10**	**7.23E-07**	**3.02E-05**	

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.95. Carcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 001 EU 16 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	8.01E-05	3.44E-04	9.98E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	9.41E-08	4.05E-07	1.17E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.05E-07	2.70E-07	1.30E-12	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.57E-07	9.88E-07	1.97E-11	NA	1.14E-06	14%	86%	0%	0%	21%
Barium	6.94E-07	2.99E-06	8.65E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	6.48E-09	2.79E-08	8.08E-14	NA	NA	NA	8.40E+00	NA	NA	NA	6.78E-13	NA	6.78E-13	0%	0%	100%	0%	0%
Cadmium	1.89E-07	1.62E-08	2.35E-12	NA	NA	NA	6.30E+00	NA	NA	NA	1.48E-11	NA	1.48E-11	0%	0%	100%	0%	0%
Chromium	2.30E-07	9.88E-07	2.86E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	1.36E-07	5.84E-07	1.69E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.78E-03	7.65E-03	2.22E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	2.06E-07	8.87E-07	2.57E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.51E-05	6.48E-05	1.88E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	1.01E-07	4.33E-07	1.25E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	2.36E-08	1.01E-07	2.94E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	1.40E-07	6.01E-07	1.74E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	2.47E-07	1.06E-06	3.08E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	6.63E-07	2.85E-06	8.26E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.08E-08	1.20E-07	1.34E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	1.17E-08	1.01E-07	1.46E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	1.76E-08	2.12E-07	2.19E-13	NA	2.00E+00	2.22E+00	2.00E+00	NA	3.52E-08	4.71E-07	4.39E-13	NA	5.06E-07	7%	93%	0%	0%	9%
Total PAH (2)	1.37E-08	1.53E-07	1.71E-13	NA	7.30E+00	2.35E+01	3.08E+00	NA	1.00E-07	3.60E-06	5.25E-13	NA	3.70E-06	3%	97%	0%	0%	69%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	3.06E+00	NA	3.82E-05	4.48E-02	3.64E-13	3.64E-13	4.11E-14	4.46E-08	1.11E-12	NA	1.57E-18	2.00E-09	2.00E-09	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.22E+00	NA	1.52E-05	1.78E-02	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.98E-10	NA	2.69E-13	1.42E-08	1.44E-08	1%	0%	0%	99%	0%
Plutonium-239/240	9.89E-01	NA	1.23E-05	1.45E-02	2.76E-10	2.76E-10	3.33E-08	2.00E-10	2.73E-10	NA	4.10E-13	2.89E-12	2.76E-10	99%	0%	0%	1%	0%
Technetium-99	1.07E+02	NA	1.33E-03	1.57E+00	7.66E-12	7.66E-12	1.41E-11	8.14E-11	8.20E-10	NA	1.88E-14	1.28E-10	9.48E-10	87%	0%	0%	13%	0%
Thorium-228	ND	NA	ND	ND	8.09E-10	8.09E-10	1.43E-07	7.76E-06	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Thorium-230	1.15E+01	NA	1.43E-04	1.68E-01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	2.33E-09	NA	4.09E-12	1.38E-10	2.47E-09	94%	0%	0%	6%	0%
Thorium-232	3.43E+00	NA	4.27E-05	5.02E-02	2.31E-10	2.31E-10	4.33E-08	3.42E-10	7.92E-10	NA	1.85E-12	1.72E-11	8.11E-10	98%	0%	0%	2%	0%
Uranium-234	1.27E+01	NA	1.58E-04	1.86E-01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	2.00E-09	NA	1.80E-12	4.68E-11	2.05E-09	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	3.43E+01	NA	4.27E-04	5.02E-01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	4.90E-09	NA	3.98E-12	2.50E-11	4.93E-09	99%	0%	0%	1%	0%
								Total ELCR =	**3.03E-07**	**5.06E-06**	**4.86E-11**	**1.66E-08**	**5.38E-06**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are (mg/kg-day)-1 and for inhalation exposure are (mg/m3)-1.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.96. Carcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 001 EU 18 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (RfD)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	1.12E-04	4.84E-04	1.40E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	9.71E-08	4.18E-07	1.21E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	4.58E-08	1.18E-07	5.70E-13	NA	1.50E+00	3.66E+00	1.51E+01	NA	6.87E-08	4.32E-07	8.61E-12	NA	5.01E-07	14%	86%	0%	0%	9%
Barium	6.00E-07	2.58E-06	7.48E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	5.91E-09	2.54E-08	7.36E-14	NA	NA	NA	8.40E+00	NA	NA	NA	6.18E-13	NA	6.18E-13	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	NA	NA	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	2.11E-07	9.08E-07	2.63E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	4.79E-07	2.06E-06	5.97E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.54E-04	6.60E-04	1.91E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	8.28E-06	3.56E-05	1.03E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	2.05E-07	8.83E-07	2.56E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	1.78E-06	7.65E-06	2.22E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	2.43E-08	1.04E-07	3.02E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	8.88E-07	3.82E-06	1.11E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	2.22E-07	9.55E-07	2.77E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	8.48E-07	3.65E-06	1.06E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	4.89E-09	5.47E-08	6.09E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	4.89E-09	4.21E-08	6.09E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	1.47E-08	1.77E-07	1.83E-13	NA	2.00E+00	2.22E+00	2.00E+00	NA	2.93E-08	3.92E-07	3.65E-13	NA	4.22E-07	7%	93%	0%	0%	8%
Total PAH (2)	1.08E-08	1.20E-07	1.34E-13	NA	7.30E+00	2.35E+01	3.08E+00	NA	7.85E-08	2.83E-06	4.13E-13	NA	2.91E-06	3%	97%	0%	0%	54%
Radionuclides																		
Americium-241	9.12E+00	NA	1.14E-04	1.33E-01	2.17E-10	2.17E-10	2.81E-08	2.76E-08	1.98E-09	NA	3.19E-12	3.68E-09	5.66E-09	35%	0%	0%	65%	0%
Cesium-137	1.64E+02	NA	2.05E-03	2.40E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	5.98E-11	NA	8.41E-17	1.07E-07	1.07E-07	0%	0%	0%	100%	2%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	5.04E+01	NA	6.28E-04	7.37E-01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	8.16E-09	NA	1.11E-11	5.88E-07	5.96E-07	1%	0%	0%	99%	11%
Plutonium-239/240	6.34E+01	NA	7.89E-04	9.27E-01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	1.75E-08	NA	2.63E-11	1.85E-10	1.77E-08	99%	0%	0%	1%	0%
Technetium-99	4.01E+03	NA	4.99E-02	5.86E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	3.07E-08	NA	7.04E-13	4.77E-09	3.55E-08	87%	0%	0%	13%	1%
Thorium-228	6.18E+00	NA	7.70E-05	9.04E-02	8.09E-10	8.09E-10	1.43E-07	7.76E-06	5.00E-09	NA	1.10E-11	7.01E-07	7.06E-07	1%	0%	0%	99%	13%
Thorium-230	2.14E+02	NA	2.66E-03	3.12E+00	2.02E-10	2.02E-10	2.85E-08	8.19E-10	4.31E-08	NA	7.58E-11	2.56E-09	4.58E-08	94%	0%	0%	6%	1%
Thorium-232	6.86E+00	NA	8.55E-05	1.00E-01	2.31E-10	2.31E-10	4.33E-08	3.42E-10	1.58E-09	NA	3.70E-12	3.43E-11	1.62E-09	98%	0%	0%	2%	0%
Uranium-234	4.39E+01	NA	5.47E-04	6.43E-01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	6.94E-09	NA	6.24E-12	1.62E-10	7.11E-09	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	2.26E+02	NA	2.81E-03	3.30E+00	1.43E-10	1.43E-10	9.32E-09	4.99E-11	3.23E-08	NA	2.62E-11	1.65E-10	3.25E-08	99%	0%	0%	1%	1%
Total ELCR =									**3.24E-07**	**3.66E-06**	**1.74E-10**	**1.41E-06**	**5.39E-06**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.97. Carcinogenic Risk Results-Current Industrial Worker for Soil at the Outfall 001 EU 20 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	8.84E-05	3.80E-04	1.10E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	9.53E-08	4.10E-07	1.19E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	6.69E-08	1.73E-07	8.33E-13	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.00E-07	6.31E-07	1.26E-11	NA	7.32E-07	14%	86%	0%	0%	14%
Barium	6.77E-07	2.91E-06	8.43E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	ND	ND	ND	NA	NA	NA	8.40E+00	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	NA	NA	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	1.11E-07	4.79E-07	1.39E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.10E-04	4.71E-04	1.36E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	4.61E-06	1.98E-05	5.74E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	7.08E-08	3.04E-07	8.82E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	2.39E-08	1.03E-07	2.97E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	1.90E-07	8.16E-07	2.36E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	1.92E-07	8.24E-07	2.39E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	2.90E-07	1.25E-06	3.62E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	4.79E-09	5.36E-08	5.97E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	4.79E-09	4.12E-08	5.97E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	6.94E-09	8.36E-08	8.65E-14	NA	2.00E+00	2.22E+00	2.00E+00	NA	1.39E-08	1.86E-07	1.73E-13	NA	2.00E-07	7%	93%	0%	0%	4%
Total PAH (2)	1.08E-08	1.20E-07	1.34E-13	NA	7.30E+00	2.35E+01	3.08E+00	NA	7.85E-08	2.83E-06	4.13E-13	NA	2.91E-06	3%	97%	0%	0%	55%
Radionuclides																		
Americium-241	1.07E+00	NA	1.33E-05	1.56E-02	2.17E-10	2.17E-10	2.81E-08	2.76E-08	2.32E-10	NA	3.74E-13	4.31E-10	6.63E-10	35%	0%	0%	65%	0%
Cesium-137	4.94E+00	NA	6.15E-05	7.22E-02	3.64E-13	3.64E-13	4.11E-14	4.46E-08	1.80E-12	NA	2.53E-18	3.22E-09	3.22E-09	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	9.12E+00	NA	1.14E-04	1.33E-01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.48E-09	NA	2.01E-12	1.06E-07	1.08E-07	1%	0%	0%	99%	2%
Plutonium-239/240	7.07E+00	NA	8.81E-05	1.03E-01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	1.95E-09	NA	2.93E-12	2.07E-11	1.97E-09	99%	0%	0%	1%	0%
Technetium-99	1.09E+02	NA	1.36E-03	1.59E+00	7.66E-12	7.66E-12	1.41E-11	8.14E-11	8.34E-10	NA	1.91E-14	1.30E-10	9.63E-10	87%	0%	0%	13%	0%
Thorium-228	1.11E+01	NA	1.38E-04	1.62E-01	8.09E-10	8.09E-10	1.43E-07	7.76E-06	8.95E-09	NA	1.97E-11	1.26E-06	1.26E-06	1%	0%	0%	99%	24%
Thorium-230	7.58E+01	NA	9.44E-04	1.11E+00	2.02E-10	2.02E-10	2.85E-08	8.19E-10	1.53E-08	NA	2.69E-11	9.08E-10	1.62E-08	94%	0%	0%	6%	0%
Thorium-232	1.16E+01	NA	1.45E-04	1.70E-01	2.31E-10	2.31E-10	4.33E-08	3.42E-10	2.68E-09	NA	6.27E-12	5.81E-11	2.75E-09	98%	0%	0%	2%	0%
Uranium-234	6.51E+01	NA	8.11E-04	9.52E-01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.03E-08	NA	9.25E-12	2.40E-10	1.05E-08	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	7.51E+01	NA	9.36E-04	1.10E+00	1.43E-10	1.43E-10	9.32E-09	4.99E-11	1.07E-08	NA	8.72E-12	5.48E-11	1.08E-08	99%	0%	0%	1%	0%
								Total ELCR =	**2.45E-07**	**3.65E-06**	**8.94E-11**	**1.37E-06**	**5.26E-06**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.98. Carcinogenic Risk Results-Current Industrial Worker for Soil Within the Fence, Excluding the Hot Spots

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	7.01E-05	3.01E-04	8.73E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.08E-07	4.63E-07	1.34E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	5.87E-08	1.51E-07	7.31E-13	NA	1.50E+00	3.66E+00	1.51E+01	NA	8.80E-08	5.54E-07	1.10E-11	NA	6.42E-07	14%	86%	0%	0%	12%
Barium	6.85E-07	2.94E-06	8.53E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	5.09E-09	2.19E-08	6.33E-14	NA	NA	NA	8.40E+00	NA	NA	NA	5.32E-13	NA	5.32E-13	0%	0%	100%	0%	0%
Cadmium	3.52E-08	3.03E-09	4.39E-13	NA	NA	NA	6.30E+00	NA	NA	NA	2.76E-12	NA	2.76E-12	0%	0%	100%	0%	0%
Chromium	1.66E-07	7.15E-07	2.07E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	1.08E-07	4.63E-07	1.34E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.05E-04	4.51E-04	1.31E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	2.05E-07	8.83E-07	2.56E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	3.37E-06	1.45E-05	4.20E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	1.08E-09	4.63E-09	1.34E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	6.16E-08	2.65E-07	7.67E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	9.68E-08	4.16E-07	1.21E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	1.96E-07	8.41E-07	2.44E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	2.54E-08	1.09E-07	3.17E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	2.03E-06	8.75E-06	2.53E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	1.76E-07	7.57E-07	2.19E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	7.04E-07	3.03E-06	8.77E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	7.14E-09	7.98E-08	8.89E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	6.65E-09	5.72E-08	8.28E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	6.16E-09	7.42E-08	7.67E-14	NA	2.00E+00	2.22E+00	2.00E+00	NA	1.23E-08	1.65E-07	1.53E-13	NA	1.77E-07	7%	93%	0%	0%	3%
Total PAH (2)	9.78E-09	1.09E-07	1.22E-13	NA	7.30E+00	2.35E+01	3.08E+00	NA	7.14E-08	2.57E-06	3.75E-13	NA	2.65E-06	3%	97%	0%	0%	49%
Radionuclides																		
Americium-241	3.50E+00	NA	4.36E-05	5.12E-02	2.17E-10	2.17E-10	2.81E-08	2.76E-08	7.60E-10	NA	1.23E-12	1.41E-09	2.17E-09	35%	0%	0%	65%	0%
Cesium-137	7.53E+00	NA	9.38E-05	1.10E-01	3.64E-13	3.64E-13	4.11E-14	4.46E-08	2.74E-12	NA	3.85E-18	4.91E-09	4.91E-09	0%	0%	0%	100%	0%
Cobalt-60	2.45E+00	NA	3.05E-05	3.58E-02	4.03E-11	4.03E-11	3.58E-11	1.24E-05	9.87E-11	NA	1.09E-15	4.44E-07	4.45E-07	0%	0%	0%	100%	8%
Neptunium-237	1.14E+00	NA	1.42E-05	1.66E-02	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.84E-10	NA	2.51E-13	1.33E-08	1.34E-08	1%	0%	0%	99%	0%
Plutonium-239/240	8.75E-01	NA	1.09E-05	1.28E-02	2.76E-10	2.76E-10	3.33E-08	2.00E-10	2.42E-10	NA	3.63E-13	2.56E-12	2.44E-10	99%	0%	0%	1%	0%
Technetium-99	1.03E+02	NA	1.29E-03	1.51E+00	7.66E-12	7.66E-12	1.41E-11	8.14E-11	7.91E-10	NA	1.81E-14	1.23E-10	9.14E-10	87%	0%	0%	13%	0%
Thorium-228	5.60E+00	NA	6.98E-05	8.19E-02	8.09E-10	8.09E-10	1.43E-07	7.76E-06	4.53E-09	NA	9.98E-12	6.36E-07	6.40E-07	1%	0%	0%	99%	12%
Thorium-230	1.35E+01	NA	1.68E-04	1.97E-01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	2.72E-09	NA	4.79E-12	1.61E-10	2.89E-09	94%	0%	0%	6%	0%
Thorium-232	5.78E+00	NA	7.20E-05	8.45E-02	2.31E-10	2.31E-10	4.33E-08	3.42E-10	1.33E-09	NA	3.12E-12	2.89E-11	1.37E-09	98%	0%	0%	2%	0%
Uranium-234	2.45E+01	NA	3.05E-04	3.58E-01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	3.87E-09	NA	3.48E-12	9.03E-11	3.96E-09	98%	0%	0%	2%	0%
Uranium-235	1.03E+02	NA	1.29E-03	1.51E+00	1.57E-10	1.57E-10	1.01E-08	5.18E-07	1.62E-08	NA	1.30E-11	7.82E-07	7.99E-07	2%	0%	0%	98%	15%
Uranium-238	6.48E+01	NA	8.07E-04	9.47E-01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	9.26E-09	NA	7.52E-12	4.73E-11	9.31E-09	99%	0%	0%	1%	0%
								Total ELCR =	**2.12E-07**	**3.29E-06**	**5.86E-11**	**1.88E-06**	**5.39E-06**					

NA: Not applicable.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.99. Carcinogenic Risk Results-Current Industrial Worker for Soil at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	7.92E-05	3.40E-04	9.86E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.37E-07	5.89E-07	1.71E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	5.67E-08	1.46E-07	7.06E-13	NA	1.50E+00	3.66E+00	1.51E+01	NA	8.51E-08	5.35E-07	1.07E-11	NA	6.20E-07	14%	86%	0%	0%	5%
Barium	7.67E-07	3.30E-06	9.56E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	6.36E-09	2.73E-08	7.92E-14	NA	NA	NA	8.40E+00	NA	NA	NA	6.65E-13	NA	6.65E-13	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	NA	NA	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	8.28E-07	3.56E-06	1.03E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	1.20E-06	5.17E-06	1.50E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.09E-04	4.70E-04	1.36E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	2.05E-07	8.83E-07	2.56E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	4.08E-06	1.75E-05	5.08E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	5.87E-09	2.52E-08	7.31E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	8.12E-08	3.49E-07	1.01E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	9.19E-07	3.95E-06	1.14E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	1.96E-07	8.41E-07	2.44E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	3.33E-08	1.43E-07	4.14E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	3.21E-06	1.38E-05	4.00E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	1.96E-07	8.44E-07	2.45E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	1.00E-06	4.30E-06	1.25E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	6.65E-09	7.43E-08	8.28E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	5.48E-09	4.71E-08	6.82E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	2.64E-08	3.18E-07	3.29E-13	NA	2.00E+00	2.22E+00	2.00E+00	NA	5.28E-08	7.06E-07	6.58E-13	NA	7.59E-07	7%	93%	0%	0%	7%
Total PAH (2)	9.78E-09	1.09E-07	1.22E-13	NA	7.30E+00	2.35E+01	3.08E+00	NA	7.14E-08	2.57E-06	3.75E-13	NA	2.65E-06	3%	97%	0%	0%	23%
Radionuclides																		
Americium-241	7.68E+01	NA	9.57E-04	1.12E+00	2.17E-10	2.17E-10	2.81E-08	2.76E-08	1.67E-08	NA	2.69E-11	3.10E-08	4.77E-08	35%	0%	0%	65%	0%
Cesium-137	7.28E+01	NA	9.07E-04	1.06E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	2.65E-11	NA	3.73E-17	4.75E-08	4.75E-08	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	9.28E+01	NA	1.16E-03	1.36E+00	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.50E-08	NA	2.05E-11	1.08E-06	1.10E-06	1%	0%	0%	99%	10%
Plutonium-239/240	3.61E+02	NA	4.49E-03	5.27E+00	2.76E-10	2.76E-10	3.33E-08	2.00E-10	9.95E-08	NA	1.50E-10	1.05E-09	1.01E-07	99%	0%	0%	1%	1%
Technetium-99	1.04E+04	NA	1.30E-01	1.53E+02	7.66E-12	7.66E-12	1.41E-11	8.14E-11	7.99E-08	NA	1.83E-12	1.24E-08	9.23E-08	87%	0%	0%	13%	1%
Thorium-228	3.50E+01	NA	4.36E-04	5.12E-01	8.09E-10	8.09E-10	1.43E-07	7.76E-06	2.83E-08	NA	6.24E-11	3.97E-06	4.00E-06	1%	0%	0%	99%	35%
Thorium-230	8.70E+03	NA	1.08E-01	1.27E+02	2.02E-10	2.02E-10	2.85E-08	8.19E-10	1.76E-06	NA	3.09E-09	1.04E-07	1.86E-06	94%	0%	0%	6%	16%
Thorium-232	4.25E+01	NA	5.30E-04	6.22E-01	2.31E-10	2.31E-10	4.33E-08	3.42E-10	9.83E-09	NA	2.30E-11	2.13E-10	1.01E-08	98%	0%	0%	2%	0%
Uranium-234	5.08E+02	NA	6.32E-03	7.42E+00	1.58E-10	1.58E-10	1.14E-08	2.52E-10	8.02E-08	NA	7.21E-11	1.87E-09	8.21E-08	98%	0%	0%	2%	1%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	4.55E+02	NA	5.67E-03	6.66E+00	1.43E-10	1.43E-10	9.32E-09	4.99E-11	6.51E-08	NA	5.28E-11	3.32E-10	6.54E-08	99%	0%	0%	1%	1%
								Total ELCR =	**2.36E-06**	**3.82E-06**	**3.51E-09**	**5.25E-06**	**1.14E-05**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.100. Carcinogenic Risk Results-Current Industrial Worker for Soil at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	6.28E-05	2.70E-04	7.83E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	9.78E-08	4.21E-07	1.22E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	5.87E-08	1.51E-07	7.31E-13	NA	1.50E+00	3.66E+00	1.51E+01	NA	8.80E-08	5.54E-07	1.10E-11	NA	6.42E-07	14%	86%	0%	0%	12%
Barium	6.45E-07	2.78E-06	8.04E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	5.67E-09	2.44E-08	7.06E-14	NA	NA	NA	8.40E+00	NA	NA	NA	5.93E-13	NA	5.93E-13	0%	0%	100%	0%	0%
Cadmium	2.05E-08	1.77E-09	2.56E-13	NA	NA	NA	6.30E+00	NA	NA	NA	1.61E-12	NA	1.61E-12	0%	0%	100%	0%	0%
Chromium	3.81E-07	1.64E-06	4.75E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	3.42E-07	1.47E-06	4.26E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	9.13E-05	3.92E-04	1.14E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	2.05E-07	8.83E-07	2.56E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	4.46E-06	1.92E-05	5.55E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	1.08E-09	4.63E-09	1.34E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	4.50E-08	1.93E-07	5.60E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	
Nickel	1.56E-07	6.73E-07	1.95E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	2.15E-07	9.25E-07	2.68E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	2.84E-08	1.22E-07	3.53E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	1.60E-06	6.90E-06	2.00E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	1.66E-07	7.15E-07	2.07E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	3.72E-07	1.60E-06	4.63E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.15E-08	2.41E-07	2.68E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	1.37E-08	1.18E-07	1.71E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	1.08E-08	1.30E-07	1.34E-13	NA	2.00E+00	2.22E+00	2.00E+00	NA	2.15E-08	2.88E-07	2.68E-13	NA	3.09E-07	7%	93%	0%	0%	6%
Total PAH (2)	1.17E-08	1.31E-07	1.46E-13	NA	7.30E+00	2.35E+01	3.08E+00	NA	8.57E-08	3.09E-06	4.50E-13	NA	3.18E-06	3%	97%	0%	0%	58%
Radionuclides																		
Americium-241	8.40E+00	NA	1.05E-04	1.23E-01	2.17E-10	2.17E-10	2.81E-08	2.76E-08	1.82E-09	NA	2.94E-12	3.39E-09	5.22E-09	35%	0%	0%	65%	0%
Cesium-137	1.33E+01	NA	1.66E-04	1.95E-01	3.64E-13	3.64E-13	4.11E-14	4.46E-08	4.84E-12	NA	6.81E-18	8.68E-09	8.68E-09	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	4.90E+00	NA	6.11E-05	7.17E-02	1.62E-10	1.62E-10	1.77E-08	7.97E-07	7.94E-10	NA	1.08E-12	5.71E-08	5.79E-08	1%	0%	0%	99%	1%
Plutonium-239/240	8.40E+01	NA	1.05E-03	1.23E+00	2.76E-10	2.76E-10	3.33E-08	2.00E-10	2.32E-08	NA	3.49E-11	2.46E-10	2.35E-08	99%	0%	0%	1%	0%
Technetium-99	5.60E+02	NA	6.98E-03	8.19E+00	7.66E-12	7.66E-12	1.41E-11	8.14E-11	4.29E-09	NA	9.84E-14	6.67E-10	4.96E-09	87%	0%	0%	13%	0%
Thorium-228	8.23E+00	NA	1.02E-04	1.20E-01	8.09E-10	8.09E-10	1.43E-07	7.76E-06	6.65E-09	NA	1.47E-11	9.34E-07	9.40E-07	1%	0%	0%	99%	17%
Thorium-230	1.17E+03	NA	1.46E-02	1.72E+01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	2.37E-07	NA	4.16E-10	1.40E-08	2.51E-07	94%	0%	0%	6%	5%
Thorium-232	9.80E+00	NA	1.22E-04	1.43E-01	2.31E-10	2.31E-10	4.33E-08	3.42E-10	2.26E-09	NA	5.29E-12	4.90E-11	2.32E-09	98%	0%	0%	2%	0%
Uranium-234	5.25E+01	NA	6.54E-04	7.68E-01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	8.30E-09	NA	7.46E-12	1.94E-10	8.50E-09	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	7.53E+01	NA	9.38E-04	1.10E+00	1.43E-10	1.43E-10	9.32E-09	4.99E-11	1.08E-08	NA	8.74E-12	5.49E-11	1.08E-08	99%	0%	0%	1%	0%
								Total ELCR =	**4.90E-07**	**3.93E-06**	**5.05E-10**	**1.02E-06**	**5.44E-06**					

NA: Not applicable.
ND: Not applicable.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.101. Carcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 008 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethylene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.102. Carcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 010 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Percent Risk by Pathway Chemical Total	Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethylene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.103. Carcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 011 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	8.36E-07	2.22E+00	1.86E-06	1.86E-06	100%	13%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethylene	4.47E-06	2.67E+00	1.19E-05	1.19E-05	100%	87%
		Total ELCR =	**1.38E-05**	**1.38E-05**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.104. Carcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 015 Hot Spot

COPC	Exposure Route - Chronic Daily Intake	Cancer Toxicity (SF)	ELCR	Percent Risk by Pathway		
	Dermal Intake Hazard	Dermal	Dermal	Chemical Total	Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	1.51E-07	2.22E+00	3.37E-07	3.37E-07	100%	65%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethylene	6.88E-08	2.67E+00	1.83E-07	1.83E-07	100%	35%
		Total ELCR =	**5.20E-07**	**5.20E-07**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are (mg/kg-day)-1.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.105. Carcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 001 EU 13 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethylene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are (mg/kg-day)-1.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.106. Carcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 001 EU 14 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	1.28E-06	2.22E+00	2.84E-06	2.84E-06	100%	100%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	2.67E+00	NA	NA	0%	0%
		Total HI =	**2.84E-06**	**2.84E-06**		

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.107. Carcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 001 EU 15 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.108. Carcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 001 EU 16 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethylene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are (mg/kg-day)-1.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.109. Carcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 001 EU 18 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethylene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.110. Carcinogenic Risk Results-Current Industrial Worker for Surface Water at the Outfall 001 EU 20 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.111. Carcinogenic Risk Results-Current Industrial Worker for Surface Water Within the Fence, Excluding the Hot Spots

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Percent Risk by Pathway Chemical Total	 Dermal	 Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	9.49E-07	2.22E+00	2.11E-06	2.11E-06	100%	92%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	6.88E-08	2.67E+00	1.83E-07	1.83E-07	100%	8%
		Total ELCR =	**2.29E-06**	**2.29E-06**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.112. Carcinogenic Risk Results-Current Industrial Worker for Surface Water at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.113. Carcinogenic Risk Results-Current Industrial Worker for Surface Water at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	4.81E-08	2.67E+00	1.28E-07	1.28E-07	100%	100%
		Total ELCR =	**1.28E-07**	**1.28E-07**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.114. Carcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 008 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	1.59E-03	6.83E-03	1.98E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.70E-06	7.28E-06	2.11E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	9.98E-07	2.57E-06	1.24E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.50E-06	9.38E-06	1.87E-10	NA	1.09E-05	14%	86%	0%	0%	4%
Barium	1.28E-05	5.48E-05	1.59E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	9.28E-08	3.98E-07	1.15E-12	NA	NA	NA	8.40E+00	NA	NA	NA	9.69E-12	NA	9.69E-12	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	NA	NA	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	2.45E-06	1.05E-05	3.05E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	3.15E-06	1.35E-05	3.92E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	2.17E-03	9.31E-03	2.70E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	3.85E-06	1.65E-05	4.79E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	8.21E-05	3.52E-04	1.02E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	1.75E-08	7.50E-08	2.18E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	1.44E-06	6.15E-06	1.79E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	2.98E-06	1.28E-05	3.70E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	4.20E-07	1.80E-06	5.23E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	1.68E-05	7.20E-05	2.09E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	3.68E-06	1.58E-05	4.57E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	8.75E-06	3.75E-05	1.09E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.02E-07	1.13E-06	1.26E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	8.75E-08	7.50E-07	1.09E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	5.60E-06	6.72E-05	6.97E-11	NA	2.00E+00	2.22E+00	2.00E+00	NA	1.12E-05	1.49E-04	1.39E-10	NA	1.61E-04	7%	93%	0%	0%	62%
Total PAH (2)	2.10E-07	2.34E-06	2.61E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	1.53E-06	5.51E-05	8.05E-12	NA	5.66E-05	3%	97%	0%	0%	22%
Radionuclides																		
Americium-241	3.13E+02	NA	3.89E-03	4.57E+00	2.17E-10	2.17E-10	2.81E-08	2.76E-08	6.79E-08	NA	1.09E-10	1.26E-07	1.94E-07	35%	0%	0%	65%	0%
Cesium-137	1.72E+02	NA	2.14E-03	2.51E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	6.27E-11	NA	8.80E-17	1.12E-07	1.12E-07	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	2.07E+02	NA	2.57E-03	3.02E+00	1.62E-10	1.62E-10	1.77E-08	7.97E-07	3.35E-08	NA	4.55E-11	2.40E-06	2.44E-06	1%	0%	0%	99%	1%
Plutonium-239/240	2.85E+03	NA	3.54E-02	4.16E+01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	7.86E-07	NA	1.18E-09	8.32E-09	7.96E-07	99%	0%	0%	1%	0%
Technetium-99	2.32E+03	NA	2.88E-02	3.38E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.77E-08	NA	4.06E-13	2.75E-09	2.05E-08	87%	0%	0%	13%	0%
Thorium-228	1.85E+02	NA	2.30E-03	2.70E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	1.49E-07	NA	3.29E-10	2.09E-05	2.11E-05	1%	0%	0%	99%	8%
Thorium-230	2.63E+04	NA	3.27E-01	3.84E+02	2.02E-10	2.02E-10	2.85E-08	8.19E-10	5.31E-06	NA	9.32E-09	3.14E-07	5.63E-06	94%	0%	0%	6%	2%
Thorium-232	2.10E+02	NA	2.61E-03	3.06E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	4.84E-08	NA	1.13E-10	1.05E-09	4.96E-08	98%	0%	0%	2%	0%
Uranium-234	9.70E+02	NA	1.21E-02	1.42E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.53E-07	NA	1.38E-10	3.57E-09	1.57E-07	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	1.44E+03	NA	1.79E-02	2.10E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	2.06E-07	NA	1.67E-10	1.05E-09	2.07E-07	99%	0%	0%	1%	0%
								Total ELCR =	**2.10E-05**	**2.14E-04**	**1.17E-08**	**2.39E-05**	**2.59E-04**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.115. Carcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 010 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	2.26E-03	9.68E-03	2.81E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.69E-06	7.25E-06	2.11E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	2.21E-06	5.67E-06	2.74E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	3.31E-06	2.07E-05	4.14E-10	NA	2.41E-05	14%	86%	0%	0%	9%
Barium	1.66E-05	7.13E-05	2.07E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	8.40E-08	3.60E-07	1.05E-12	NA	NA	NA	8.40E+00	NA	NA	NA	8.78E-12	NA	8.78E-12	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	NA	NA	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	4.08E-06	1.75E-05	5.07E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	3.20E-06	1.37E-05	3.98E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	2.73E-03	1.17E-02	3.40E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	1.32E-05	5.64E-05	1.64E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	5.65E-05	2.42E-04	7.03E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	5.43E-08	2.33E-07	6.75E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	2.43E-06	1.04E-05	3.03E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	3.82E-06	1.64E-05	4.75E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	4.24E-07	1.82E-06	5.27E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	4.62E-06	1.98E-05	5.75E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	4.87E-06	2.09E-05	6.05E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	4.41E-05	1.89E-04	5.49E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	8.93E-07	9.95E-06	1.11E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	6.13E-07	5.25E-06	7.62E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	3.33E-06	3.99E-05	4.14E-11	NA	2.00E+00	2.22E+00	2.00E+00	NA	6.65E-06	8.87E-05	8.27E-11	NA	9.53E-05	7%	93%	0%	0%	34%
Total PAH (2)	5.43E-07	6.05E-06	6.75E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	3.96E-06	1.42E-04	2.08E-11	NA	1.46E-04	3%	97%	0%	0%	53%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	2.27E+02	NA	2.83E-03	3.32E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	8.27E-11	NA	1.16E-16	1.48E-07	1.48E-07	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.99E+01	NA	2.48E-04	2.91E-01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	3.22E-09	NA	4.38E-12	2.32E-07	2.35E-07	1%	0%	0%	99%	0%
Plutonium-239/240	3.41E+01	NA	4.24E-04	4.98E-01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	9.42E-09	NA	1.41E-11	9.96E-11	9.53E-09	99%	0%	0%	1%	0%
Technetium-99	2.64E+03	NA	3.29E-02	3.86E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	2.02E-08	NA	4.63E-13	3.14E-09	2.34E-08	87%	0%	0%	13%	0%
Thorium-228	1.03E+02	NA	1.28E-03	1.50E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	8.31E-08	NA	1.83E-10	1.16E-05	1.17E-05	1%	0%	0%	99%	4%
Thorium-230	2.57E+02	NA	3.20E-03	3.75E+00	2.02E-10	2.02E-10	2.85E-08	8.19E-10	5.19E-08	NA	9.11E-11	3.07E-09	5.51E-08	94%	0%	0%	6%	0%
Thorium-232	8.48E+01	NA	1.06E-03	1.24E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	1.96E-08	NA	4.57E-11	4.24E-10	2.01E-08	98%	0%	0%	2%	0%
Uranium-234	2.32E+03	NA	2.89E-02	3.39E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	3.67E-07	NA	3.29E-10	8.55E-09	3.76E-07	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	2.76E+03	NA	3.43E-02	4.03E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	3.94E-07	NA	3.20E-10	2.01E-09	3.97E-07	99%	0%	0%	1%	0%
								Total ELCR =	**1.49E-05**	**2.52E-04**	**1.51E-09**	**1.20E-05**	**2.79E-04**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.116. Carcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 011 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	1.82E-03	7.78E-03	2.26E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	2.98E-06	1.28E-05	3.70E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	2.28E-06	5.85E-06	2.83E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	3.41E-06	2.14E-05	4.27E-10	NA	2.48E-05	14%	86%	0%	0%	1%
Barium	1.61E-05	6.90E-05	2.00E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	1.68E-07	7.20E-07	2.09E-12	NA	NA	NA	8.40E+00	NA	NA	NA	1.76E-11	NA	1.76E-11	0%	0%	100%	0%	0%
Cadmium	4.90E-07	4.20E-08	6.10E-12	NA	NA	NA	6.30E+00	NA	NA	NA	3.84E-11	NA	3.84E-11	0%	0%	100%	0%	0%
Chromium	2.61E-05	1.12E-04	3.24E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	3.54E-05	1.52E-04	4.40E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	4.08E-03	1.75E-02	5.08E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	9.10E-06	3.90E-05	1.13E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.04E-04	4.46E-04	1.30E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	2.98E-08	1.28E-07	3.70E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	1.28E-06	5.48E-06	1.59E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	2.45E-06	1.05E-05	3.05E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	4.38E-07	1.88E-06	5.44E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	7.68E-05	3.29E-04	9.56E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	7.35E-06	3.15E-05	9.15E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	1.34E-04	5.73E-04	1.66E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	7.53E-06	8.39E-05	9.36E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	2.28E-05	1.95E-04	2.83E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	1.33E-06	1.60E-05	1.65E-11	NA	2.00E+00	2.22E+00	2.00E+00	NA	2.66E-06	3.55E-05	3.31E-11	NA	3.81E-05	7%	93%	0%	0%	1%
Total PAH (2)	1.02E-05	1.13E-04	1.26E-10	NA	7.30E+00	2.35E+01	3.08E+00	NA	7.41E-05	2.66E-03	3.89E-10	NA	2.74E-03	3%	97%	0%	0%	97%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	1.69E+02	NA	2.10E-03	2.47E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	6.15E-11	NA	8.64E-17	1.10E-07	1.10E-07	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	ND	NA	ND	ND	1.62E-10	1.62E-10	1.77E-08	7.97E-07	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Plutonium-239/240	1.44E+01	NA	1.79E-04	2.10E-01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	3.97E-09	NA	5.96E-12	4.20E-11	4.02E-09	99%	0%	0%	1%	0%
Technetium-99	2.35E+03	NA	2.92E-02	3.43E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.80E-08	NA	4.12E-13	2.79E-09	2.08E-08	87%	0%	0%	13%	0%
Thorium-228	1.50E+02	NA	1.87E-03	2.19E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	1.22E-07	NA	2.67E-10	1.70E-05	1.71E-05	1%	0%	0%	99%	1%
Thorium-230	3.44E+02	NA	4.28E-03	5.03E+00	2.02E-10	2.02E-10	2.85E-08	8.19E-10	6.95E-08	NA	1.22E-10	4.12E-09	7.38E-08	94%	0%	0%	6%	0%
Thorium-232	1.57E+02	NA	1.95E-03	2.29E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	3.62E-08	NA	8.43E-11	7.81E-10	3.70E-08	98%	0%	0%	2%	0%
Uranium-234	9.70E+02	NA	1.21E-02	1.42E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.53E-07	NA	1.38E-10	3.57E-09	1.57E-07	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	5.32E+03	NA	6.62E-02	7.77E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	7.61E-07	NA	6.17E-10	3.88E-09	7.65E-07	99%	0%	0%	1%	0%
									Total ELCR =	**8.13E-05**	**2.72E-03**	**2.14E-09**	**1.71E-05**	**2.82E-03**				

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.117. Carcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 015 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	1.18E-03	5.04E-03	1.46E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.93E-06	8.25E-06	2.40E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.75E-06	4.50E-06	2.18E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	2.63E-06	1.65E-05	3.29E-10	NA	1.91E-05	14%	86%	0%	0%	16%
Barium	1.35E-05	5.78E-05	1.68E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	9.98E-08	4.28E-07	1.24E-12	NA	NA	NA	8.40E+00	NA	NA	NA	1.04E-11	NA	1.04E-11	0%	0%	100%	0%	0%
Cadmium	3.68E-07	3.15E-08	4.57E-12	NA	NA	NA	6.30E+00	NA	NA	NA	2.88E-11	NA	2.88E-11	0%	0%	100%	0%	0%
Chromium	4.03E-06	1.73E-05	5.01E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	3.50E-06	1.50E-05	4.36E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	2.57E-03	1.10E-02	3.19E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	7.88E-06	3.38E-05	9.80E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	9.28E-05	3.98E-04	1.15E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	2.80E-08	1.20E-07	3.48E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	9.63E-07	4.13E-06	1.20E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	5.08E-06	2.18E-05	6.31E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0%	0%	0%	0%	0%
Silver	4.55E-07	1.95E-06	5.66E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	1.61E-04	6.90E-04	2.00E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	3.33E-06	1.43E-05	4.14E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	2.00E-05	8.55E-05	2.48E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.19E-07	1.33E-06	1.48E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	1.10E-07	9.45E-07	1.37E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	1.93E-07	2.31E-06	2.40E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	3.85E-07	5.13E-06	4.79E-12	NA	5.52E-06	7%	93%	0%	0%	5%
Total PAH (2)	1.93E-07	2.15E-06	2.40E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	1.41E-06	5.05E-05	7.38E-12	NA	5.19E-05	3%	97%	0%	0%	44%
Radionuclides																		
Americium-241	1.75E+02	NA	2.18E-03	2.56E+00	2.17E-10	2.17E-10	2.81E-08	2.76E-08	3.80E-08	NA	6.13E-11	7.06E-08	1.09E-07	35%	0%	0%	65%	0%
Cesium-137	9.70E+03	NA	1.21E-01	1.42E+02	3.64E-13	3.64E-13	4.11E-14	4.46E-08	3.53E-09	NA	4.96E-15	6.32E-06	6.32E-06	0%	0%	0%	100%	5%
Cobalt-60	5.63E+01	NA	7.01E-04	8.23E-01	4.03E-11	4.03E-11	3.58E-11	1.24E-05	2.27E-09	NA	2.51E-14	1.02E-05	1.02E-05	0%	0%	0%	100%	9%
Neptunium-237	1.31E+02	NA	1.64E-03	1.92E+00	1.62E-10	1.62E-10	1.77E-08	7.97E-07	2.13E-08	NA	2.89E-11	1.53E-06	1.55E-06	1%	0%	0%	99%	1%
Plutonium-239/240	8.45E+03	NA	1.05E-01	1.23E+02	2.76E-10	2.76E-10	3.33E-08	2.00E-10	2.33E-06	NA	3.50E-09	2.47E-08	2.36E-06	99%	0%	0%	1%	2%
Technetium-99	6.57E+03	NA	8.18E-02	9.60E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	5.03E-08	NA	1.15E-12	7.81E-09	5.82E-08	87%	0%	0%	13%	0%
Thorium-228	1.60E+02	NA	1.99E-03	2.33E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	1.29E-07	NA	2.84E-10	1.81E-05	1.82E-05	1%	0%	0%	99%	15%
Thorium-230	5.01E+03	NA	6.23E-02	7.31E+01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	1.01E-06	NA	1.78E-09	5.99E-08	1.07E-06	94%	0%	0%	6%	1%
Thorium-232	1.72E+02	NA	2.14E-03	2.51E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	3.98E-08	NA	9.27E-11	8.60E-10	4.07E-08	98%	0%	0%	2%	0%
Uranium-234	1.91E+03	NA	2.38E-02	2.79E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	3.02E-07	NA	2.71E-10	7.03E-09	3.09E-07	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	1.03E+04	NA	1.29E-01	1.51E+02	1.43E-10	1.43E-10	9.32E-09	4.99E-11	1.48E-06	NA	1.20E-09	7.53E-09	1.49E-06	99%	0%	0%	1%	1%
								Total ELCR =	**9.82E-06**	**7.21E-05**	**7.59E-09**	**3.63E-05**	**1.18E-04**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.118. Carcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 001 EU 13 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	1.55E-03	6.66E-03	1.93E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.73E-06	7.40E-06	2.15E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	9.05E-07	3.88E-06	1.13E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.36E-06	1.42E-05	1.70E-10	NA	1.55E-05	9%	91%	0%	0%	20%
Barium	1.60E-05	6.86E-05	1.99E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	8.63E-08	3.70E-07	1.07E-12	NA	NA	NA	8.40E+00	NA	NA	NA	9.02E-12	NA	9.02E-12	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	NA	NA	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	7.61E-06	3.26E-05	9.47E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	2.26E-06	9.68E-06	2.81E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	2.66E-03	1.14E-02	3.31E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	3.83E-06	1.64E-05	4.77E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.38E-04	5.91E-04	1.72E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	2.22E-06	9.53E-06	2.77E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	4.32E-07	1.85E-06	5.38E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	8.49E-06	3.64E-05	1.06E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	2.89E-06	1.24E-05	3.59E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	1.96E-05	8.40E-05	2.44E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	8.58E-08	7.35E-07	1.07E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	8.58E-08	7.35E-07	1.07E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	5.78E-07	2.97E-06	7.19E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	1.16E-06	6.60E-06	1.44E-11	NA	7.76E-06	15%	85%	0%	0%	10%
Total PAH (2)	1.93E-07	1.65E-06	2.40E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	1.41E-06	3.89E-05	7.38E-12	NA	4.03E-05	3%	97%	0%	0%	51%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	9.42E+01	NA	1.17E-03	1.38E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	3.43E-11	NA	4.82E-17	6.14E-08	6.14E-08	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.88E+02	NA	2.34E-03	2.74E+00	1.62E-10	1.62E-10	1.77E-08	7.97E-07	3.04E-08	NA	4.14E-11	2.19E-06	2.22E-06	1%	0%	0%	99%	3%
Plutonium-239/240	2.19E+01	NA	2.72E-04	3.19E-01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	6.04E-09	NA	9.06E-12	6.39E-11	6.11E-09	99%	0%	0%	1%	0%
Technetium-99	3.22E+03	NA	4.01E-02	4.71E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	2.47E-08	NA	5.66E-13	3.83E-09	2.85E-08	87%	0%	0%	13%	0%
Thorium-228	1.09E+02	NA	1.35E-03	1.59E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	8.79E-08	NA	1.93E-10	1.23E-05	1.24E-05	1%	0%	0%	99%	16%
Thorium-230	9.33E+02	NA	1.16E-02	1.36E+01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	1.88E-07	NA	3.31E-10	1.12E-08	2.00E-07	94%	0%	0%	6%	0%
Thorium-232	1.40E+02	NA	1.74E-03	2.05E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	3.24E-08	NA	7.55E-11	7.00E-10	3.32E-08	98%	0%	0%	2%	0%
Uranium-234	1.38E+03	NA	1.71E-02	2.01E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	2.18E-07	NA	1.95E-10	5.07E-09	2.23E-07	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	5.10E+03	NA	6.35E-02	7.45E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	7.30E-07	NA	5.92E-10	3.72E-09	7.34E-07	99%	0%	0%	1%	1%
								Total ELCR =	**5.23E-06**	**5.96E-05**	**1.64E-09**	**1.46E-05**	**7.95E-05**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are (mg/kg-day)-1 and for inhalation exposure are (mg/m3)-1.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.119. Carcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 001 EU 14 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	1.43E-03	6.12E-03	1.78E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	2.63E-06	1.13E-05	3.27E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	8.75E-07	2.25E-06	1.09E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.31E-06	8.23E-06	1.64E-10	NA	9.54E-06	14%	86%	0%	0%	0%
Barium	1.52E-05	6.53E-05	1.89E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	8.40E-08	3.60E-07	1.05E-12	NA	NA	NA	8.40E+00	NA	NA	NA	8.78E-12	NA	8.78E-12	0%	0%	100%	0%	0%
Cadmium	3.33E-07	2.85E-08	4.14E-12	NA	NA	NA	6.30E+00	NA	NA	NA	2.61E-11	NA	2.61E-11	0%	0%	100%	0%	0%
Chromium	1.24E-05	5.33E-05	1.55E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	7.53E-06	3.23E-05	9.36E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	2.02E-03	8.65E-03	2.51E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	4.03E-06	1.73E-05	5.01E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	5.93E-05	2.54E-04	7.38E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	8.19E-07	3.51E-06	1.02E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	2.80E-06	1.20E-05	3.48E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	4.20E-07	1.80E-06	5.23E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	1.37E-06	5.85E-06	1.70E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	3.33E-06	1.43E-05	4.14E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	2.71E-05	1.16E-04	3.38E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	3.50E-05	3.90E-04	4.36E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	8.05E-06	6.90E-05	1.00E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	3.85E-06	4.62E-05	4.79E-11	NA	2.00E+00	2.22E+00	2.00E+00	NA	7.70E-06	1.03E-04	9.58E-11	NA	1.10E-04	7%	93%	0%	0%	1%
Total PAH (2)	3.22E-05	3.59E-04	4.01E-10	NA	7.30E+00	2.35E+01	3.08E+00	NA	2.35E-04	8.45E-03	1.23E-09	NA	8.68E-03	3%	97%	0%	0%	98%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	3.76E+01	NA	4.67E-04	5.48E-01	3.64E-13	3.64E-13	4.11E-14	4.46E-08	1.37E-11	NA	1.92E-17	2.45E-08	2.45E-08	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	2.13E+01	NA	2.65E-04	3.11E-01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	3.45E-09	NA	4.69E-12	2.48E-07	2.51E-07	1%	0%	0%	99%	0%
Plutonium-239/240	2.47E+01	NA	3.08E-04	3.61E-01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	6.82E-09	NA	1.02E-11	7.22E-11	6.91E-09	99%	0%	0%	1%	0%
Technetium-99	1.47E+03	NA	1.83E-02	2.15E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.13E-08	NA	2.58E-13	1.75E-09	1.30E-08	87%	0%	0%	13%	0%
Thorium-228	1.22E+02	NA	1.52E-03	1.78E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	9.88E-08	NA	2.17E-10	1.38E-05	1.39E-05	1%	0%	0%	99%	0%
Thorium-230	5.63E+02	NA	7.01E-03	8.23E+00	2.02E-10	2.02E-10	2.85E-08	8.19E-10	1.14E-07	NA	2.00E-10	6.74E-09	1.21E-07	94%	0%	0%	6%	0%
Thorium-232	1.38E+02	NA	1.71E-03	2.01E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	3.18E-08	NA	7.42E-11	6.88E-10	3.26E-08	98%	0%	0%	2%	0%
Uranium-234	6.26E+02	NA	7.79E-03	9.14E+00	1.58E-10	1.58E-10	1.14E-08	2.52E-10	9.89E-08	NA	8.88E-11	2.30E-09	1.01E-07	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	8.14E+02	NA	1.01E-02	1.19E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	1.16E-07	NA	9.44E-11	5.93E-10	1.17E-07	99%	0%	0%	1%	0%
								Total ELCR =	**2.45E-04**	**8.56E-03**	**2.22E-09**	**1.41E-05**	**8.82E-03**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.120. Carcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 001 EU 15 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	1.31E-03	5.62E-03	1.63E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.71E-06	7.34E-06	2.13E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.67E-06	4.30E-06	2.08E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	2.51E-06	1.57E-05	3.14E-10	NA	1.82E-05	14%	86%	0%	0%	3%
Barium	8.47E-06	3.63E-05	1.05E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	ND	ND	ND	NA	NA	NA	8.40E+00	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Cadmium	4.90E-07	4.20E-08	6.10E-12	NA	NA	NA	6.30E+00	NA	NA	NA	3.84E-11	NA	3.84E-11	0%	0%	100%	0%	0%
Chromium	1.27E-05	5.45E-05	1.58E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	8.35E-06	3.58E-05	1.04E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	2.05E-03	8.78E-03	2.55E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	1.13E-05	4.85E-05	1.41E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	5.99E-05	2.57E-04	7.45E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	4.18E-06	1.79E-05	5.20E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	9.10E-05	3.90E-04	1.13E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	4.29E-07	1.84E-06	5.34E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	1.12E-04	4.82E-04	1.40E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	2.73E-06	1.17E-05	3.40E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	2.40E-04	1.03E-03	2.98E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.33E-06	1.48E-05	1.65E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	9.80E-07	8.40E-06	1.22E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	9.10E-06	1.09E-04	1.13E-10	NA	2.00E+00	2.22E+00	2.00E+00	NA	1.82E-05	2.43E-04	2.26E-10	NA	2.61E-04	7%	93%	0%	0%	48%
Total PAH (2)	9.10E-07	1.01E-05	1.13E-11	NA	7.30E+00	2.35E+01	3.08E+00	NA	6.64E-06	2.39E-04	3.49E-11	NA	2.45E-04	3%	97%	0%	0%	46%
Radionuclides																		
Americium-241	3.98E+01	NA	4.95E-04	5.80E-01	2.17E-10	2.17E-10	2.81E-08	2.76E-08	8.63E-09	NA	1.39E-11	1.60E-08	2.47E-08	35%	0%	0%	65%	0%
Cesium-137	2.13E+02	NA	2.65E-03	3.11E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	7.76E-11	NA	1.09E-16	1.39E-07	1.39E-07	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.05E+02	NA	1.30E-03	1.53E+00	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.70E-08	NA	2.31E-11	1.22E-06	1.24E-06	1%	0%	0%	99%	0%
Plutonium-239/240	1.96E+02	NA	2.43E-03	2.86E+00	2.76E-10	2.76E-10	3.33E-08	2.00E-10	5.40E-08	NA	8.10E-11	5.71E-10	5.46E-08	99%	0%	0%	1%	0%
Technetium-99	1.14E+04	NA	1.42E-01	1.67E+02	7.66E-12	7.66E-12	1.41E-11	8.14E-11	8.75E-08	NA	2.00E-12	1.36E-08	1.01E-07	87%	0%	0%	13%	0%
Thorium-228	1.01E+02	NA	1.26E-03	1.48E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	8.20E-08	NA	1.80E-10	1.15E-05	1.16E-05	1%	0%	0%	99%	2%
Thorium-230	1.35E+03	NA	1.68E-02	1.97E+01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	2.73E-07	NA	4.79E-10	1.62E-08	2.90E-07	94%	0%	0%	6%	0%
Thorium-232	1.09E+02	NA	1.36E-03	1.59E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	2.52E-08	NA	5.88E-11	5.45E-10	2.58E-08	98%	0%	0%	2%	0%
Uranium-234	3.57E+03	NA	4.44E-02	5.21E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	5.64E-07	NA	5.06E-10	1.31E-08	5.77E-07	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	3.60E+03	NA	4.48E-02	5.26E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	5.15E-07	NA	4.17E-10	2.62E-09	5.18E-07	99%	0%	0%	1%	0%
									Total ELCR =	**2.90E-05**	**4.97E-04**	**2.38E-09**	**1.29E-05**	**5.39E-04**				

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.121. Carcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 001 EU 16 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	1.43E-03	6.14E-03	1.78E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.68E-06	7.22E-06	2.09E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.87E-06	4.82E-06	2.33E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	2.81E-06	1.76E-05	3.52E-10	NA	2.04E-05	14%	86%	0%	0%	21%
Barium	1.24E-05	5.33E-05	1.55E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	1.16E-07	4.97E-07	1.44E-12	NA	NA	NA	8.40E+00	NA	NA	NA	1.21E-11	NA	1.21E-11	0%	0%	100%	0%	0%
Cadmium	3.38E-06	2.90E-07	4.20E-11	NA	NA	NA	6.30E+00	NA	NA	NA	2.65E-10	NA	2.65E-10	0%	0%	100%	0%	0%
Chromium	4.11E-06	1.76E-05	5.12E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	2.43E-06	1.04E-05	3.03E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	3.19E-02	1.37E-01	3.96E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	3.69E-06	1.58E-05	4.59E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	2.70E-04	1.16E-03	3.35E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	1.80E-06	7.73E-06	2.24E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	4.22E-07	1.81E-06	5.25E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	2.50E-06	1.07E-05	3.11E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	4.43E-06	1.90E-05	5.51E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	1.19E-05	5.09E-05	1.48E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.93E-07	2.15E-06	2.40E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	2.10E-07	1.80E-06	2.61E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	3.15E-07	3.78E-06	3.92E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	6.30E-07	8.40E-06	7.84E-12	NA	9.03E-06	7%	93%	0%	0%	9%
Total PAH (2)	2.45E-07	2.73E-06	3.05E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	1.79E-06	6.43E-05	9.39E-12	NA	6.61E-05	3%	97%	0%	0%	69%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	5.48E+01	NA	6.81E-04	8.00E-01	3.64E-13	3.64E-13	4.11E-14	4.46E-08	1.99E-11	NA	2.80E-17	3.57E-08	3.57E-08	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	2.18E+01	NA	2.71E-04	3.19E-01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	3.53E-09	NA	4.80E-12	2.54E-07	2.57E-07	1%	0%	0%	99%	0%
Plutonium-239/240	1.77E+01	NA	2.20E-04	2.58E-01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	4.88E-09	NA	7.33E-12	5.16E-11	4.94E-09	99%	0%	0%	1%	0%
Technetium-99	1.92E+03	NA	2.38E-02	2.80E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.47E-08	NA	3.36E-13	2.28E-09	1.70E-08	87%	0%	0%	13%	0%
Thorium-228	ND	NA	ND	ND	8.09E-10	8.09E-10	1.43E-07	7.76E-06	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Thorium-230	2.06E+02	NA	2.56E-03	3.01E+00	2.02E-10	2.02E-10	2.85E-08	8.19E-10	4.16E-08	NA	7.30E-11	2.46E-09	4.41E-08	94%	0%	0%	6%	0%
Thorium-232	6.13E+01	NA	7.63E-04	8.96E-01	2.31E-10	2.31E-10	4.33E-08	3.42E-10	1.42E-08	NA	3.30E-11	3.06E-10	1.45E-08	98%	0%	0%	2%	0%
Uranium-234	2.27E+02	NA	2.82E-03	3.31E+00	1.58E-10	1.58E-10	1.14E-08	2.52E-10	3.59E-08	NA	3.22E-11	8.35E-10	3.67E-08	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	6.13E+02	NA	7.63E-03	8.96E+00	1.43E-10	1.43E-10	9.32E-09	4.99E-11	8.77E-08	NA	7.11E-11	4.47E-10	8.82E-08	99%	0%	0%	1%	0%
								Total ELCR =	**5.43E-06**	**9.03E-05**	**8.68E-10**	**2.96E-07**	**9.60E-05**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are (mg/kg-day)-1 and for inhalation exposure are (mg/m3)-1.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.122. Carcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 001 EU 18 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	2.01E-03	8.63E-03	2.50E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.74E-06	7.45E-06	2.16E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	8.19E-07	2.11E-06	1.02E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.23E-06	7.70E-06	1.54E-10	NA	8.93E-06	14%	86%	0%	0%	9%
Barium	1.07E-05	4.61E-05	1.34E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	1.06E-07	4.53E-07	1.32E-12	NA	NA	NA	8.40E+00	NA	NA	NA	1.10E-11	NA	1.10E-11	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	NA	NA	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	3.78E-06	1.62E-05	4.70E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	8.58E-06	3.68E-05	1.07E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	2.75E-03	1.18E-02	3.42E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.48E-04	6.35E-04	1.84E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	3.68E-06	1.58E-05	4.57E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	3.19E-05	1.37E-04	3.96E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	4.34E-07	1.86E-06	5.40E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	1.59E-05	6.81E-05	1.98E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	3.97E-06	1.70E-05	4.94E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	1.52E-05	6.50E-05	1.89E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	8.75E-08	9.75E-07	1.09E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	8.75E-08	7.50E-07	1.09E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	2.63E-07	3.15E-06	3.27E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	5.25E-07	7.00E-06	6.53E-12	NA	7.53E-06	7%	93%	0%	0%	8%
Total PAH (2)	1.93E-07	2.15E-06	2.40E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	1.41E-06	5.05E-05	7.38E-12	NA	5.19E-05	3%	97%	0%	0%	54%
Radionuclides																		
Americium-241	1.63E+02	NA	2.03E-03	2.38E+00	2.17E-10	2.17E-10	2.81E-08	2.76E-08	3.54E-08	NA	5.70E-11	6.57E-08	1.01E-07	35%	0%	0%	65%	0%
Cesium-137	2.94E+03	NA	3.65E-02	4.29E+01	3.64E-13	3.64E-13	4.11E-14	4.46E-08	1.07E-09	NA	1.50E-15	1.91E-06	1.91E-06	0%	0%	0%	100%	2%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	9.01E+02	NA	1.12E-02	1.32E+01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.46E-07	NA	1.99E-10	1.05E-05	1.06E-05	1%	0%	0%	99%	11%
Plutonium-239/240	1.13E+03	NA	1.41E-02	1.65E+01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	3.13E-07	NA	4.69E-10	3.31E-09	3.17E-07	99%	0%	0%	1%	0%
Technetium-99	7.17E+04	NA	8.92E-01	1.05E+03	7.66E-12	7.66E-12	1.41E-11	8.14E-11	5.49E-07	NA	1.26E-11	8.52E-08	6.34E-07	87%	0%	0%	13%	1%
Thorium-228	1.10E+02	NA	1.37E-03	1.61E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	8.94E-08	NA	1.97E-10	1.25E-05	1.26E-05	1%	0%	0%	99%	13%
Thorium-230	3.82E+03	NA	4.75E-02	5.58E+01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	7.71E-07	NA	1.35E-09	4.57E-08	8.18E-07	94%	0%	0%	6%	1%
Thorium-232	1.23E+02	NA	1.53E-03	1.79E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	2.83E-08	NA	6.61E-11	6.13E-10	2.90E-08	98%	0%	0%	2%	0%
Uranium-234	7.86E+02	NA	9.77E-03	1.15E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.24E-07	NA	1.11E-10	2.89E-09	1.27E-07	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	4.04E+03	NA	5.02E-02	5.90E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	5.77E-07	NA	4.68E-10	2.94E-09	5.81E-07	99%	0%	0%	1%	1%
								Total ELCR =	**5.79E-06**	**6.52E-05**	**3.11E-09**	**2.51E-05**	**9.61E-05**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.123. Carcinogenic Risk Results- (Future Industrial Worker) for Soil at the Outfall 001 EU 20 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	1.58E-03	6.78E-03	1.97E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.70E-06	7.31E-06	2.12E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.20E-06	3.08E-06	1.49E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.80E-06	1.13E-05	2.25E-10	NA	1.31E-05	14%	86%	0%	0%	14%
Barium	1.21E-05	5.19E-05	1.51E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	ND	ND	ND	NA	NA	NA	8.40E+00	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	NA	NA	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	2.00E-06	8.55E-06	2.48E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.96E-03	8.40E-03	2.44E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	8.24E-05	3.53E-04	1.03E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	1.27E-06	5.43E-06	1.58E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	4.27E-07	1.83E-06	5.31E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	3.40E-06	1.46E-05	4.22E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	3.43E-06	1.47E-05	4.27E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	5.20E-06	2.23E-05	6.47E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	8.58E-08	9.56E-07	1.07E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	8.58E-08	7.35E-07	1.07E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	1.24E-07	1.49E-06	1.55E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	2.49E-07	3.31E-06	3.09E-12	NA	3.56E-06	7%	93%	0%	0%	4%
Total PAH (2)	1.93E-07	2.15E-06	2.40E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	1.41E-06	5.05E-05	7.38E-12	NA	5.19E-05	3%	97%	0%	0%	55%
Radionuclides																		
Americium-241	1.91E+01	NA	2.38E-04	2.79E-01	2.17E-10	2.17E-10	2.81E-08	2.76E-08	4.14E-09	NA	6.67E-12	7.69E-09	1.18E-08	35%	0%	0%	65%	0%
Cesium-137	8.83E+01	NA	1.10E-03	1.29E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	3.21E-11	NA	4.51E-17	5.75E-08	5.75E-08	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.63E+02	NA	2.03E-03	2.38E+00	1.62E-10	1.62E-10	1.77E-08	7.97E-07	2.64E-08	NA	3.59E-11	1.90E-06	1.92E-06	1%	0%	0%	99%	2%
Plutonium-239/240	1.26E+02	NA	1.57E-03	1.85E+00	2.76E-10	2.76E-10	3.33E-08	2.00E-10	3.49E-08	NA	5.24E-11	3.69E-10	3.53E-08	99%	0%	0%	1%	0%
Technetium-99	1.95E+03	NA	2.42E-02	2.84E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.49E-08	NA	3.42E-13	2.31E-09	1.72E-08	87%	0%	0%	13%	0%
Thorium-228	1.98E+02	NA	2.46E-03	2.89E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	1.60E-07	NA	3.52E-10	2.24E-05	2.26E-05	1%	0%	0%	99%	24%
Thorium-230	1.36E+03	NA	1.69E-02	1.98E+01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	2.74E-07	NA	4.81E-10	1.62E-08	2.90E-07	94%	0%	0%	6%	0%
Thorium-232	2.08E+02	NA	2.59E-03	3.03E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	4.80E-08	NA	1.12E-10	1.04E-09	4.92E-08	98%	0%	0%	2%	0%
Uranium-234	1.16E+03	NA	1.45E-02	1.70E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.84E-07	NA	1.65E-10	4.28E-09	1.88E-07	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	1.34E+03	NA	1.67E-02	1.96E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	1.92E-07	NA	1.56E-10	9.78E-10	1.93E-07	99%	0%	0%	1%	0%
								Total ELCR =	**4.39E-06**	**6.51E-05**	**1.60E-09**	**2.44E-05**	**9.39E-05**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.124. Carcinogenic Risk Results- (Future Industrial Worker) for Soil Within the Fence, Excluding the Hot Spots

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	1.25E-03	5.38E-03	1.56E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.93E-06	8.25E-06	2.40E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.05E-06	2.70E-06	1.31E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.58E-06	9.88E-06	1.97E-10	NA	1.15E-05	14%	86%	0%	0%	12%
Barium	1.23E-05	5.25E-05	1.52E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	9.10E-08	3.90E-07	1.13E-12	NA	NA	NA	8.40E+00	NA	NA	NA	9.51E-12	NA	9.51E-12	0%	0%	100%	0%	0%
Cadmium	6.30E-07	5.40E-08	7.84E-12	NA	NA	NA	6.30E+00	NA	NA	NA	4.94E-11	NA	4.94E-11	0%	0%	100%	0%	0%
Chromium	2.98E-06	1.28E-05	3.70E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	1.93E-06	8.25E-06	2.40E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.88E-03	8.04E-03	2.33E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	3.68E-06	1.58E-05	4.57E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	6.04E-05	2.59E-04	7.51E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	1.93E-08	8.25E-08	2.40E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	1.10E-06	4.73E-06	1.37E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	1.73E-06	7.43E-06	2.16E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	3.50E-06	1.50E-05	4.36E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	4.55E-07	1.95E-06	5.66E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	3.64E-05	1.56E-04	4.53E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	3.15E-06	1.35E-05	3.92E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	1.26E-05	5.40E-05	1.57E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.28E-07	1.42E-06	1.59E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	1.19E-07	1.02E-06	1.48E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	1.10E-07	1.32E-06	1.37E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	2.21E-07	2.94E-06	2.74E-12	NA	3.16E-06	7%	93%	0%	0%	3%
Total PAH (2)	1.75E-07	1.95E-06	2.18E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	1.28E-06	4.59E-05	6.71E-12	NA	4.72E-05	3%	97%	0%	0%	49%
Radionuclides																		
Americium-241	6.26E+01	NA	7.79E-04	9.14E-01	2.17E-10	2.17E-10	2.81E-08	2.76E-08	1.36E-08	NA	2.19E-11	2.52E-08	3.88E-08	35%	0%	0%	65%	0%
Cesium-137	1.35E+02	NA	1.67E-03	1.97E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	4.90E-11	NA	6.88E-17	8.76E-08	8.77E-08	0%	0%	0%	100%	0%
Cobalt-60	4.38E+01	NA	5.45E-04	6.40E-01	4.03E-11	4.03E-11	3.58E-11	1.24E-05	1.77E-09	NA	1.95E-14	7.93E-06	7.94E-06	0%	0%	0%	100%	8%
Neptunium-237	2.03E+01	NA	2.53E-04	2.97E-01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	3.30E-09	NA	4.48E-12	2.37E-07	2.40E-07	1%	0%	0%	99%	0%
Plutonium-239/240	1.57E+01	NA	1.95E-04	2.29E-01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	4.32E-09	NA	6.48E-12	4.57E-11	4.37E-09	99%	0%	0%	1%	0%
Technetium-99	1.85E+03	NA	2.30E-02	2.70E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.41E-08	NA	3.24E-13	2.19E-09	1.63E-08	87%	0%	0%	13%	0%
Thorium-228	1.00E+02	NA	1.25E-03	1.46E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	8.10E-08	NA	1.78E-10	1.13E-05	1.14E-05	1%	0%	0%	99%	12%
Thorium-230	2.41E+02	NA	3.00E-03	3.52E+00	2.02E-10	2.02E-10	2.85E-08	8.19E-10	4.87E-08	NA	8.55E-11	2.88E-09	5.17E-08	94%	0%	0%	6%	0%
Thorium-232	1.03E+02	NA	1.29E-03	1.51E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	2.39E-08	NA	5.56E-11	5.16E-10	2.44E-08	98%	0%	0%	2%	0%
Uranium-234	4.38E+02	NA	5.45E-03	6.40E+00	1.58E-10	1.58E-10	1.14E-08	2.52E-10	6.92E-08	NA	6.21E-11	1.61E-09	7.09E-08	98%	0%	0%	2%	0%
Uranium-235	1.85E+03	NA	2.30E-02	2.70E+01	1.57E-10	1.57E-10	1.01E-08	5.18E-07	2.90E-07	NA	2.32E-10	1.40E-05	1.43E-05	2%	0%	0%	98%	15%
Uranium-238	1.16E+03	NA	1.44E-02	1.69E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	1.66E-07	NA	1.34E-10	8.44E-10	1.67E-07	99%	0%	0%	1%	0%
								Total ELCR =	**3.79E-06**	**5.87E-05**	**1.05E-09**	**3.36E-05**	**9.61E-05**					

NA: Not applicable.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.125 Carcinogenic Risk Results- (Future Industrial Worker) for Soil at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	1.42E-03	6.07E-03	1.76E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	2.45E-06	1.05E-05	3.05E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.02E-06	2.61E-06	1.26E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.52E-06	9.55E-06	1.91E-10	NA	1.11E-05	14%	86%	0%	0%	5%
Barium	1.37E-05	5.88E-05	1.71E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	1.14E-07	4.88E-07	1.42E-12	NA	NA	NA	8.40E+00	NA	NA	NA	1.19E-11	NA	1.19E-11	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	NA	NA	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	1.48E-05	6.35E-05	1.84E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	2.15E-05	9.23E-05	2.68E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.96E-03	8.38E-03	2.43E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	3.68E-06	1.58E-05	4.57E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	7.29E-05	3.13E-04	9.07E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	1.05E-07	4.50E-07	1.31E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	1.45E-06	6.23E-06	1.81E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	1.65E-05	7.05E-05	2.05E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	3.50E-06	1.50E-05	4.36E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	5.95E-07	2.55E-06	7.40E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	5.74E-05	2.46E-04	7.14E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	3.51E-06	1.51E-05	4.37E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	1.79E-05	7.67E-05	2.23E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.19E-07	1.33E-06	1.48E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	9.80E-08	8.40E-07	1.22E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	4.73E-07	5.67E-06	5.88E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	9.45E-07	1.26E-05	1.18E-11	NA	1.35E-05	7%	93%	0%	0%	7%
Total PAH (2)	1.75E-07	1.95E-06	2.18E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	1.28E-06	4.59E-05	6.71E-12	NA	4.72E-05	3%	97%	0%	0%	23%
Radionuclides																		
Americium-241	1.37E+03	NA	1.71E-02	2.01E+01	2.17E-10	2.17E-10	2.81E-08	2.76E-08	2.98E-07	NA	4.80E-10	5.54E-07	8.52E-07	35%	0%	0%	65%	0%
Cesium-137	1.30E+03	NA	1.62E-02	1.90E+01	3.64E-13	3.64E-13	4.11E-14	4.46E-08	4.74E-10	NA	6.66E-16	8.48E-07	8.48E-07	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.66E+03	NA	2.06E-02	2.42E+01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	2.69E-07	NA	3.65E-10	1.93E-05	1.96E-05	1%	0%	0%	99%	10%
Plutonium-239/240	6.45E+03	NA	8.02E-02	9.41E+01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	1.78E-06	NA	2.67E-09	1.88E-08	1.80E-06	99%	0%	0%	1%	1%
Technetium-99	1.87E+05	NA	2.32E+00	2.72E+03	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.43E-06	NA	3.27E-11	2.22E-07	1.65E-06	87%	0%	0%	13%	1%
Thorium-228	6.26E+02	NA	7.79E-03	9.14E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	5.06E-07	NA	1.11E-09	7.09E-05	7.14E-05	1%	0%	0%	99%	35%
Thorium-230	1.56E+05	NA	1.94E+00	2.27E+03	2.02E-10	2.02E-10	2.85E-08	8.19E-10	3.14E-05	NA	5.52E-08	1.86E-06	3.33E-05	94%	0%	0%	6%	16%
Thorium-232	7.61E+02	NA	9.47E-03	1.11E+01	2.31E-10	2.31E-10	4.33E-08	3.42E-10	1.76E-07	NA	4.10E-10	3.80E-09	1.80E-07	98%	0%	0%	2%	0%
Uranium-234	9.08E+03	NA	1.13E-01	1.33E+02	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.43E-06	NA	1.29E-09	3.34E-08	1.47E-06	98%	0%	0%	2%	1%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	8.14E+03	NA	1.01E-01	1.19E+02	1.43E-10	1.43E-10	9.32E-09	4.99E-11	1.16E-06	NA	9.44E-10	5.93E-09	1.17E-06	99%	0%	0%	1%	1%
								Total ELCR =	**4.22E-05**	**6.81E-05**	**6.27E-08**	**9.38E-05**	**2.04E-04**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.126 Carcinogenic Risk Results- (Future Industrial Worker) for Soil at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	1.12E-03	4.82E-03	1.40E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.75E-06	7.50E-06	2.18E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.05E-06	4.50E-06	1.31E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.58E-06	1.65E-05	1.97E-10	NA	1.80E-05	9%	91%	0%	0%	20%
Barium	1.16E-05	4.95E-05	1.44E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	1.02E-07	4.35E-07	1.26E-12	NA	NA	NA	8.40E+00	NA	NA	NA	1.06E-11	NA	1.06E-11	0%	0%	100%	0%	0%
Cadmium	3.68E-07	3.15E-07	4.57E-12	NA	NA	NA	6.30E+00	NA	NA	NA	2.88E-11	NA	2.88E-11	0%	0%	100%	0%	0%
Chromium	6.83E-06	2.93E-05	8.49E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	6.13E-06	2.63E-05	7.62E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.63E-03	7.00E-03	2.03E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	3.68E-06	1.58E-05	4.57E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	7.98E-05	3.42E-04	9.93E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	1.93E-08	8.25E-08	2.40E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	8.05E-07	3.45E-06	1.00E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	2.80E-06	1.20E-05	3.48E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	3.85E-06	1.65E-05	4.79E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	5.08E-07	2.18E-06	6.31E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	2.87E-05	1.23E-04	3.57E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	2.98E-06	1.28E-05	3.70E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	6.65E-06	2.85E-05	8.27E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	3.85E-07	3.30E-06	4.79E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	2.45E-07	2.10E-06	3.05E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	1.93E-07	9.90E-07	2.40E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	3.85E-07	2.20E-06	4.79E-12	NA	2.59E-06	15%	85%	0%	0%	3%
Total PAH (2)	2.10E-07	1.80E-06	2.61E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	1.53E-06	4.24E-05	8.05E-12	NA	4.39E-05	3%	97%	0%	0%	50%
Radionuclides																		
Americium-241	1.50E+02	NA	1.87E-03	2.19E+00	2.17E-10	2.17E-10	2.81E-08	2.76E-08	3.26E-08	NA	5.25E-11	6.05E-08	9.32E-08	35%	0%	0%	65%	0%
Cesium-137	2.38E+02	NA	2.96E-03	3.47E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	8.66E-11	NA	1.22E-16	1.55E-07	1.55E-07	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	8.76E+01	NA	1.09E-03	1.28E+00	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.42E-08	NA	1.93E-11	1.02E-06	1.03E-06	1%	0%	0%	99%	1%
Plutonium-239/240	1.50E+03	NA	1.87E-02	2.19E+01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	4.15E-07	NA	6.22E-10	4.39E-09	4.20E-07	99%	0%	0%	1%	0%
Technetium-99	1.00E+04	NA	1.25E-01	1.46E+02	7.66E-12	7.66E-12	1.41E-11	8.14E-11	7.67E-08	NA	1.76E-12	1.19E-08	8.86E-08	87%	0%	0%	13%	0%
Thorium-228	1.47E+02	NA	1.83E-03	2.15E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	1.19E-07	NA	2.62E-10	1.67E-05	1.68E-05	1%	0%	0%	99%	19%
Thorium-230	2.10E+04	NA	2.61E-01	3.06E+02	2.02E-10	2.02E-10	2.85E-08	8.19E-10	4.24E-06	NA	7.44E-09	2.51E-07	4.49E-06	94%	0%	0%	6%	5%
Thorium-232	1.75E+02	NA	2.18E-03	2.56E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	4.05E-08	NA	9.44E-11	8.75E-10	4.15E-08	98%	0%	0%	2%	0%
Uranium-234	9.39E+02	NA	1.17E-02	1.37E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.48E-07	NA	1.33E-10	3.45E-09	1.52E-07	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	1.35E+03	NA	1.67E-02	1.97E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	1.92E-07	NA	1.56E-10	9.81E-10	1.94E-07	99%	0%	0%	1%	0%
								Total ELCR =	**8.77E-06**	**6.11E-05**	**9.03E-09**	**1.82E-05**	**8.80E-05**					

NA: Not applicable.
ND: Not applicable.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.127. Carcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 008 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethylene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.128. Carcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 010 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethylene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.129. Carcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 011 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	1.49E-06	2.22E+00	3.32E-06	3.32E-06	100%	28%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethylene	3.19E-06	2.67E+00	8.51E-06	8.51E-06	100%	72%
		Total ELCR =	**1.18E-05**	**1.18E-05**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.130. Carcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 015 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	2.70E-06	2.22E+00	6.01E-06	6.01E-06	100%	65%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethylene	1.23E-06	2.67E+00	3.27E-06	3.27E-06	100%	35%
		Total ELCR =	**9.28E-06**	**9.28E-06**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are (mg/kg-day)-1.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.131. Carcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 001 EU 13 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethylene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are (mg/kg-day)-1.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.132. Carcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 001 EU 14 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	2.28E-05	2.22E+00	5.06E-05	5.06E-05	100%	100%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	2.67E+00	NA	NA	0%	0%
		Total HI =	**5.06E-05**	**5.06E-05**		

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are (mg/kg-day)-1.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.133. Carcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 001 EU 15 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.134. Carcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 001 EU 16 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethylene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are (mg/kg-day)-1.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.135. Carcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 001 EU 18 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethylene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.136. Carcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the Outfall 001 EU 20 Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.137. Carcinogenic Risk Results- (Future Industrial Worker) for Surface Water Within the Fence, Excluding the Hot Spots

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	1.69E-05	2.22E+00	3.77E-05	3.77E-05	100%	92%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	1.23E-06	2.67E+00	3.27E-06	3.27E-06	100%	8%
		Total ELCR =	**4.09E-05**	**4.09E-05**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.138 Carcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.139 Carcinogenic Risk Results- (Future Industrial Worker) for Surface Water at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	8.59E-07	2.67E+00	2.29E-06	2.29E-06	100%	100%
		Total ELCR =	**2.29E-06**	**2.29E-06**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.140. Carcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 008 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	1.13E-02	5.06E-03	1.47E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.20E-05	5.38E-06	1.56E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	7.07E-06	1.90E-06	9.18E-12	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.06E-05	6.94E-06	1.39E-10	NA	1.75E-05	60%	40%	0%	0%	5%
Barium	9.05E-05	4.05E-05	1.18E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	6.57E-07	2.94E-07	8.54E-13	NA	NA	NA	8.40E+00	NA	NA	NA	7.17E-12	NA	7.17E-12	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	NA	NA	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	1.74E-05	7.77E-06	2.25E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	2.23E-05	9.99E-06	2.90E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.54E-02	6.89E-03	2.00E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	2.73E-05	1.22E-05	3.54E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	5.82E-04	2.60E-04	7.55E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	1.24E-07	5.55E-08	1.61E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	1.02E-05	4.55E-06	1.32E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	2.11E-05	9.44E-06	2.74E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	2.98E-06	1.33E-06	3.87E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	1.19E-04	5.33E-05	1.55E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	2.60E-05	1.17E-05	3.38E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	6.20E-05	2.78E-05	8.05E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	7.19E-07	8.37E-07	9.34E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	6.20E-07	5.55E-07	8.05E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	3.97E-05	4.97E-05	5.15E-11	NA	2.00E+00	2.22E+00	2.00E+00	NA	7.94E-05	1.11E-04	1.03E-10	NA	1.90E-04	42%	58%	0%	0%	58%
Total PAH (2)	1.49E-06	1.73E-06	1.93E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	1.09E-05	4.08E-05	5.95E-12	NA	5.16E-05	21%	79%	0%	0%	16%
Radionuclides																		
Americium-241	2.22E+03	NA	2.88E-03	3.38E+00	2.17E-10	2.17E-10	2.81E-08	2.76E-08	4.82E-07	NA	8.10E-11	9.33E-08	5.75E-07	84%	0%	0%	16%	0%
Cesium-137	1.22E+03	NA	1.58E-03	1.86E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	4.44E-10	NA	6.51E-17	8.29E-08	8.34E-08	1%	0%	0%	99%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.47E+03	NA	1.90E-03	2.23E+00	1.62E-10	1.62E-10	1.77E-08	7.97E-07	2.37E-07	NA	3.37E-11	1.78E-06	2.02E-06	12%	0%	0%	88%	1%
Plutonium-239/240	2.02E+04	NA	2.62E-02	3.08E+01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	5.58E-06	NA	8.73E-10	6.15E-09	5.58E-06	100%	0%	0%	0%	2%
Technetium-99	1.64E+04	NA	2.13E-02	2.50E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.26E-07	NA	3.01E-13	2.04E-09	1.28E-07	98%	0%	0%	2%	0%
Thorium-228	1.31E+03	NA	1.70E-03	1.99E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	1.06E-06	NA	2.43E-10	1.55E-05	1.65E-05	6%	0%	0%	94%	5%
Thorium-230	1.86E+05	NA	2.42E-01	2.84E+02	2.02E-10	2.02E-10	2.85E-08	8.19E-10	3.77E-05	NA	6.90E-09	2.33E-07	3.79E-05	99%	0%	0%	1%	12%
Thorium-232	1.49E+03	NA	1.93E-03	2.26E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	3.44E-07	NA	8.36E-11	7.74E-10	3.44E-07	100%	0%	0%	0%	0%
Uranium-234	6.88E+03	NA	8.93E-03	1.05E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.09E-06	NA	1.02E-10	2.64E-09	1.09E-06	100%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	1.02E+04	NA	1.33E-02	1.55E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	1.46E-06	NA	1.24E-10	7.76E-10	1.46E-06	100%	0%	0%	0%	0%
									Total ELCR =		**1.49E-04**	**1.58E-04**	**8.69E-09**	**1.77E-05**	**3.25E-04**			

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.141. Carcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 010 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	1.60E-02	7.16E-03	2.08E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.20E-05	5.37E-06	1.56E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.56E-05	4.20E-06	2.03E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	2.34E-05	1.54E-05	3.06E-10	NA	3.88E-05	60%	40%	0%	0%	13%
Barium	1.18E-04	5.28E-05	1.53E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	5.95E-07	2.66E-07	7.73E-13	NA	NA	NA	8.40E+00	NA	NA	NA	6.49E-12	NA	6.49E-12	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	NA	NA	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	2.89E-05	1.29E-05	3.75E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	2.27E-05	1.02E-05	2.95E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.93E-02	8.66E-03	2.51E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	9.32E-05	4.17E-05	1.21E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	4.01E-04	1.79E-04	5.20E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	3.84E-07	1.72E-07	4.99E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	1.72E-05	7.71E-06	2.24E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	2.70E-05	1.21E-05	3.51E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	3.00E-06	1.34E-06	3.90E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	3.27E-05	1.47E-05	4.25E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	3.45E-05	1.54E-05	4.48E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	3.12E-04	1.40E-04	4.06E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	6.32E-06	7.36E-06	8.21E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	4.34E-06	3.89E-06	5.64E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	2.36E-05	2.95E-05	3.06E-11	NA	2.00E+00	2.22E+00	2.00E+00	NA	4.71E-05	6.56E-05	6.12E-11	NA	1.13E-04	42%	58%	0%	0%	38%
Total PAH (2)	3.84E-06	4.47E-06	4.99E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	2.81E-05	1.05E-04	1.54E-11	NA	1.33E-04	21%	79%	0%	0%	44%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	1.61E+03	NA	2.09E-03	2.45E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	5.87E-10	NA	8.60E-17	1.09E-07	1.10E-07	1%	0%	0%	99%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.41E+02	NA	1.83E-04	2.15E-01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	2.29E-08	NA	3.24E-12	1.71E-07	1.94E-07	12%	0%	0%	88%	0%
Plutonium-239/240	2.42E+02	NA	3.14E-04	3.68E-01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	6.68E-08	NA	1.05E-11	7.37E-11	6.69E-08	100%	0%	0%	0%	0%
Technetium-99	1.87E+04	NA	2.43E-02	2.85E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.44E-07	NA	3.43E-13	2.32E-09	1.46E-07	98%	0%	0%	2%	0%
Thorium-228	7.28E+02	NA	9.45E-04	1.11E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	5.89E-07	NA	1.35E-10	8.60E-06	9.19E-06	6%	0%	0%	94%	3%
Thorium-230	1.82E+03	NA	2.37E-03	2.77E+00	2.02E-10	2.02E-10	2.85E-08	8.19E-10	3.68E-07	NA	6.74E-11	2.27E-09	3.71E-07	99%	0%	0%	1%	0%
Thorium-232	6.02E+02	NA	7.81E-04	9.16E-01	2.31E-10	2.31E-10	4.33E-08	3.42E-10	1.39E-07	NA	3.38E-11	3.13E-10	1.39E-07	100%	0%	0%	0%	0%
Uranium-234	1.65E+04	NA	2.14E-02	2.51E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	2.60E-06	NA	2.44E-10	6.32E-09	2.61E-06	100%	0%	0%	0%	1%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	1.96E+04	NA	2.54E-02	2.98E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	2.80E-06	NA	2.37E-10	1.49E-09	2.80E-06	100%	0%	0%	0%	1%
								Total ELCR =	**1.05E-04**	**1.86E-04**	**1.12E-09**	**8.90E-06**	**3.01E-04**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.142. Carcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 011 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	1.29E-02	5.76E-03	1.67E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	2.11E-05	9.44E-06	2.74E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.61E-05	4.33E-06	2.09E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	2.42E-05	1.58E-05	3.16E-10	NA	4.00E-05	60%	40%	0%	0%	2%
Barium	1.14E-04	5.11E-05	1.48E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	1.19E-06	5.33E-07	1.55E-12	NA	NA	NA	8.40E+00	NA	NA	NA	1.30E-11	NA	1.30E-11	0%	0%	100%	0%	0%
Cadmium	3.47E-06	3.11E-08	4.51E-12	NA	NA	NA	6.30E+00	NA	NA	NA	2.84E-11	NA	2.84E-11	0%	0%	100%	0%	0%
Chromium	1.85E-04	8.27E-05	2.40E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	2.50E-04	1.12E-04	3.25E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	2.89E-02	1.29E-02	3.76E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	6.45E-05	2.89E-05	8.38E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	7.38E-04	3.30E-04	9.58E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	2.11E-07	9.44E-08	2.74E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	9.05E-06	4.05E-06	1.18E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	1.74E-05	7.77E-06	2.25E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	3.10E-06	1.39E-06	4.03E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	5.44E-04	2.44E-04	7.07E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	5.21E-05	2.33E-05	6.76E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	9.47E-04	4.24E-04	1.23E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	5.33E-05	6.20E-05	6.93E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	1.61E-04	1.44E-04	2.09E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	9.42E-06	1.18E-05	1.22E-11	NA	2.00E+00	2.22E+00	2.00E+00	NA	1.88E-05	2.62E-05	2.45E-11	NA	4.51E-05	42%	58%	0%	0%	2%
Total PAH (2)	7.19E-05	8.37E-05	9.34E-11	NA	7.30E+00	2.35E+01	3.08E+00	NA	5.25E-04	1.97E-03	2.88E-10	NA	2.50E-03	21%	79%	0%	0%	96%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	1.20E+03	NA	1.56E-03	1.83E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	4.36E-10	NA	6.40E-17	8.14E-08	8.18E-08	1%	0%	0%	99%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	ND	NA	ND	ND	1.62E-10	1.62E-10	1.77E-08	7.97E-07	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Plutonium-239/240	1.02E+02	NA	1.33E-04	1.55E-01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	2.82E-08	NA	4.41E-12	3.11E-11	2.82E-08	100%	0%	0%	0%	0%
Technetium-99	1.67E+04	NA	2.16E-02	2.54E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.28E-07	NA	3.05E-13	2.06E-09	1.30E-07	98%	0%	0%	2%	0%
Thorium-228	1.07E+03	NA	1.38E-03	1.62E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	8.62E-07	NA	1.98E-10	1.26E-05	1.35E-05	6%	0%	0%	94%	1%
Thorium-230	2.44E+03	NA	3.17E-03	3.72E+00	2.02E-10	2.02E-10	2.85E-08	8.19E-10	4.93E-07	NA	9.03E-11	3.05E-09	4.96E-07	99%	0%	0%	1%	0%
Thorium-232	1.11E+03	NA	1.44E-03	1.69E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	2.56E-07	NA	6.24E-11	5.78E-10	2.57E-07	100%	0%	0%	0%	0%
Uranium-234	6.88E+03	NA	8.93E-03	1.05E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.09E-06	NA	1.02E-10	2.64E-09	1.09E-06	100%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	3.77E+04	NA	4.90E-02	5.75E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	5.40E-06	NA	4.57E-10	2.87E-09	5.40E-06	100%	0%	0%	0%	0%
									Total ELCR =	**5.76E-04**	**2.01E-03**	**1.58E-09**	**1.27E-05**	**2.60E-03**				

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.143. Carcinogenic Risk Results-Future Excavation Worker for Soil at the Outfall 015 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	8.33E-03	3.73E-03	1.08E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.36E-05	6.11E-06	1.77E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.24E-05	3.33E-06	1.61E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.86E-05	1.22E-05	2.43E-10	NA	3.08E-05	60%	40%	0%	0%	21%
Barium	9.55E-05	4.27E-05	1.24E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	7.07E-07	3.16E-07	9.18E-13	NA	NA	NA	8.40E+00	NA	NA	NA	7.71E-12	NA	7.71E-12	0%	0%	100%	0%	0%
Cadmium	2.60E-06	2.33E-08	3.38E-12	NA	NA	NA	6.30E+00	NA	NA	NA	2.13E-11	NA	2.13E-11	0%	0%	100%	0%	0%
Chromium	2.85E-05	1.28E-05	3.70E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	2.48E-05	1.11E-05	3.22E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.82E-02	8.14E-03	2.36E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	5.58E-05	2.50E-05	7.25E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	6.57E-04	2.94E-04	8.54E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	1.98E-07	8.88E-08	2.58E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	6.82E-06	3.05E-06	8.86E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	3.60E-05	1.61E-05	4.67E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0%	0%	0%	0%	0%
Silver	3.22E-06	1.44E-06	4.19E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	1.14E-03	5.11E-04	1.48E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	2.36E-05	1.05E-05	3.06E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	1.41E-04	6.33E-05	1.84E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	8.43E-07	9.81E-07	1.10E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	7.81E-07	6.99E-07	1.01E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	1.36E-06	1.71E-06	1.77E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	2.73E-06	3.80E-06	3.54E-12	NA	6.53E-06	42%	58%	0%	0%	4%
Total PAH (2)	1.36E-06	1.59E-06	1.77E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	9.96E-06	3.74E-05	5.46E-12	NA	4.73E-05	21%	79%	0%	0%	32%
Radionuclides																		
Americium-241	1.24E+03	NA	1.61E-03	1.89E+00	2.17E-10	2.17E-10	2.81E-08	2.76E-08	2.70E-07	NA	4.53E-11	5.22E-08	3.22E-07	84%	0%	0%	16%	0%
Cesium-137	6.88E+04	NA	8.93E-02	1.05E+02	3.64E-13	3.64E-13	4.11E-14	4.46E-08	2.51E-08	NA	3.67E-15	4.67E-06	4.70E-06	1%	0%	0%	99%	3%
Cobalt-60	4.00E+02	NA	5.19E-04	6.08E-01	4.03E-11	4.03E-11	3.58E-11	1.24E-05	1.61E-08	NA	1.86E-14	7.54E-06	7.56E-06	0%	0%	0%	100%	5%
Neptunium-237	9.32E+02	NA	1.21E-03	1.42E+00	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.51E-07	NA	2.14E-11	1.13E-06	1.28E-06	12%	0%	0%	88%	1%
Plutonium-239/240	5.99E+04	NA	7.78E-02	9.13E+01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	1.65E-05	NA	2.59E-09	1.83E-08	1.66E-05	100%	0%	0%	0%	11%
Technetium-99	4.66E+04	NA	6.05E-02	7.10E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	3.57E-07	NA	8.53E-13	5.78E-09	3.63E-07	98%	0%	0%	2%	0%
Thorium-228	1.13E+03	NA	1.47E-03	1.72E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	9.16E-07	NA	2.10E-10	1.34E-05	1.43E-05	6%	0%	0%	94%	10%
Thorium-230	3.55E+04	NA	4.61E-02	5.41E+01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	7.18E-06	NA	1.31E-09	4.43E-08	7.22E-06	99%	0%	0%	1%	5%
Thorium-232	1.22E+03	NA	1.58E-03	1.86E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	2.82E-07	NA	6.86E-11	6.36E-10	2.83E-07	100%	0%	0%	0%	0%
Uranium-234	1.35E+04	NA	1.76E-02	2.06E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	2.14E-06	NA	2.00E-10	5.20E-09	2.15E-06	100%	0%	0%	0%	1%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	7.33E+04	NA	9.51E-02	1.12E+02	1.43E-10	1.43E-10	9.32E-09	4.99E-11	1.05E-05	NA	8.86E-10	5.57E-09	1.05E-05	100%	0%	0%	0%	7%
									Total ELCR =		**6.96E-05**	**5.34E-05**	**5.62E-09**	**2.69E-05**	**1.50E-04**			

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.144. Carcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 001 EU 13 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	1.10E-02	4.93E-03	1.43E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.22E-05	5.47E-06	1.59E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	6.41E-06	1.72E-06	8.33E-12	NA	1.50E+00	3.66E+00	1.51E+01	NA	9.62E-06	6.30E-06	1.26E-10	NA	1.59E-05	60%	40%	0%	0%	15%
Barium	1.13E-04	5.07E-05	1.47E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	6.11E-07	2.74E-07	7.94E-13	NA	NA	NA	8.40E+00	NA	NA	NA	6.67E-12	NA	6.67E-12	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	NA	NA	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	5.39E-05	2.41E-05	7.01E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	1.60E-05	7.16E-06	2.08E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.88E-02	8.44E-03	2.45E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	2.72E-05	1.22E-05	3.53E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	9.77E-04	4.37E-04	1.27E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	1.57E-05	7.05E-06	2.05E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	3.06E-06	1.37E-06	3.98E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	6.01E-05	2.69E-05	7.81E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	2.05E-05	9.16E-06	2.66E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	1.39E-04	6.22E-05	1.80E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	6.08E-07	7.07E-07	7.89E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	6.08E-07	5.44E-07	7.89E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	4.09E-06	5.13E-06	5.31E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	8.18E-06	1.14E-05	1.06E-11	NA	1.96E-05	42%	58%	0%	0%	19%
Total PAH (2)	1.36E-06	1.59E-06	1.77E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	9.96E-06	3.74E-05	5.46E-12	NA	4.73E-05	21%	79%	0%	0%	46%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	6.68E+02	NA	8.67E-04	1.02E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	2.43E-10	NA	3.56E-17	4.54E-08	4.56E-08	1%	0%	0%	99%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.33E+03	NA	1.73E-03	2.03E+00	1.62E-10	1.62E-10	1.77E-08	7.97E-07	2.16E-07	NA	3.06E-11	1.62E-06	1.83E-06	12%	0%	0%	88%	2%
Plutonium-239/240	1.55E+02	NA	2.01E-04	2.36E-01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	4.28E-08	NA	6.71E-12	4.73E-11	4.29E-08	100%	0%	0%	0%	0%
Technetium-99	2.29E+04	NA	2.97E-02	3.48E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.75E-07	NA	4.18E-13	2.83E-09	1.78E-07	98%	0%	0%	2%	0%
Thorium-228	7.70E+02	NA	1.00E-03	1.17E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	6.23E-07	NA	1.43E-10	9.10E-06	9.72E-06	6%	0%	0%	94%	9%
Thorium-230	6.62E+03	NA	8.59E-03	1.01E+01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	1.34E-06	NA	2.45E-10	8.25E-09	1.34E-06	99%	0%	0%	1%	1%
Thorium-232	9.95E+02	NA	1.29E-03	1.51E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	2.30E-07	NA	5.59E-11	5.18E-10	2.30E-07	100%	0%	0%	0%	0%
Uranium-234	9.77E+03	NA	1.27E-02	1.49E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.54E-06	NA	1.45E-10	3.75E-09	1.55E-06	100%	0%	0%	0%	2%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	3.62E+04	NA	4.70E-02	5.51E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	5.17E-06	NA	4.38E-10	2.75E-09	5.18E-06	100%	0%	0%	0%	5%
								Total ELCR =	**3.71E-05**	**5.51E-05**	**1.21E-09**	**1.08E-05**	**1.03E-04**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.145. Carcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 001 EU 14 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	9.35E-03	4.19E-03	1.21E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	2.36E-05	1.05E-05	3.06E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	6.57E-06	1.76E-06	8.54E-12	NA	1.50E+00	3.66E+00	1.51E+01	NA	9.86E-06	6.46E-06	1.29E-10	NA	1.63E-05	60%	40%	0%	0%	0%
Barium	1.13E-04	5.05E-05	1.47E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	6.08E-07	2.72E-07	7.89E-13	NA	NA	NA	8.40E+00	NA	NA	NA	6.63E-12	NA	6.63E-12	0%	0%	100%	0%	0%
Cadmium	2.48E-06	2.22E-08	3.22E-12	NA	NA	NA	6.30E+00	NA	NA	NA	2.03E-11	NA	2.03E-11	0%	0%	100%	0%	0%
Chromium	9.55E-05	4.27E-05	1.24E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	5.46E-05	2.44E-05	7.09E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.45E-02	6.48E-03	1.88E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	2.73E-05	1.22E-05	3.54E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	4.39E-04	1.96E-04	5.70E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	5.83E-06	2.61E-06	7.57E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	2.36E-05	1.05E-05	3.06E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	3.10E-06	1.39E-06	4.03E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	9.67E-06	4.33E-06	1.26E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	2.60E-05	1.17E-05	3.38E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	2.05E-04	9.16E-05	2.66E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.48E-04	2.89E-04	3.22E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	5.70E-05	5.11E-05	7.41E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	2.73E-05	3.42E-05	3.54E-11	NA	2.00E+00	2.22E+00	2.00E+00	NA	5.46E-05	7.60E-05	7.09E-11	NA	1.31E-04	42%	58%	0%	0%	2%
Total PAH (2)	2.28E-04	2.66E-04	2.96E-10	NA	7.30E+00	2.35E+01	3.08E+00	NA	1.67E-03	6.25E-03	9.13E-10	NA	7.92E-03	21%	79%	0%	0%	98%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	2.09E+02	NA	2.71E-04	3.18E-01	3.64E-13	3.64E-13	4.11E-14	4.46E-08	7.60E-11	NA	1.11E-17	1.42E-08	1.42E-08	1%	0%	0%	99%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.31E+02	NA	1.70E-04	1.99E-01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	2.12E-08	NA	3.01E-12	1.59E-07	1.80E-07	12%	0%	0%	88%	0%
Plutonium-239/240	1.75E+02	NA	2.28E-04	2.67E-01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	4.84E-08	NA	7.58E-12	5.34E-11	4.85E-08	100%	0%	0%	0%	0%
Technetium-99	9.55E+03	NA	1.24E-02	1.45E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	7.31E-08	NA	1.75E-13	1.18E-09	7.43E-08	98%	0%	0%	2%	0%
Thorium-228	9.77E+02	NA	1.27E-03	1.49E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	7.90E-07	NA	1.81E-10	1.15E-05	1.23E-05	6%	0%	0%	94%	0%
Thorium-230	5.77E+03	NA	7.49E-03	8.79E+00	2.02E-10	2.02E-10	2.85E-08	8.19E-10	1.17E-06	NA	2.14E-10	7.20E-09	1.17E-06	99%	0%	0%	1%	0%
Thorium-232	1.04E+03	NA	1.35E-03	1.59E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	2.41E-07	NA	5.86E-11	5.43E-10	2.42E-07	100%	0%	0%	0%	0%
Uranium-234	5.33E+03	NA	6.92E-03	8.11E+00	1.58E-10	1.58E-10	1.14E-08	2.52E-10	8.42E-07	NA	7.88E-11	2.04E-09	8.44E-07	100%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	4.88E+03	NA	6.34E-03	7.44E+00	1.43E-10	1.43E-10	9.32E-09	4.99E-11	6.98E-07	NA	5.91E-11	3.71E-10	6.99E-07	100%	0%	0%	0%	0%
Total ELCR =									**1.73E-03**	**6.33E-03**	**1.74E-09**	**1.17E-05**	**8.08E-03**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.146. Carcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 001 EU 15 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	9.29E-03	4.16E-03	1.21E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.21E-05	5.43E-06	1.58E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.18E-05	3.18E-06	1.54E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.78E-05	1.16E-05	2.32E-10	NA	2.94E-05	60%	40%	0%	0%	5%
Barium	6.00E-05	2.69E-05	7.80E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	ND	ND	ND	NA	NA	NA	8.40E+00	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Cadmium	3.47E-06	3.11E-08	4.51E-12	NA	NA	NA	6.30E+00	NA	NA	NA	2.84E-11	NA	2.84E-11	0%	0%	100%	0%	0%
Chromium	9.01E-05	4.03E-05	1.17E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	5.91E-05	2.65E-05	7.68E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.45E-02	6.49E-03	1.88E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	8.01E-05	3.59E-05	1.04E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	4.24E-04	1.90E-04	5.51E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	2.96E-05	1.33E-05	3.85E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	6.45E-04	2.89E-04	8.38E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	3.04E-06	1.36E-06	3.95E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	7.96E-04	3.56E-04	1.03E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	1.93E-05	8.66E-06	2.51E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	1.70E-03	7.60E-04	2.21E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
	0.00E+00	0.00E+00	0.00E+00	0.00E+00														
Organic Compounds	0.00E+00	0.00E+00	0.00E+00	0.00E+00														
Fluoranthene	9.42E-06	1.10E-05	1.22E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	6.94E-06	6.22E-06	9.02E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	6.45E-05	8.08E-05	8.38E-11	NA	2.00E+00	2.22E+00	2.00E+00	NA	1.29E-04	1.80E-04	1.68E-10	NA	3.09E-04	42%	58%	0%	0%	53%
Total PAH (2)	6.45E-06	7.50E-06	8.38E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	4.71E-05	1.77E-04	2.58E-11	NA	2.24E-04	21%	79%	0%	0%	38%
	0.00E+00	0.00E+00	0.00E+00	0.00E+00														
Radionuclides	0.00E+00	0.00E+00	0.00E+00	0.00E+00														
Americium-241	2.82E+02	NA	3.66E-04	4.29E-01	2.17E-10	2.17E-10	2.81E-08	2.76E-08	6.12E-08	NA	1.03E-11	1.18E-08	7.30E-08	84%	0%	0%	16%	0%
Cesium-137	1.51E+03	NA	1.96E-03	2.30E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	5.50E-10	NA	8.07E-17	1.03E-07	1.03E-07	1%	0%	0%	99%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	7.44E+02	NA	9.65E-04	1.13E+00	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.20E-07	NA	1.71E-11	9.02E-07	1.02E-06	12%	0%	0%	88%	0%
Plutonium-239/240	1.39E+03	NA	1.80E-03	2.11E+00	2.76E-10	2.76E-10	3.33E-08	2.00E-10	3.83E-07	NA	6.00E-11	4.23E-10	3.83E-07	100%	0%	0%	0%	0%
Technetium-99	8.10E+04	NA	1.05E-01	1.23E+02	7.66E-12	7.66E-12	1.41E-11	8.14E-11	6.21E-07	NA	1.48E-12	1.00E-08	6.31E-07	98%	0%	0%	2%	0%
Thorium-228	7.19E+02	NA	9.34E-04	1.10E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	5.82E-07	NA	1.34E-10	8.50E-06	9.08E-06	6%	0%	0%	94%	2%
Thorium-230	9.59E+03	NA	1.24E-02	1.46E+01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	1.94E-06	NA	3.55E-10	1.20E-08	1.95E-06	99%	0%	0%	1%	0%
Thorium-232	7.75E+02	NA	1.01E-03	1.18E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	1.79E-07	NA	4.35E-11	4.03E-10	1.79E-07	100%	0%	0%	0%	0%
Uranium-234	2.53E+04	NA	3.29E-02	3.85E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	4.00E-06	NA	3.74E-10	9.71E-09	4.01E-06	100%	0%	0%	0%	1%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	2.55E+04	NA	3.31E-02	3.89E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	3.65E-06	NA	3.09E-10	1.94E-09	3.65E-06	100%	0%	0%	0%	1%
								Total ELCR =	**2.05E-04**	**3.68E-04**	**1.76E-09**	**9.55E-06**	**5.83E-04**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.147. Carcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 001 EU 16 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	1.02E-02	4.55E-03	1.32E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.19E-05	5.34E-06	1.55E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.33E-05	3.56E-06	1.72E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.99E-05	1.30E-05	2.60E-10	NA	3.29E-05	60%	40%	0%	0%	31%
Barium	8.80E-05	3.94E-05	1.14E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	8.22E-07	3.68E-07	1.07E-12	NA	NA	NA	8.40E+00	NA	NA	NA	8.97E-12	NA	8.97E-12	0%	0%	100%	0%	0%
Cadmium	2.39E-05	2.14E-07	3.11E-11	NA	NA	NA	6.30E+00	NA	NA	NA	1.96E-10	NA	1.96E-10	0%	0%	100%	0%	0%
Chromium	2.91E-05	1.30E-05	3.78E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	1.72E-05	7.71E-06	2.24E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	2.26E-01	1.01E-01	2.93E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	2.62E-05	1.17E-05	3.40E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.91E-03	8.55E-04	2.48E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	1.28E-05	5.72E-06	1.66E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	2.99E-06	1.34E-06	3.88E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	1.77E-05	7.94E-06	2.30E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	3.14E-05	1.40E-05	4.07E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	8.41E-05	3.76E-05	1.09E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.36E-06	1.59E-06	1.77E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	1.49E-06	1.33E-06	1.93E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	2.23E-06	2.80E-06	2.90E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	4.46E-06	6.22E-06	5.80E-12	NA	1.07E-05	42%	58%	0%	0%	10%
Total PAH (2)	1.74E-06	2.02E-06	2.25E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	1.27E-05	4.76E-05	6.94E-12	NA	6.02E-05	21%	79%	0%	0%	57%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	3.89E+02	NA	5.04E-04	5.92E-01	3.64E-13	3.64E-13	4.11E-14	4.46E-08	1.41E-10	NA	2.07E-17	2.64E-08	2.65E-08	1%	0%	0%	99%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.55E+02	NA	2.01E-04	2.36E-01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	2.51E-08	NA	3.56E-12	1.88E-07	2.13E-07	12%	0%	0%	88%	0%
Plutonium-239/240	1.25E+02	NA	1.63E-04	1.91E-01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	3.46E-08	NA	5.42E-12	3.82E-11	3.47E-08	100%	0%	0%	0%	0%
Technetium-99	1.36E+04	NA	1.76E-02	2.07E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.04E-07	NA	2.49E-13	1.68E-09	1.06E-07	98%	0%	0%	2%	0%
Thorium-228	ND	NA	ND	ND	8.09E-10	8.09E-10	1.43E-07	7.76E-06	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Thorium-230	1.46E+03	NA	1.90E-03	2.22E+00	2.02E-10	2.02E-10	2.85E-08	8.19E-10	2.95E-07	NA	5.40E-11	1.82E-09	2.97E-07	99%	0%	0%	1%	0%
Thorium-232	4.35E+02	NA	5.65E-04	6.62E-01	2.31E-10	2.31E-10	4.33E-08	3.42E-10	1.01E-07	NA	2.45E-11	2.27E-10	1.01E-07	100%	0%	0%	0%	0%
Uranium-234	1.61E+03	NA	2.09E-03	2.45E+00	1.58E-10	1.58E-10	1.14E-08	2.52E-10	2.54E-07	NA	2.38E-11	6.18E-10	2.55E-07	100%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	4.35E+03	NA	5.65E-03	6.62E+00	1.43E-10	1.43E-10	9.32E-09	4.99E-11	6.22E-07	NA	5.26E-11	3.31E-10	6.23E-07	100%	0%	0%	0%	1%
								Total ELCR =	**3.85E-05**	**6.68E-05**	**6.42E-10**	**2.19E-07**	**1.06E-04**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.148. Carcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 001 EU 18 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	1.43E-02	6.38E-03	1.85E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.23E-05	5.51E-06	1.60E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	5.80E-06	1.56E-06	7.54E-12	NA	1.50E+00	3.66E+00	1.51E+01	NA	8.70E-06	5.70E-06	1.14E-10	NA	1.44E-05	60%	40%	0%	0%	13%
Barium	7.61E-05	3.41E-05	9.89E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	7.49E-07	3.35E-07	9.73E-13	NA	NA	NA	8.40E+00	NA	NA	NA	8.17E-12	NA	8.17E-12	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	NA	NA	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	2.68E-05	1.20E-05	3.48E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	6.08E-05	2.72E-05	7.89E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.95E-02	8.71E-03	2.53E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.05E-03	4.70E-04	1.36E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	2.60E-05	1.17E-05	3.38E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	2.26E-04	1.01E-04	2.93E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	3.08E-06	1.38E-06	3.99E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	1.13E-04	5.04E-05	1.46E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	2.81E-05	1.26E-05	3.66E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	1.08E-04	4.81E-05	1.40E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	6.20E-07	7.22E-07	8.05E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	6.20E-07	5.55E-07	8.05E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	1.86E-06	2.33E-06	2.42E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	3.72E-06	5.18E-06	4.83E-12	NA	8.90E-06	42%	58%	0%	0%	8%
Total PAH (2)	1.36E-06	1.59E-06	1.77E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	9.96E-06	3.74E-05	5.46E-12	NA	4.73E-05	21%	79%	0%	0%	44%
Radionuclides																		
Americium-241	1.16E+03	NA	1.50E-03	1.76E+00	2.17E-10	2.17E-10	2.81E-08	2.76E-08	2.51E-07	NA	4.22E-11	4.86E-08	3.00E-07	84%	0%	0%	16%	0%
Cesium-137	2.08E+04	NA	2.70E-02	3.17E+01	3.64E-13	3.64E-13	4.11E-14	4.46E-08	7.58E-09	NA	1.11E-15	1.41E-06	1.42E-06	1%	0%	0%	99%	1%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	6.39E+03	NA	8.30E-03	9.73E+00	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.04E-06	NA	1.47E-10	7.76E-06	8.79E-06	12%	0%	0%	88%	8%
Plutonium-239/240	8.04E+03	NA	1.04E-02	1.22E+01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	2.22E-06	NA	3.47E-10	2.45E-09	2.22E-06	100%	0%	0%	0%	2%
Technetium-99	5.08E+05	NA	6.60E-01	7.74E+02	7.66E-12	7.66E-12	1.41E-11	8.14E-11	3.89E-06	NA	9.30E-12	6.30E-08	3.96E-06	98%	0%	0%	2%	4%
Thorium-228	7.84E+02	NA	1.02E-03	1.19E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	6.34E-07	NA	1.45E-10	9.26E-06	9.89E-06	6%	0%	0%	94%	9%
Thorium-230	2.71E+04	NA	3.52E-02	4.12E+01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	5.47E-06	NA	1.00E-09	3.38E-08	5.51E-06	99%	0%	0%	1%	5%
Thorium-232	8.70E+02	NA	1.13E-03	1.32E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	2.01E-07	NA	4.89E-11	4.53E-10	2.02E-07	100%	0%	0%	0%	0%
Uranium-234	5.57E+03	NA	7.23E-03	8.48E+00	1.58E-10	1.58E-10	1.14E-08	2.52E-10	8.80E-07	NA	8.25E-11	2.14E-09	8.83E-07	100%	0%	0%	0%	1%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	2.86E+04	NA	3.72E-02	4.36E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	4.10E-06	NA	3.46E-10	2.18E-09	4.10E-06	100%	0%	0%	0%	4%
								Total ELCR =	**4.11E-05**	**4.83E-05**	**2.30E-09**	**1.86E-05**	**1.08E-04**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.149. Carcinogenic Risk Results-Current/Future Excavation Worker for Soil at the Outfall 001 EU 20 Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	1.12E-02	5.02E-03	1.46E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.21E-05	5.41E-06	1.57E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	8.48E-06	2.28E-06	1.10E-11	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.27E-05	8.33E-06	1.66E-10	NA	2.11E-05	60%	40%	0%	0%	22%
Barium	8.58E-05	3.84E-05	1.11E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	ND	ND	ND	NA	NA	NA	8.40E+00	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	NA	NA	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	1.41E-05	6.33E-06	1.84E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.39E-02	6.22E-03	1.80E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	5.84E-04	2.61E-04	7.59E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	8.98E-06	4.02E-06	1.17E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	3.03E-06	1.35E-06	3.93E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	2.41E-05	1.08E-05	3.12E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	2.43E-05	1.09E-05	3.16E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	3.68E-05	1.65E-05	4.78E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	6.08E-07	7.07E-07	7.89E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	6.08E-07	5.44E-07	7.89E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	8.80E-07	1.10E-06	1.14E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	1.76E-06	2.45E-06	2.29E-12	NA	4.21E-06	42%	58%	0%	0%	4%
Total PAH (2)	1.36E-06	1.59E-06	1.77E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	9.96E-06	3.74E-05	5.46E-12	NA	4.73E-05	21%	79%	0%	0%	49%
Radionuclides																		
Americium-241	1.35E+02	NA	1.76E-04	2.06E-01	2.17E-10	2.17E-10	2.81E-08	2.76E-08	2.94E-08	NA	4.94E-12	5.69E-09	3.51E-08	84%	0%	0%	16%	0%
Cesium-137	6.26E+02	NA	8.13E-04	9.53E-01	3.64E-13	3.64E-13	4.11E-14	4.46E-08	2.28E-10	NA	3.34E-17	4.25E-08	4.27E-08	1%	0%	0%	99%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.16E+03	NA	1.50E-03	1.76E+00	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.87E-07	NA	2.66E-11	1.40E-06	1.59E-06	12%	0%	0%	88%	2%
Plutonium-239/240	8.97E+02	NA	1.16E-03	1.37E+00	2.76E-10	2.76E-10	3.33E-08	2.00E-10	2.48E-07	NA	3.88E-11	2.73E-10	2.48E-07	100%	0%	0%	0%	0%
Technetium-99	1.38E+04	NA	1.79E-02	2.10E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.06E-07	NA	2.53E-13	1.71E-09	1.07E-07	98%	0%	0%	2%	0%
Thorium-228	1.40E+03	NA	1.82E-03	2.14E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	1.14E-06	NA	2.60E-10	1.66E-05	1.77E-05	6%	0%	0%	94%	18%
Thorium-230	9.61E+03	NA	1.25E-02	1.46E+01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	1.94E-06	NA	3.56E-10	1.20E-08	1.95E-06	99%	0%	0%	1%	2%
Thorium-232	1.47E+03	NA	1.91E-03	2.24E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	3.41E-07	NA	8.29E-11	7.68E-10	3.41E-07	100%	0%	0%	0%	0%
Uranium-234	8.26E+03	NA	1.07E-02	1.26E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.30E-06	NA	1.22E-10	3.17E-09	1.31E-06	100%	0%	0%	0%	1%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	9.52E+03	NA	1.24E-02	1.45E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	1.36E-06	NA	1.15E-10	7.24E-10	1.36E-06	100%	0%	0%	0%	1%
									Total ELCR =		**3.11E-05**	**4.82E-05**	**1.18E-09**	**1.80E-05**	**9.73E-05**			

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are (mg/kg-day)-1 and for inhalation exposure are (mg/m3)-1.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.150. Carcinogenic Risk Results-Current/Future Excavation Worker for Soil Within the Fence, Excluding the Hot Spots

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	8.89E-03	3.98E-03	1.15E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.36E-05	6.11E-06	1.77E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	7.44E-06	2.00E-06	9.66E-12	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.12E-05	7.31E-06	1.46E-10	NA	1.85E-05	60%	40%	0%	0%	19%
Barium	8.68E-05	3.89E-05	1.13E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	6.45E-07	2.89E-07	8.38E-13	NA	NA	NA	8.40E+00	NA	NA	NA	7.04E-12	NA	7.04E-12	0%	0%	100%	0%	0%
Cadmium	4.46E-06	4.00E-08	5.80E-12	NA	NA	NA	6.30E+00	NA	NA	NA	3.65E-11	NA	3.65E-11	0%	0%	100%	0%	0%
Chromium	2.11E-05	9.44E-06	2.74E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	1.36E-05	6.11E-06	1.77E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.33E-02	5.95E-03	1.73E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	2.60E-05	1.17E-05	3.38E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	4.28E-04	1.91E-04	5.56E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	1.36E-07	6.11E-08	1.77E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	7.81E-06	3.50E-06	1.01E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	1.23E-05	5.49E-06	1.59E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	2.48E-05	1.11E-05	3.22E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	3.22E-06	1.44E-06	4.19E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	2.58E-04	1.15E-04	3.35E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	2.23E-05	9.99E-06	2.90E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	8.93E-05	4.00E-05	1.16E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	9.05E-07	1.05E-06	1.18E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	8.43E-07	7.55E-07	1.10E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	7.81E-07	9.79E-07	1.01E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	1.56E-06	2.18E-06	2.03E-12	NA	3.74E-06	42%	58%	0%	0%	4%
Total PAH (2)	1.24E-06	1.44E-06	1.61E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	9.05E-06	3.40E-05	4.96E-12	NA	4.30E-05	21%	79%	0%	0%	45%
Radionuclides																		
Americium-241	5.55E+02	NA	7.20E-04	8.45E-01	2.17E-10	2.17E-10	2.81E-08	2.76E-08	1.20E-07	NA	2.02E-11	2.33E-08	1.44E-07	84%	0%	0%	16%	0%
Cesium-137	9.99E+02	NA	1.30E-03	1.52E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	3.64E-10	NA	5.33E-17	6.78E-08	6.82E-08	1%	0%	0%	99%	0%
Cobalt-60	3.33E+02	NA	4.32E-04	5.07E-01	4.03E-11	4.03E-11	3.58E-11	1.24E-05	1.34E-08	NA	1.55E-14	6.29E-06	6.30E-06	0%	0%	0%	100%	7%
Neptunium-237	2.44E+02	NA	3.17E-04	3.72E-01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	3.96E-08	NA	5.61E-12	2.96E-07	3.36E-07	12%	0%	0%	88%	0%
Plutonium-239/240	1.24E+02	NA	1.61E-04	1.89E-01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	3.43E-08	NA	5.37E-12	3.79E-11	3.44E-08	100%	0%	0%	0%	0%
Technetium-99	1.31E+04	NA	1.70E-02	1.99E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.00E-07	NA	2.40E-13	1.62E-09	1.02E-07	98%	0%	0%	2%	0%
Thorium-228	7.10E+02	NA	9.22E-04	1.08E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	5.75E-07	NA	1.32E-10	8.39E-06	8.97E-06	6%	0%	0%	94%	9%
Thorium-230	1.71E+03	NA	2.22E-03	2.60E+00	2.02E-10	2.02E-10	2.85E-08	8.19E-10	3.45E-07	NA	6.32E-11	2.13E-09	3.47E-07	99%	0%	0%	1%	0%
Thorium-232	7.33E+02	NA	9.51E-04	1.12E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	1.69E-07	NA	4.12E-11	3.81E-10	1.70E-07	100%	0%	0%	0%	0%
Uranium-234	3.11E+03	NA	4.03E-03	4.73E+00	1.58E-10	1.58E-10	1.14E-08	2.52E-10	4.91E-07	NA	4.60E-11	1.19E-09	4.92E-07	100%	0%	0%	0%	1%
Uranium-235	1.31E+04	NA	1.70E-02	1.99E+01	1.57E-10	1.57E-10	1.01E-08	5.18E-07	2.06E-06	NA	1.72E-10	1.03E-05	1.24E-05	17%	0%	0%	83%	13%
Uranium-238	8.44E+03	NA	1.10E-02	1.28E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	1.21E-06	NA	1.02E-10	6.41E-10	1.21E-06	100%	0%	0%	0%	1%
									Total ELCR =	**2.69E-05**	**4.35E-05**	**7.84E-10**	**2.54E-05**	**9.58E-05**				

NA: Not applicable.

Units for radionuclides are pCi/g. All others are mg/kg.

Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.

Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.

Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].

(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.

(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.151. Carcinogenic Risk Results-Current/Future Excavation Worker for Soil at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	1.04E-02	4.66E-03	1.35E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	2.11E-05	9.44E-06	2.74E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	6.70E-06	1.80E-06	8.70E-12	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.00E-05	6.58E-06	1.31E-10	NA	1.66E-05	60%	40%	0%	0%	5%
Barium	9.18E-05	4.11E-05	1.19E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	6.45E-07	2.89E-07	8.38E-13	NA	NA	NA	8.40E+00	NA	NA	NA	7.04E-12	NA	7.04E-12	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	NA	NA	ND	NA	NA	0%	0%	0%	0%	0%
Chromium	7.32E-05	3.27E-05	9.50E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	6.45E-05	2.89E-05	8.38E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.48E-02	6.63E-03	1.92E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	2.60E-05	1.17E-05	3.38E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	4.44E-04	1.99E-04	5.77E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	5.21E-07	2.33E-07	6.76E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	1.03E-05	4.61E-06	1.34E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	8.06E-05	3.61E-05	1.05E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	2.48E-05	1.11E-05	3.22E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	4.22E-06	1.89E-06	5.48E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	4.07E-04	1.82E-04	5.28E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	2.98E-05	1.33E-05	3.87E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	9.30E-05	4.16E-05	1.21E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	8.43E-07	9.81E-07	1.10E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	6.57E-07	5.88E-07	8.54E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	3.35E-06	4.20E-06	4.35E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	6.70E-06	9.32E-06	8.70E-12	NA	1.60E-05	42%	58%	0%	0%	4%
Total PAH (2)	8.18E-07	9.52E-07	1.06E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	5.97E-06	2.24E-05	3.27E-12	NA	2.84E-05	21%	79%	0%	0%	8%
Radionuclides																		
Americium-241	8.21E+03	NA	1.07E-02	1.25E+01	2.17E-10	2.17E-10	2.81E-08	2.76E-08	1.78E-06	NA	3.00E-10	3.45E-07	2.13E-06	84%	0%	0%	16%	1%
Cesium-137	8.21E+03	NA	1.07E-02	1.25E+01	3.64E-13	3.64E-13	4.11E-14	4.46E-08	2.99E-09	NA	4.38E-16	5.58E-07	5.61E-07	1%	0%	0%	99%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.18E+04	NA	1.53E-02	1.79E+01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.91E-06	NA	2.70E-10	1.43E-05	1.62E-05	12%	0%	0%	88%	4%
Plutonium-239/240	4.66E+04	NA	6.05E-02	7.10E+01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	1.29E-05	NA	2.02E-09	1.42E-08	1.29E-05	100%	0%	0%	0%	4%
Technetium-99	5.33E+05	NA	6.92E-01	8.11E+02	7.66E-12	7.66E-12	1.41E-11	8.14E-11	4.08E-06	NA	9.75E-12	6.60E-08	4.15E-06	98%	0%	0%	2%	1%
Thorium-228	2.44E+03	NA	3.17E-03	3.72E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	1.98E-06	NA	4.53E-10	2.89E-05	3.08E-05	6%	0%	0%	94%	9%
Thorium-230	1.10E+06	NA	1.43E+00	1.68E+03	2.02E-10	2.02E-10	2.85E-08	8.19E-10	2.23E-04	NA	4.08E-08	1.38E-06	2.24E-04	99%	0%	0%	1%	62%
Thorium-232	3.11E+03	NA	4.03E-03	4.73E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	7.18E-07	NA	1.75E-10	1.62E-09	7.20E-07	100%	0%	0%	0%	0%
Uranium-234	3.11E+04	NA	4.03E-02	4.73E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	4.91E-06	NA	4.60E-10	1.19E-08	4.92E-06	100%	0%	0%	0%	1%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	2.44E+04	NA	3.17E-02	3.72E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	3.49E-06	NA	2.95E-10	1.86E-09	3.49E-06	100%	0%	0%	0%	1%
								Total ELCR =	**2.77E-04**	**3.83E-05**	**4.49E-08**	**4.55E-05**	**3.61E-04**				

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.152. Carcinogenic Risk Results-Current/Future Excavation Worker for Soil at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	8.23E-03	3.68E-03	1.07E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.36E-05	6.11E-06	1.77E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	7.44E-06	2.00E-06	9.66E-12	NA	1.50E+00	3.66E+00	1.51E+01	NA	1.12E-05	7.31E-06	1.46E-10	NA	1.85E-05	60%	40%	0%	0%	14%
Barium	8.56E-05	3.83E-05	1.11E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	7.32E-07	3.27E-07	9.50E-13	NA	NA	NA	8.40E+00	NA	NA	NA	7.98E-12	NA	7.98E-12	0%	0%	100%	0%	0%
Cadmium	2.48E-06	2.22E-08	3.22E-12	NA	NA	NA	6.30E+00	NA	NA	NA	2.03E-11	NA	2.03E-11	0%	0%	100%	0%	0%
Chromium	4.96E-05	2.22E-05	6.44E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	4.34E-05	1.94E-05	5.64E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.15E-02	5.16E-03	1.50E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	2.60E-05	1.17E-05	3.38E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	5.54E-04	2.48E-04	7.20E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	1.61E-07	7.22E-08	2.09E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	5.70E-06	2.55E-06	7.41E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	2.23E-05	9.99E-06	2.90E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	3.35E-05	1.50E-05	4.35E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	3.84E-06	1.72E-06	4.99E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	2.90E-04	1.30E-04	3.77E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	2.23E-05	9.99E-06	2.90E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	4.84E-05	2.16E-05	6.28E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.73E-06	3.17E-06	3.54E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	1.61E-06	1.44E-06	2.09E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	1.36E-06	1.71E-06	1.77E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	2.73E-06	3.80E-06	3.54E-12	NA	6.53E-06	42%	58%	0%	0%	5%
Total PAH (2)	1.49E-06	1.73E-06	1.93E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	1.09E-05	4.08E-05	5.95E-12	NA	5.16E-05	21%	79%	0%	0%	40%
Radionuclides																		
Americium-241	9.99E+02	NA	1.30E-03	1.52E+00	2.17E-10	2.17E-10	2.81E-08	2.76E-08	2.17E-07	NA	3.64E-11	4.20E-08	2.59E-07	84%	0%	0%	16%	0%
Cesium-137	1.62E+03	NA	2.10E-03	2.47E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	5.90E-10	NA	8.65E-17	1.10E-07	1.11E-07	1%	0%	0%	99%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	7.33E+02	NA	9.51E-04	1.12E+00	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.19E-07	NA	1.68E-11	8.89E-07	1.01E-06	12%	0%	0%	88%	1%
Plutonium-239/240	1.02E+04	NA	1.33E-02	1.55E+01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	2.82E-06	NA	4.41E-10	3.11E-09	2.82E-06	100%	0%	0%	0%	2%
Technetium-99	7.55E+04	NA	9.80E-02	1.15E+02	7.66E-12	7.66E-12	1.41E-11	8.14E-11	5.78E-07	NA	1.38E-12	9.35E-09	5.88E-07	98%	0%	0%	2%	0%
Thorium-228	1.09E+03	NA	1.41E-03	1.66E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	8.80E-07	NA	2.02E-10	1.29E-05	1.37E-05	6%	0%	0%	94%	11%
Thorium-230	1.55E+05	NA	2.02E-01	2.37E+02	2.02E-10	2.02E-10	2.85E-08	8.19E-10	3.14E-05	NA	5.75E-09	1.94E-07	3.16E-05	99%	0%	0%	1%	24%
Thorium-232	1.29E+03	NA	1.67E-03	1.96E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	2.97E-07	NA	7.24E-11	6.70E-10	2.98E-07	100%	0%	0%	0%	0%
Uranium-234	6.22E+03	NA	8.07E-03	9.46E+00	1.58E-10	1.58E-10	1.14E-08	2.52E-10	9.82E-07	NA	9.20E-11	2.38E-09	9.85E-07	100%	0%	0%	0%	1%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	9.10E+03	NA	1.18E-02	1.39E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	1.30E-06	NA	1.10E-10	6.92E-10	1.30E-06	100%	0%	0%	0%	1%
								Total ELCR =	**6.33E-05**	**5.19E-05**	**6.90E-09**	**1.41E-05**	**1.29E-04**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.153. Carcinogenic Risk Results-Current/Future Recreational User-Adult for Sediment at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	2.16E-04	1.81E-03	4.03E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	3.74E-07	3.14E-06	6.98E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.55E-07	7.80E-07	2.89E-12	NA	1.50E+00	3.66E+00	1.51E+01	NA	2.32E-07	2.85E-06	4.37E-11	NA	3.08E-06	8%	92%	0%	0%	6%
Barium	2.09E-06	1.76E-05	3.91E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	1.74E-08	1.46E-07	3.24E-13	NA	NA	NA	8.40E+00	NA	NA	NA	2.72E-12	NA	2.72E-12	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	2.26E-06	1.90E-05	4.22E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	3.28E-06	2.76E-05	6.13E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	2.98E-04	2.50E-03	5.57E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	5.61E-07	4.70E-06	1.05E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.11E-05	9.33E-05	2.08E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	2.99E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	2.22E-07	1.86E-06	4.14E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	2.51E-06	2.11E-05	4.69E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	9.97E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0%	0%	0%	0%	0%
Silver	9.08E-08	7.62E-07	1.69E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	8.76E-06	7.35E-05	1.63E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	5.36E-07	4.50E-06	1.00E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	2.73E-06	2.29E-05	5.10E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.82E-08	3.96E-07	3.39E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	1.50E-08	2.51E-07	2.79E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	7.21E-08	1.69E-06	1.35E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	1.44E-07	3.76E-06	2.69E-12	NA	3.91E-06	4%	96%	0%	0%	8%
Total PAH (2)	2.67E-08	5.82E-07	4.98E-13	NA	7.30E+00	2.35E+01	3.08E+00	NA	1.95E-07	1.37E-05	1.54E-12	NA	1.39E-05	1%	99%	0%	0%	29%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	1.98E+02	NA	3.71E-03	4.33E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	7.22E-11	NA	1.52E-16	1.93E-07	1.93E-07	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	NA	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	2.53E+02	NA	4.72E-03	5.51E+00	1.62E-10	1.62E-10	1.77E-08	7.97E-07	4.10E-08	NA	8.36E-11	4.39E-06	4.43E-06	1%	0%	0%	99%	9%
Plutonium-239/240	9.83E+02	NA	1.84E-02	2.14E+01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	2.71E-07	NA	6.11E-10	4.28E-09	2.76E-07	98%	0%	0%	2%	1%
Technetium-99	2.84E+04	NA	5.31E-01	6.20E+02	7.66E-12	7.66E-12	1.41E-11	8.14E-11	2.18E-07	NA	7.49E-12	5.05E-08	2.68E-07	81%	0%	0%	19%	1%
Thorium-228	9.54E+01	NA	1.78E-03	2.08E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	7.72E-08	NA	2.55E-10	1.61E-05	1.62E-05	0%	0%	0%	100%	34%
Thorium-230	2.37E+04	NA	4.43E-01	5.17E+02	2.02E-10	2.02E-10	2.85E-08	8.19E-10	4.79E-06	NA	1.26E-08	4.23E-07	5.22E-06	92%	0%	0%	8%	11%
Thorium-232	1.16E+02	NA	2.17E-03	2.53E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	2.68E-08	NA	9.38E-11	8.65E-10	2.77E-08	97%	0%	0%	3%	0%
Uranium-234	1.38E+03	NA	2.58E-02	3.02E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	2.19E-07	NA	2.95E-10	7.60E-09	2.26E-07	97%	0%	0%	3%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	1.24E+03	NA	2.32E-02	2.70E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	1.77E-07	NA	2.16E-10	1.35E-09	1.79E-07	99%	0%	0%	1%	0%
									Total ELCR =	**6.39E-06**	**2.03E-05**	**1.42E-08**	**2.12E-05**	**4.79E-05**				

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.154. Carcinogenic Risk Results-Current/Future Recreational User-Adult for Sediment at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	1.72E-04	1.44E-03	3.20E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	2.67E-07	2.24E-06	4.98E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.60E-07	8.06E-07	2.99E-12	NA	1.50E+00	3.66E+00	1.51E+01	NA	2.40E-07	2.95E-06	4.52E-11	NA	3.19E-06	8%	92%	0%	0%	12%
Barium	1.76E-06	1.48E-05	3.29E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	1.55E-08	1.30E-07	2.89E-13	NA	NA	NA	8.40E+00	NA	NA	NA	2.43E-12	NA	2.43E-12	0%	0%	100%	0%	0%
Cadmium	5.61E-08	9.41E-09	1.05E-12	NA	NA	NA	6.30E+00	NA	NA	NA	6.59E-12	NA	6.59E-12	0%	0%	100%	0%	0%
Chromium	1.04E-06	8.74E-06	1.94E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	9.35E-07	7.84E-06	1.74E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	2.49E-04	2.09E-03	4.65E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	5.61E-07	4.70E-06	1.05E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.22E-05	1.02E-04	2.27E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	2.94E-09	2.46E-08	5.48E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	1.23E-07	1.03E-06	2.29E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	4.27E-07	3.58E-06	7.98E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	5.87E-07	4.93E-06	1.10E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	7.74E-08	6.50E-07	1.45E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	4.38E-06	3.67E-05	8.17E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	4.54E-07	3.81E-06	8.47E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	1.01E-06	8.51E-06	1.89E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	5.87E-08	1.28E-06	1.10E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	3.74E-08	6.27E-07	6.98E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	2.94E-08	6.90E-07	5.48E-13	NA	2.00E+00	2.22E+00	2.00E+00	NA	5.87E-08	1.53E-06	1.10E-12	NA	1.59E-06	4%	96%	0%	0%	6%
Total PAH (2)	3.20E-08	6.99E-07	5.98E-13	NA	7.30E+00	2.35E+01	3.08E+00	NA	2.34E-07	1.65E-05	1.84E-12	NA	1.67E-05	1%	99%	0%	0%	63%
Radionuclides																		
Americium-241	2.29E+01	NA	4.28E-04	4.99E-01	2.17E-10	2.17E-10	2.81E-08	2.76E-08	4.97E-09	NA	1.20E-11	1.38E-08	1.88E-08	26%	0%	0%	73%	0%
Cesium-137	3.63E+01	NA	6.77E-04	7.90E-01	3.64E-13	3.64E-13	4.11E-14	4.46E-08	1.32E-11	NA	2.78E-17	3.53E-08	3.53E-08	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	NA	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	NA	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.34E+01	NA	2.49E-04	2.91E-01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	2.16E-09	NA	4.42E-12	2.32E-07	2.34E-07	1%	0%	0%	99%	1%
Plutonium-239/240	2.29E+02	NA	4.28E-03	4.99E+00	2.76E-10	2.76E-10	3.33E-08	2.00E-10	6.32E-08	NA	1.42E-10	9.98E-10	6.43E-08	98%	0%	0%	2%	0%
Technetium-99	1.53E+03	NA	2.85E-02	3.33E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.17E-08	NA	4.02E-13	2.71E-09	1.44E-08	81%	0%	0%	19%	0%
Thorium-228	2.24E+01	NA	4.19E-04	4.89E-01	8.09E-10	8.09E-10	1.43E-07	7.76E-06	1.81E-08	NA	5.99E-11	3.79E-06	3.81E-06	0%	0%	0%	100%	14%
Thorium-230	3.20E+03	NA	5.97E-02	6.97E+01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	6.46E-07	NA	1.70E-09	5.71E-08	7.04E-07	92%	0%	0%	8%	3%
Thorium-232	2.67E+01	NA	4.99E-04	5.82E-01	2.31E-10	2.31E-10	4.33E-08	3.42E-10	6.17E-09	NA	2.16E-11	1.99E-10	6.39E-09	97%	0%	0%	3%	0%
Uranium-234	1.43E+02	NA	2.67E-03	3.12E+00	1.58E-10	1.58E-10	1.14E-08	2.52E-10	2.26E-08	NA	3.05E-11	7.86E-10	2.34E-08	97%	0%	0%	3%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	2.05E+02	NA	3.83E-03	4.47E+00	1.43E-10	1.43E-10	9.32E-09	4.99E-11	2.93E-08	NA	3.57E-11	2.23E-10	2.96E-08	99%	0%	0%	1%	0%
								Total ELCR =	**1.34E-06**	**2.09E-05**	**2.07E-09**	**4.14E-06**	**2.64E-05**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.155. Carcinogenic Risk Results-Current/Future Recreational User-Adult for Surface Water at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.156. Carcinogenic Risk Results-Current/Future Recreational User-Adult for Surface Water at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	3.41E-07	2.67E+00	9.09E-07	9.09E-07	100%	100%
		Total ELCR =	**9.09E-07**	**9.09E-07**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.157. Carcinogenic Risk Results-Current/Future Recreational User-Adult for Game at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake			Cancer Toxicity (SF)	ELCR				Percent Risk by Pathway			
	Ingestion Intake Hazard - Deer	Ingestion Intake Hazard - Quail	Ingestion Intake Hazard Rabbit	Ingestion	Ingestion - Deer	Ingestion - Quail	Ingestion - Rabbit	**Chemical Total**	Ingestion - Deer	Ingestion - Quail	Ingestion - Rabbit	**Percent Total**
Inorganic Chemicals (Metals)												
Aluminum	NA	1.22E-07	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Antimony	1.21E-10	8.25E-12	1.32E-09	NA	NA	NA	NA	NA	0%	0%	0%	0%
Arsenic	NA	1.32E-10	NA	1.50E+00	NA	1.98E-10	NA	1.98E-10	0%	100%	0%	0%
Barium	3.92E-09	8.94E-09	4.21E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Beryllium	NA	7.99E-12	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	NA	NA	0%	0%	0%	0%
Chromium	1.59E-07	8.46E-09	1.75E-06	NA	NA	NA	NA	NA	0%	0%	0%	0%
Copper	8.00E-07	1.94E-06	8.00E-06	NA	NA	NA	NA	NA	0%	0%	0%	0%
Iron	4.22E-05	1.14E-04	4.69E-04	NA	NA	NA	NA	NA	0%	0%	0%	0%
Lead	2.04E-09	1.04E-10	2.20E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Manganese	1.34E-07	5.94E-07	1.34E-06	NA	NA	NA	NA	NA	0%	0%	0%	0%
Mercury	NA	6.67E-10	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Molybdenum	3.75E-09	1.71E-07	3.84E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Nickel	1.43E-07	NA	1.51E-06	NA	NA	NA	NA	NA	0%	0%	0%	0%
Selenium	NA	4.21E-06	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Silver	8.75E-09	2.52E-07	8.70E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Zinc	8.70E-06	2.63E-05	8.66E-05	NA	NA	NA	NA	NA	0%	0%	0%	0%
Organic Compounds												
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Total PCB (1)	NA	NA	NA	2.00E+00	NA	NA	NA	NA	0%	0%	0%	0%
Total PAH (2)	NA	1.74E-08	NA	7.30E+00	NA	1.27E-07	NA	1.27E-07	0%	100%	0%	43%
Radionuclides												
Americium-241	5.73E-02	1.36E-01	ND	2.17E-10	ND	NA	ND	ND	0%	0%	0%	0%
Cesium-137	9.51E+01	9.48E+02	1.02E+03	3.64E-13	3.46E-11	NA	3.72E-10	4.07E-10	9%	0%	91%	0%
Cobalt-60	ND	ND	ND	4.03E-11	ND	NA	ND	ND	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	1.62E-10	NA	NA	NA	NA	0%	0%	0%	0%
Plutonium-239/240	6.70E-02	2.09E+00	7.50E-01	2.76E-10	1.85E-11	5.77E-10	2.07E-10	8.02E-10	2%	72%	26%	0%
Technetium-99	NA	NA	NA	7.66E-12	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-228	NA	4.90E-03	NA	8.09E-10	NA	3.96E-12	NA	3.96E-12	0%	100%	0%	0%
Thorium-230	NA	1.22E+00	NA	2.02E-10	NA	2.46E-10	NA	2.46E-10	0%	100%	0%	0%
Thorium-232	NA	5.96E-03	NA	2.31E-10	NA	1.38E-12	NA	1.38E-12	0%	100%	0%	0%
Uranium-234	3.07E+00	5.55E+02	3.40E+01	1.58E-10	4.84E-10	8.77E-08	5.37E-09	9.35E-08	1%	94%	6%	31%
Uranium-235	NA	NA	NA	1.57E-10	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-238	2.75E+00	4.98E+02	3.04E+01	1.43E-10	3.93E-10	7.11E-08	4.35E-09	7.59E-08	1%	94%	6%	25%
				Total ELCR =	**9.30E-10**	**2.87E-07**	**1.03E-08**	**2.98E-07**				

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.158. Carcinogenic Risk Results-Current/Future Recreational User-Adult for Game at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake			Cancer Toxicity (SF)	ELCR				Percent Risk by Pathway			
	Ingestion Intake Hazard - Deer	Ingestion Intake Hazard - Quail	Ingestion Intake Hazard Rabbit	Ingestion	Ingestion - Deer	Ingestion - Quail	Ingestion - Rabbit	**Chemical Total**	Ingestion-Deer	Ingestion-Quail	Ingestion-Rabbit	**Percent Total**
Inorganic Chemicals (Metals)												
Aluminum	NA	9.66E-08	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Antimony	8.64E-11	5.89E-12	9.43E-10	NA	NA	NA	NA	NA	0%	0%	0%	0%
Arsenic	NA	1.36E-10	NA	1.50E+00	NA	2.04E-10	NA	2.04E-10	0%	100%	0%	0%
Barium	3.30E-09	7.52E-09	3.54E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Beryllium	NA	7.13E-12	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Cadmium	4.65E-10	4.61E-08	4.71E-09	NA	NA	NA	NA	NA	0%	0%	0%	0%
Chromium	7.34E-08	3.89E-09	8.05E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%
Copper	2.28E-07	5.53E-07	2.28E-06	NA	NA	NA	NA	NA	0%	0%	0%	0%
Iron	3.52E-05	9.53E-05	3.91E-04	NA	NA	NA	NA	NA	0%	0%	0%	0%
Lead	2.04E-09	1.04E-10	2.20E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Manganese	1.46E-07	6.51E-07	1.47E-06	NA	NA	NA	NA	NA	0%	0%	0%	0%
Mercury	NA	1.22E-10	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Molybdenum	2.08E-09	9.50E-08	2.13E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Nickel	2.43E-08	NA	2.56E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%
Selenium	NA	4.63E-06	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Silver	7.46E-09	2.15E-07	7.42E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Zinc	3.23E-06	9.78E-06	3.22E-05	NA	NA	NA	NA	NA	0%	0%	0%	0%
Organic Compounds												
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Total PCB (1)	NA	NA	NA	2.00E+00	NA	NA	NA	NA	0%	0%	0%	0%
Total PAH (2)	NA	2.08E-08	NA	7.30E+00	NA	1.52E-07	NA	1.52E-07	0%	100%	0%	87%
Radionuclides												
Americium-241	6.26E-03	5.03E-02	7.01E-02	2.17E-10	1.36E-12	NA	1.52E-11	1.66E-11	8%	0%	92%	0%
Cesium-137	1.74E+01	1.73E+02	1.87E+02	3.64E-13	6.32E-12	NA	6.80E-11	7.43E-11	9%	0%	91%	0%
Cobalt-60	NA	NA	NA	4.03E-11	NA	NA	NA	NA	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	1.62E-10	NA	NA	NA	NA	0%	0%	0%	0%
Plutonium-239/240	1.56E-02	4.87E-01	1.75E-01	2.76E-10	4.31E-12	1.34E-10	4.82E-11	1.87E-10	2%	72%	26%	0%
Technetium-99	NA	NA	NA	7.66E-12	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-228	NA	1.15E-03	NA	8.09E-10	NA	9.32E-13	NA	9.32E-13	0%	100%	0%	0%
Thorium-230	NA	1.64E-01	NA	2.02E-10	NA	3.32E-11	NA	3.32E-11	0%	100%	0%	0%
Thorium-232	NA	1.37E-03	NA	2.31E-10	NA	3.17E-13	NA	3.17E-13	0%	100%	0%	0%
Uranium-234	3.17E-01	5.74E+01	3.51E+00	1.58E-10	5.01E-11	9.07E-09	5.55E-10	9.68E-09	1%	94%	6%	6%
Uranium-235	NA	NA	NA	1.57E-10	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-238	4.55E-01	8.23E+01	5.04E+00	1.43E-10	6.50E-11	1.18E-08	7.20E-10	1.26E-08	1%	94%	6%	7%
				Total ELCR =	**1.27E-10**	**1.73E-07**	**1.41E-09**	**1.75E-07**				

NA: Not applicable.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.159. Carcinogenic Risk Results-Current/Future Recreational User-Teen for Sediment at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	2.58E-04	4.57E-03	4.82E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	4.47E-07	7.91E-06	8.33E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.85E-07	1.97E-06	3.45E-12	NA	1.50E+00	3.66E+00	1.51E+01	NA	2.78E-07	7.19E-06	5.21E-11	NA	7.47E-06	4%	96%	0%	0%	10%
Barium	2.50E-06	4.43E-05	4.67E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	2.07E-08	3.67E-07	3.87E-13	NA	NA	NA	8.40E+00	NA	NA	NA	3.25E-12	NA	3.25E-12	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	2.70E-06	4.79E-05	5.04E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	3.92E-06	6.95E-05	7.32E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	3.57E-04	6.31E-03	6.65E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	6.70E-07	1.19E-05	1.25E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.33E-05	2.35E-04	2.48E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	2.65E-07	4.69E-06	4.94E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	3.00E-06	5.31E-05	5.59E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0%	0%	0%	0%	0%
Silver	1.08E-07	1.92E-06	2.02E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	1.05E-05	1.85E-04	1.95E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	6.40E-07	1.13E-05	1.19E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	3.26E-06	5.78E-05	6.08E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.17E-08	9.99E-07	4.05E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	1.79E-08	6.33E-07	3.33E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	8.61E-08	4.27E-06	1.61E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	1.72E-07	9.49E-06	3.21E-12	NA	9.66E-06	2%	98%	0%	0%	13%
Total PAH (2)	3.19E-08	1.47E-06	5.95E-13	NA	7.30E+00	2.35E+01	3.08E+00	NA	2.33E-07	3.46E-05	1.83E-12	NA	3.48E-05	1%	99%	0%	0%	48%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	1.46E+02	NA	2.72E-03	3.19E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	5.30E-11	NA	1.12E-16	1.42E-07	1.42E-07	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.86E+02	NA	3.47E-03	4.07E+00	1.62E-10	1.62E-10	1.77E-08	7.97E-07	3.01E-08	NA	6.14E-11	3.24E-06	3.27E-06	1%	0%	0%	99%	5%
Plutonium-239/240	7.21E+02	NA	1.35E-02	1.58E+01	2.76E-10	2.76E-10	3.33E-08	2.00E-10	1.99E-07	NA	4.49E-10	3.16E-09	2.03E-07	98%	0%	0%	2%	0%
Technetium-99	2.09E+04	NA	3.90E-01	4.57E+02	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.60E-07	NA	5.50E-12	3.72E-08	1.97E-07	81%	0%	0%	19%	0%
Thorium-228	7.00E+01	NA	1.31E-03	1.53E+00	8.09E-10	8.09E-10	1.43E-07	7.76E-06	5.66E-08	NA	1.87E-10	1.19E-05	1.20E-05	0%	0%	0%	100%	17%
Thorium-230	1.74E+04	NA	3.25E-01	3.81E+02	2.02E-10	2.02E-10	2.85E-08	8.19E-10	3.51E-06	NA	9.27E-09	3.12E-07	3.84E-06	92%	0%	0%	8%	5%
Thorium-232	8.51E+01	NA	1.59E-03	1.86E+00	2.31E-10	2.31E-10	4.33E-08	3.42E-10	1.97E-08	NA	6.89E-11	6.38E-10	2.04E-08	97%	0%	0%	3%	0%
Uranium-234	1.02E+03	NA	1.90E-02	2.22E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.60E-07	NA	2.16E-10	5.61E-09	1.66E-07	96%	0%	0%	3%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	9.10E+02	NA	1.70E-02	1.99E+01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	1.30E-07	NA	1.59E-10	9.95E-10	1.31E-07	99%	0%	0%	1%	0%
								Total ELCR =	**4.95E-06**	**5.13E-05**	**1.05E-08**	**1.56E-05**	**7.19E-05**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.160. Carcinogenic Risk Results-Current/Future Recreational User-Teen for Sediment at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	2.05E-04	3.63E-03	3.82E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	3.19E-07	5.65E-06	5.95E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	1.91E-07	2.03E-06	3.57E-12	NA	1.50E+00	3.66E+00	1.51E+01	NA	2.87E-07	7.44E-06	5.39E-11	NA	7.73E-06	4%	96%	0%	0%	14%
Barium	2.11E-06	3.73E-05	3.93E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	1.85E-08	3.28E-07	3.45E-13	NA	NA	NA	8.40E+00	NA	NA	NA	2.90E-12	NA	2.90E-12	0%	0%	100%	0%	0%
Cadmium	6.70E-08	2.37E-08	1.25E-12	NA	NA	NA	6.30E+00	NA	ND	ND	7.87E-12	NA	7.87E-12	0%	0%	100%	0%	0%
Chromium	1.24E-06	2.20E-05	2.32E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	1.12E-06	1.98E-05	2.08E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	2.98E-04	5.27E-03	5.55E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	6.70E-07	1.19E-05	1.25E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	1.45E-05	2.58E-04	2.71E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	3.51E-09	6.22E-08	6.55E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	1.47E-07	2.60E-06	2.74E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	5.10E-07	9.04E-06	9.52E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	7.02E-07	1.24E-05	1.31E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	9.25E-08	1.64E-06	1.73E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	5.23E-06	9.27E-05	9.76E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	5.42E-07	9.61E-06	1.01E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	1.21E-06	2.15E-05	2.26E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	7.02E-08	3.23E-06	1.31E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	4.47E-08	1.58E-06	8.33E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	3.51E-08	1.74E-06	6.55E-13	NA	2.00E+00	2.22E+00	2.00E+00	NA	7.02E-08	3.87E-06	1.31E-12	NA	3.94E-06	2%	98%	0%	0%	7%
Total PAH (2)	3.83E-08	1.76E-06	7.14E-13	NA	7.30E+00	2.35E+01	3.08E+00	NA	2.79E-07	4.15E-05	2.20E-12	NA	4.18E-05	1%	99%	0%	0%	73%
Radionuclides																		
Americium-241	1.68E+01	NA	3.14E-04	3.68E-01	2.17E-10	2.17E-10	2.81E-08	2.76E-08	3.65E-09	NA	8.82E-12	1.02E-08	1.38E-08	26%	0%	0%	74%	0%
Cesium-137	2.66E+01	NA	4.97E-04	5.83E-01	3.64E-13	3.64E-13	4.11E-14	4.46E-08	9.68E-12	NA	2.04E-17	2.60E-08	2.60E-08	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	9.80E+00	NA	1.83E-04	2.15E-01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.59E-09	NA	3.24E-12	1.71E-07	1.73E-07	1%	0%	0%	99%	0%
Plutonium-239/240	1.68E+02	NA	3.14E-03	3.68E+00	2.76E-10	2.76E-10	3.33E-08	2.00E-10	4.64E-08	NA	1.05E-10	7.36E-10	4.72E-08	98%	0%	0%	2%	0%
Technetium-99	1.12E+03	NA	2.09E-02	2.45E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	8.58E-09	NA	2.95E-13	2.00E-09	1.06E-08	81%	0%	0%	19%	0%
Thorium-228	1.65E+01	NA	3.07E-04	3.60E-01	8.09E-10	8.09E-10	1.43E-07	7.76E-06	1.33E-08	NA	4.40E-11	2.80E-06	2.81E-06	0%	0%	0%	100%	5%
Thorium-230	2.35E+03	NA	4.38E-02	5.14E+01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	4.74E-07	NA	1.25E-09	4.21E-08	5.17E-07	92%	0%	0%	8%	1%
Thorium-232	1.96E+01	NA	3.66E-04	4.30E-01	2.31E-10	2.31E-10	4.33E-08	3.42E-10	4.53E-09	NA	1.59E-11	1.47E-10	4.69E-09	97%	0%	0%	3%	0%
Uranium-234	1.05E+02	NA	1.96E-03	2.30E+00	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.66E-08	NA	2.24E-11	5.80E-10	1.72E-08	96%	0%	0%	3%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	1.51E+02	NA	2.81E-03	3.30E+00	1.43E-10	1.43E-10	9.32E-09	4.99E-11	2.15E-08	NA	2.62E-11	1.65E-10	2.17E-08	99%	0%	0%	1%	0%
								Total ELCR =	**1.23E-06**	**5.28E-05**	**1.54E-09**	**3.05E-06**	**5.71E-05**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.161. Carcinogenic Risk Results-Current/Future Recreational User-Teen for Surface Water at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.162. Carcinogenic Risk Results-Current/Future Recreational User-Teen for Surface Water at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	6.46E-07	2.67E+00	1.72E-06	1.72E-06	100%	100%
		Total ELCR =	**1.72E-06**	**1.72E-06**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.163. Carcinogenic Risk Results-Current/Future Recreational User-Teen for Game at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake			Cancer Toxicity (SF)	ELCR				Percent Risk by Pathway			
	Ingestion Intake Hazard - Deer	Ingestion Intake Hazard - Quail	Ingestion Intake Hazard Rabbit	Ingestion	Ingestion - Deer	Ingestion - Quail	Ingestion - Rabbit	**Chemical Total**	Ingestion - Deer	Ingestion - Quail	Ingestion - Rabbit	**Percent Total**
Inorganic Chemicals (Metals)												
Aluminum	NA	5.52E-08	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Antimony	1.07E-10	3.75E-12	5.82E-10	NA	NA	NA	NA	NA	0%	0%	0%	0%
Arsenic	NA	5.98E-11	NA	1.50E+00	NA	8.97E-11	NA	8.97E-11	0%	100%	0%	0%
Barium	3.46E-09	4.06E-09	1.86E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Beryllium	NA	3.63E-12	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	NA	ND	0%	0%	0%	0%
Chromium	1.41E-07	3.84E-09	7.70E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%
Copper	7.07E-07	8.82E-07	3.53E-06	NA	NA	NA	NA	NA	0%	0%	0%	0%
Iron	3.73E-05	5.18E-05	2.07E-04	NA	NA	NA	NA	NA	0%	0%	0%	0%
Lead	1.80E-09	4.74E-11	9.69E-09	NA	NA	NA	NA	NA	0%	0%	0%	0%
Manganese	1.18E-07	2.70E-07	5.92E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%
Mercury	NA	3.03E-10	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Molybdenum	3.32E-09	7.78E-08	1.69E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Nickel	1.26E-07	NA	6.63E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%
Selenium	NA	1.91E-06	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Silver	7.73E-09	1.14E-07	3.84E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Zinc	7.69E-06	1.19E-05	3.82E-05	NA	NA	NA	NA	NA	0%	0%	0%	0%
Organic Compounds												
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Total PCB (1)	NA	NA	NA	2.00E+00	NA	NA	NA	NA	0%	0%	0%	0%
Total PAH (2)	NA	7.88E-09	NA	7.30E+00	NA	5.75E-08	NA	5.75E-08	0%	100%	0%	55%
Radionuclides												
Americium-241	3.12E-02	3.79E-02	ND	2.17E-10	6.77E-12	8.23E-12	ND	1.50E-11	45%	55%	0%	0%
Cesium-137	5.18E+01	2.65E+02	2.77E+02	3.64E-13	1.89E-11	NA	1.01E-10	1.20E-10	16%	0%	84%	0%
Cobalt-60	ND	ND	ND	4.03E-11	ND	NA	ND	ND	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	1.62E-10	NA	NA	NA	NA	0%	0%	0%	0%
Plutonium-239/240	3.65E-02	5.83E-01	2.03E-01	2.76E-10	1.01E-11	1.61E-10	5.61E-11	2.27E-10	4%	71%	25%	0%
Technetium-99	NA	NA	NA	7.66E-12	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-228	NA	1.37E-03	NA	8.09E-10	NA	1.11E-12	NA	1.11E-12	0%	100%	0%	0%
Thorium-230	NA	3.40E-01	NA	2.02E-10	NA	6.86E-11	NA	6.86E-11	0%	100%	0%	0%
Thorium-232	NA	1.66E-03	NA	2.31E-10	NA	3.84E-13	NA	3.84E-13	0%	100%	0%	0%
Uranium-234	1.67E+00	1.55E+02	9.20E+00	1.58E-10	2.64E-10	2.45E-08	1.45E-09	2.62E-08	1%	93%	6%	25%
Uranium-235	NA	NA	NA	1.57E-10	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-238	1.50E+00	1.39E+02	8.25E+00	1.43E-10	2.14E-10	1.99E-08	1.18E-09	2.12E-08	1%	93%	6%	20%
				Total ELCR =	**5.14E-10**	**1.02E-07**	**2.79E-09**	**1.05E-07**				

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.164. Carcinogenic Risk Results-Current/Future Recreational User-Teen for Game at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake			Cancer Toxicity (SF)	ELCR				Percent Risk by Pathway			
	Ingestion Intake Hazard - Deer	Ingestion Intake Hazard - Quail	Ingestion Intake Hazard Rabbit	Ingestion	Ingestion - Deer	Ingestion - Quail	Ingestion - Rabbit	**Chemical Total**	Ingestion-Deer	Ingestion-Quail	Ingestion-Rabbit	**Percent Total**
Inorganic Chemicals (Metals)												
Aluminum	NA	4.38E-08	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Antimony	7.63E-11	2.68E-12	4.16E-10	NA	NA	NA	NA	NA	0%	0%	0%	0%
Arsenic	NA	6.19E-11	NA	1.50E+00	NA	9.28E-11	NA	9.28E-11	0%	100%	0%	0%
Barium	2.91E-09	3.41E-09	1.56E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Beryllium	NA	3.24E-12	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Cadmium	4.11E-10	2.09E-08	2.08E-09	NA	NA	NA	NA	NA	0%	0%	0%	0%
Chromium	6.49E-08	1.77E-09	3.55E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%
Copper	2.01E-07	2.51E-07	1.00E-06	NA	NA	NA	NA	NA	0%	0%	0%	0%
Iron	3.12E-05	4.32E-05	1.73E-04	NA	NA	NA	NA	NA	0%	0%	0%	0%
Lead	1.80E-09	4.74E-11	9.69E-09	NA	NA	NA	NA	NA	0%	0%	0%	0%
Manganese	1.29E-07	2.95E-07	6.48E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%
Mercury	NA	5.55E-11	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Molybdenum	1.84E-09	4.31E-08	9.39E-09	NA	NA	NA	NA	NA	0%	0%	0%	0%
Nickel	2.15E-08	NA	1.13E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%
Selenium	NA	2.10E-06	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Silver	6.60E-09	9.75E-08	3.27E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Zinc	2.86E-06	4.44E-06	1.42E-05	NA	NA	NA	NA	NA	0%	0%	0%	0%
Organic Compounds												
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Total PCB (1)	NA	NA	NA	2.00E+00	NA	NA	NA	NA	0%	0%	0%	0%
Total PAH (2)	NA	9.46E-09	NA	7.30E+00	NA	6.90E-08	NA	6.90E-08	0%	100%	0%	92%
Radionuclides												
Americium-241	3.41E-03	1.40E-02	1.90E-02	2.17E-10	7.40E-13	NA	4.12E-12	4.86E-12	15%	0%	85%	0%
Cesium-137	9.46E+00	4.83E+01	5.06E+01	3.64E-13	3.44E-12	NA	1.84E-11	2.19E-11	16%	0%	84%	0%
Cobalt-60	NA	NA	NA	4.03E-11	NA	NA	NA	NA	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	1.62E-10	NA	NA	NA	NA	0%	0%	0%	0%
Plutonium-239/240	8.50E-03	1.36E-01	4.73E-02	2.76E-10	2.35E-12	3.75E-11	1.31E-11	5.29E-11	4%	71%	25%	0%
Technetium-99	NA	NA	NA	7.66E-12	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-228	NA	3.21E-04	NA	8.09E-10	NA	2.60E-13	NA	2.60E-13	0%	100%	0%	0%
Thorium-230	NA	4.58E-02	NA	2.02E-10	NA	9.25E-12	NA	9.25E-12	0%	100%	0%	0%
Thorium-232	NA	3.83E-04	NA	2.31E-10	NA	8.84E-14	NA	8.84E-14	0%	100%	0%	0%
Uranium-234	1.73E-01	1.60E+01	9.52E-01	1.58E-10	2.73E-11	2.53E-09	1.50E-10	2.71E-09	1%	93%	6%	4%
Uranium-235	NA	NA	NA	1.57E-10	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-238	2.48E-01	2.30E+01	1.36E+00	1.43E-10	3.54E-11	3.28E-09	1.95E-10	3.51E-09	1%	93%	6%	5%
				Total ELCR =	**6.92E-11**	**7.50E-08**	**3.81E-10**	**7.54E-08**				

NA: Not applicable.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.165. Carcinogenic Risk Results- (Current Recreational User - Child) for Sediment at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	7.29E-05	4.09E-05	6.81E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.26E-07	7.07E-08	1.18E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	5.22E-08	1.76E-08	4.88E-14	NA	1.50E+00	3.66E+00	1.51E+01	NA	7.83E-08	6.43E-08	7.37E-13	NA	1.43E-07	55%	45%	0%	0%	13%
Barium	7.06E-07	3.96E-07	6.60E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	5.85E-09	3.28E-09	5.47E-15	NA	NA	NA	8.40E+00	NA	NA	NA	4.59E-14	NA	4.59E-14	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	7.62E-07	4.28E-07	7.12E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	1.11E-06	6.21E-07	1.03E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.01E-04	5.64E-05	9.40E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	1.89E-07	1.06E-07	1.77E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	3.75E-06	2.10E-06	3.50E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	7.47E-08	4.19E-08	6.98E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	8.46E-07	4.75E-07	7.91E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0%	0%	0%	0%	0%
Silver	3.06E-08	1.72E-08	2.86E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	2.95E-06	1.66E-06	2.76E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	1.81E-07	1.01E-07	1.69E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	9.20E-07	5.16E-07	8.60E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	6.12E-09	8.93E-09	5.72E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	5.04E-09	5.66E-09	4.71E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	2.43E-08	3.82E-08	2.27E-14	NA	2.00E+00	2.22E+00	2.00E+00	NA	4.86E-08	8.48E-08	4.54E-14	NA	1.33E-07	36%	64%	0%	0%	12%
Total PAH (2)	9.00E-11	1.31E-08	8.41E-15	NA	7.30E+00	2.35E+01	3.08E+00	NA	6.57E-10	3.09E-07	2.59E-14	NA	3.10E-07	0%	100%	0%	0%	29%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	1.39E+01	NA	1.30E-05	1.90E-02	3.64E-13	3.64E-13	4.11E-14	4.46E-08	5.04E-12	NA	5.33E-19	8.48E-10	8.53E-10	1%	0%	0%	99%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.76E+01	NA	1.65E-05	2.42E-02	1.62E-10	1.62E-10	1.77E-08	7.97E-07	2.86E-09	NA	2.92E-13	1.93E-08	2.22E-08	13%	0%	0%	87%	2%
Plutonium-239/240	6.86E+01	NA	6.42E-05	9.41E-02	2.76E-10	2.76E-10	3.33E-08	2.00E-10	1.89E-08	NA	2.14E-12	1.88E-11	1.90E-08	100%	0%	0%	0%	2%
Technetium-99	1.98E+03	NA	1.86E-03	2.72E+00	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.52E-08	NA	2.62E-14	2.22E-10	1.54E-08	99%	0%	0%	1%	1%
Thorium-228	6.66E+00	NA	6.23E-06	9.14E-03	8.09E-10	8.09E-10	1.43E-07	7.76E-06	5.39E-09	NA	8.91E-13	7.09E-08	7.63E-08	7%	0%	0%	93%	7%
Thorium-230	1.66E+03	NA	1.55E-03	2.27E+00	2.02E-10	2.02E-10	2.85E-08	8.19E-10	3.34E-07	NA	4.41E-11	1.86E-09	3.36E-07	99%	0%	0%	1%	31%
Thorium-232	8.10E+00	NA	7.57E-06	1.11E-02	2.31E-10	2.31E-10	4.33E-08	3.42E-10	1.87E-09	NA	3.28E-13	3.80E-12	1.87E-09	100%	0%	0%	0%	0%
Uranium-234	9.66E+01	NA	9.03E-05	1.33E-01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.53E-08	NA	1.03E-12	3.34E-11	1.53E-08	100%	0%	0%	0%	1%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	8.66E+01	NA	8.10E-05	1.19E-01	1.43E-10	1.43E-10	9.32E-09	4.99E-11	1.24E-08	NA	7.55E-13	5.93E-12	1.24E-08	100%	0%	0%	0%	1%
								Total ELCR =	**5.34E-07**	**4.58E-07**	**5.04E-11**	**9.32E-08**	**1.09E-06**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.166 Carcinogenic Risk Results- (Current Recreational User - Child) for Sediment at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	5.78E-05	3.24E-05	5.40E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	9.00E-08	5.05E-08	8.41E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	5.40E-08	1.82E-08	5.05E-14	NA	1.50E+00	3.66E+00	1.51E+01	NA	8.10E-08	6.65E-08	7.62E-13	NA	1.48E-07	55%	45%	0%	0%	20%
Barium	5.94E-07	3.33E-07	5.55E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	5.22E-09	2.93E-09	4.88E-15	NA	NA	NA	8.40E+00	NA	NA	NA	4.10E-14	NA	4.10E-14	0%	0%	100%	0%	0%
Cadmium	1.89E-08	2.12E-10	1.77E-14	NA	NA	NA	6.30E+00	NA	NA	NA	1.11E-13	NA	1.11E-13	0%	0%	100%	0%	0%
Chromium	3.51E-07	1.97E-07	3.28E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	3.15E-07	1.77E-07	2.94E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	8.40E-05	4.71E-05	7.85E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	1.89E-07	1.06E-07	1.77E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	4.10E-06	2.30E-06	3.84E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	9.90E-10	5.56E-10	9.25E-16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	4.14E-08	2.32E-08	3.87E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	1.44E-07	8.08E-08	1.35E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	1.98E-07	1.11E-07	1.85E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	2.61E-08	1.46E-08	2.44E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	1.48E-06	8.28E-07	1.38E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	1.53E-07	8.59E-08	1.43E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	3.42E-07	1.92E-07	3.20E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	1.98E-08	2.89E-08	1.85E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	1.26E-08	1.41E-08	1.18E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	9.90E-09	1.56E-08	9.25E-15	NA	2.00E+00	2.22E+00	2.00E+00	NA	1.98E-08	3.46E-08	1.85E-14	NA	5.44E-08	36%	64%	0%	0%	7%
Total PAH (2)	1.08E-08	1.58E-08	1.01E-14	NA	7.30E+00	2.35E+01	3.08E+00	NA	7.88E-08	3.71E-07	3.11E-14	NA	4.50E-07	18%	82%	0%	0%	62%
Radionuclides																		
Americium-241	1.60E+00	NA	1.50E-06	2.19E-03	2.17E-10	2.17E-10	2.81E-08	2.76E-08	3.47E-10	NA	4.20E-14	6.05E-11	4.07E-10	85%	0%	0%	15%	0%
Cesium-137	2.53E+00	NA	2.37E-06	3.47E-03	3.64E-13	3.64E-13	4.11E-14	4.46E-08	9.21E-13	NA	9.73E-20	1.55E-10	1.56E-10	1%	0%	0%	99%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	9.32E-01	NA	8.72E-07	1.28E-03	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.51E-10	NA	1.54E-14	1.02E-09	1.17E-09	13%	0%	0%	87%	0%
Plutonium-239/240	1.60E+01	NA	1.50E-05	2.19E-02	2.76E-10	2.76E-10	3.33E-08	2.00E-10	4.41E-09	NA	4.98E-13	4.39E-12	4.42E-09	100%	0%	0%	0%	1%
Technetium-99	1.07E+02	NA	9.97E-05	1.46E-01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	8.16E-10	NA	1.41E-15	1.19E-11	8.28E-10	99%	0%	0%	1%	0%
Thorium-228	1.57E+00	NA	1.46E-06	2.15E-03	8.09E-10	8.09E-10	1.43E-07	7.76E-06	1.27E-09	NA	2.09E-13	1.67E-08	1.79E-08	7%	0%	0%	93%	2%
Thorium-230	2.23E+02	NA	2.09E-04	3.06E-01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	4.51E-08	NA	5.95E-12	2.51E-10	4.53E-08	99%	0%	0%	1%	6%
Thorium-232	1.86E+00	NA	1.74E-06	2.56E-03	2.31E-10	2.31E-10	4.33E-08	3.42E-10	4.31E-10	NA	7.55E-14	8.75E-13	4.32E-10	100%	0%	0%	0%	0%
Uranium-234	9.99E+00	NA	9.35E-06	1.37E-02	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.58E-09	NA	1.07E-13	3.45E-12	1.58E-09	100%	0%	0%	0%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	1.43E+01	NA	1.34E-05	1.97E-02	1.43E-10	1.43E-10	9.32E-09	4.99E-11	2.05E-09	NA	1.25E-13	9.81E-13	2.05E-09	100%	0%	0%	0%	0%
								Total ELCR =	**2.36E-07**	**4.72E-07**	**7.99E-12**	**1.82E-08**	**7.26E-07**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.167 Carcinogenic Risk Results- (Current Recreational User - Child) for Surface Water at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.168 Carcinogenic Risk Results- (Current Recreational User - Child) for Surface Water at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	8.86E-09	2.67E+00	2.36E-08	2.36E-08	100%	100%
		Total ELCR =	**2.36E-08**	**2.36E-08**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.169. Carcinogenic Risk Results-Future Recreational User-Child for Sediment at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR				Chemical Total	Percent Risk by Pathway				Percent Total
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure		Ingestion	Dermal	Inhalation	External Exposure	
Inorganic Chemicals (Metals)																		
Aluminum	7.65E-04	3.42E-03	7.14E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	1.32E-06	5.92E-06	1.23E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	5.48E-07	1.47E-06	5.11E-12	NA	1.50E+00	3.66E+00	1.51E+01	NA	8.22E-07	5.39E-06	7.72E-11	NA	6.21E-06	13%	87%	0%	0%	12%
Barium	7.41E-06	3.32E-05	6.92E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	6.14E-08	2.75E-07	5.73E-13	NA	NA	NA	8.40E+00	NA	NA	NA	4.81E-12	NA	4.81E-12	0%	0%	100%	0%	0%
Cadmium	ND	ND	ND	NA	NA	NA	6.30E+00	NA	ND	ND	ND	NA	ND	0%	0%	0%	0%	0%
Chromium	8.00E-06	3.58E-05	7.47E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	1.16E-05	5.20E-05	1.08E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	1.06E-03	4.73E-03	9.85E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	1.98E-06	8.88E-06	1.85E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	3.94E-05	1.76E-04	3.67E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0%	0%	0%	0%	0%
Molybdenum	7.84E-07	3.51E-06	7.32E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	8.88E-06	3.98E-05	8.29E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0%	0%	0%	0%	0%
Silver	3.21E-07	1.44E-06	3.00E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	3.10E-05	1.39E-04	2.89E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	1.90E-06	8.49E-06	1.77E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	9.66E-06	4.33E-05	9.02E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	6.43E-08	7.48E-07	6.00E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	5.29E-08	4.74E-07	4.94E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	2.55E-07	3.20E-06	2.38E-12	NA	2.00E+00	2.22E+00	2.00E+00	NA	5.10E-07	7.11E-06	4.76E-12	NA	7.62E-06	7%	93%	0%	0%	15%
Total PAH (2)	9.45E-08	1.10E-06	8.82E-13	NA	7.30E+00	2.35E+01	3.08E+00	NA	6.90E-07	2.59E-05	2.72E-12	NA	2.66E-05	3%	97%	0%	0%	51%
Radionuclides																		
Americium-241	ND	NA	ND	ND	2.17E-10	2.17E-10	2.81E-08	2.76E-08	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Cesium-137	1.46E+02	NA	1.36E-03	1.60E+00	3.64E-13	3.64E-13	4.11E-14	4.46E-08	5.30E-11	NA	5.59E-17	7.12E-08	7.13E-08	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	1.86E+02	NA	1.73E-03	2.04E+00	1.62E-10	1.62E-10	1.77E-08	7.97E-07	3.01E-08	NA	3.07E-11	1.62E-06	1.65E-06	2%	0%	0%	98%	3%
Plutonium-239/240	7.21E+02	NA	6.74E-03	7.91E+00	2.76E-10	2.76E-10	3.33E-08	2.00E-10	1.99E-07	NA	2.24E-10	1.58E-09	2.01E-07	99%	0%	0%	1%	0%
Technetium-99	2.09E+04	NA	1.95E-01	2.29E+02	7.66E-12	7.66E-12	1.41E-11	8.14E-11	1.60E-07	NA	2.75E-12	1.86E-08	1.78E-07	90%	0%	0%	10%	0%
Thorium-228	7.00E+01	NA	6.54E-04	7.68E-01	8.09E-10	8.09E-10	1.43E-07	7.76E-06	5.66E-08	NA	9.36E-11	5.96E-06	6.02E-06	1%	0%	0%	99%	11%
Thorium-230	1.74E+04	NA	1.63E-01	1.91E+02	2.02E-10	2.02E-10	2.85E-08	8.19E-10	3.51E-06	NA	4.63E-09	1.56E-07	3.67E-06	96%	0%	0%	4%	7%
Thorium-232	8.51E+01	NA	7.95E-04	9.34E-01	2.31E-10	2.31E-10	4.33E-08	3.42E-10	1.97E-08	NA	3.44E-11	3.19E-10	2.00E-08	98%	0%	0%	2%	0%
Uranium-234	1.02E+03	NA	9.49E-03	1.11E+01	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.60E-07	NA	1.08E-10	2.81E-09	1.63E-07	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	9.10E+02	NA	8.50E-03	9.98E+00	1.43E-10	1.43E-10	9.32E-09	4.99E-11	1.30E-07	NA	7.93E-11	4.98E-10	1.31E-07	100%	0%	0%	0%	0%
								Total ELCR =	**6.29E-06**	**3.84E-05**	**5.30E-09**	**7.83E-06**	**5.25E-05**					

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.170. Carcinogenic Risk Results-Future Recreational User-Child for Sediment at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake				Cancer Toxicity (SF)				ELCR					Percent Risk by Pathway				
	Ingestion Intake Hazard	Dermal Intake Hazard	Inhalation Intake Hazard	External Exposure Hazard	Ingestion	Dermal	Inhalation	External Exposure	Ingestion	Dermal	Inhalation	External Exposure	**Chemical Total**	Ingestion	Dermal	Inhalation	External Exposure	**Percent Total**
Inorganic Chemicals (Metals)																		
Aluminum	6.07E-04	2.72E-03	5.66E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Antimony	9.45E-07	4.23E-06	8.82E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Arsenic	5.67E-07	1.52E-06	5.29E-12	NA	1.50E+00	3.66E+00	1.51E+01	NA	8.51E-07	5.57E-06	7.99E-11	NA	6.42E-06	13%	87%	0%	0%	15%
Barium	6.24E-06	2.79E-05	5.82E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Beryllium	5.48E-08	2.45E-07	5.11E-13	NA	NA	NA	8.40E+00	NA	NA	NA	4.30E-12	NA	4.30E-12	0%	0%	100%	0%	0%
Cadmium	1.98E-07	1.78E-08	1.85E-12	NA	NA	NA	6.30E+00	NA	NA	NA	1.17E-11	NA	1.17E-11	0%	0%	100%	0%	0%
Chromium	3.69E-06	1.65E-05	3.44E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Copper	3.31E-06	1.48E-05	3.09E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Iron	8.82E-04	3.95E-03	8.23E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Lead	1.98E-06	8.88E-06	1.85E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Manganese	4.31E-05	1.93E-04	4.02E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Mercury	1.04E-08	4.65E-08	9.70E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Molybdenum	4.35E-07	1.95E-06	4.06E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Nickel	1.51E-06	6.77E-06	1.41E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Selenium	2.08E-06	9.31E-06	1.94E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Silver	2.74E-07	1.23E-06	2.56E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium	1.55E-05	6.94E-05	1.45E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Vanadium	1.61E-06	7.19E-06	1.50E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Zinc	3.59E-06	1.61E-05	3.35E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Organic Compounds																		
Fluoranthene	2.08E-07	2.42E-06	1.94E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Pyrene	1.32E-07	1.18E-06	1.23E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Total PCB (1)	1.04E-07	1.30E-06	9.70E-13	NA	2.00E+00	2.22E+00	2.00E+00	NA	2.08E-07	2.90E-06	1.94E-12	NA	3.10E-06	7%	93%	0%	0%	7%
Total PAH (2)	1.13E-07	1.32E-06	1.06E-12	NA	7.30E+00	2.35E+01	3.08E+00	NA	8.28E-07	3.11E-05	3.26E-12	NA	3.19E-05	3%	97%	0%	0%	73%
Radionuclides																		
Americium-241	1.68E+01	NA	1.57E-04	1.84E-01	2.17E-10	2.17E-10	2.81E-08	2.76E-08	3.65E-09	NA	4.41E-12	5.09E-09	8.74E-09	42%	0%	0%	58%	0%
Cesium-137	2.66E+01	NA	2.49E-04	2.92E-01	3.64E-13	3.64E-13	4.11E-14	4.46E-08	9.68E-12	NA	1.02E-17	1.30E-08	1.30E-08	0%	0%	0%	100%	0%
Cobalt-60	ND	NA	ND	ND	4.03E-11	4.03E-11	3.58E-11	1.24E-05	ND	NA	ND	ND	ND	0%	0%	0%	0%	0%
Neptunium-237	9.80E+00	NA	9.16E-05	1.08E-01	1.62E-10	1.62E-10	1.77E-08	7.97E-07	1.59E-09	NA	1.62E-12	8.57E-08	8.73E-08	2%	0%	0%	98%	0%
Plutonium-239/240	1.68E+02	NA	1.57E-03	1.84E+00	2.76E-10	2.76E-10	3.33E-08	2.00E-10	4.64E-08	NA	5.23E-11	3.69E-10	4.68E-08	99%	0%	0%	1%	0%
Technetium-99	1.12E+03	NA	1.05E-02	1.23E+01	7.66E-12	7.66E-12	1.41E-11	8.14E-11	8.58E-09	NA	1.48E-13	1.00E-09	9.58E-09	90%	0%	0%	10%	0%
Thorium-228	1.65E+01	NA	1.54E-04	1.80E-01	8.09E-10	8.09E-10	1.43E-07	7.76E-06	1.33E-08	NA	2.20E-11	1.40E-06	1.41E-06	1%	0%	0%	99%	3%
Thorium-230	2.35E+03	NA	2.19E-02	2.57E+01	2.02E-10	2.02E-10	2.85E-08	8.19E-10	4.74E-07	NA	6.25E-10	2.11E-08	4.95E-07	96%	0%	0%	4%	1%
Thorium-232	1.96E+01	NA	1.83E-04	2.15E-01	2.31E-10	2.31E-10	4.33E-08	3.42E-10	4.53E-09	NA	7.93E-12	7.35E-11	4.61E-09	98%	0%	0%	2%	0%
Uranium-234	1.05E+02	NA	9.81E-04	1.15E+00	1.58E-10	1.58E-10	1.14E-08	2.52E-10	1.66E-08	NA	1.12E-11	2.90E-10	1.69E-08	98%	0%	0%	2%	0%
Uranium-235	NA	NA	NA	NA	1.57E-10	1.57E-10	1.01E-08	5.18E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%	0%
Uranium-238	1.51E+02	NA	1.41E-03	1.65E+00	1.43E-10	1.43E-10	9.32E-09	4.99E-11	2.15E-08	NA	1.31E-11	8.24E-11	2.16E-08	100%	0%	0%	0%	0%
									Total ELCR =	**2.48E-06**	**3.95E-05**	**8.38E-10**	**1.53E-06**	**4.35E-05**				

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.171. Carcinogenic Risk Results-Future Recreational User-Child for Surface Water at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	NA	2.67E+00	NA	NA	0%	0%
		Total ELCR =	**NA**	**0.00E+00**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.172. Carcinogenic Risk Results-Future Recreational User-Child for Surface Water at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake Dermal Intake Hazard	Cancer Toxicity (SF) Dermal	ELCR Dermal	Chemical Total	Percent Risk by Pathway Dermal	Percent Total
Inorganic Chemicals (Metals)						
Aluminum	NA	NA	NA	NA	0%	0%
Antimony	NA	NA	NA	NA	0%	0%
Arsenic	NA	3.66E+00	NA	NA	0%	0%
Barium	NA	NA	NA	NA	0%	0%
Beryllium	NA	NA	NA	NA	0%	0%
Cadmium	NA	NA	NA	NA	0%	0%
Chromium	NA	NA	NA	NA	0%	0%
Copper	NA	NA	NA	NA	0%	0%
Iron	NA	NA	NA	NA	0%	0%
Lead	NA	NA	NA	NA	0%	0%
Manganese	NA	NA	NA	NA	0%	0%
Mercury	NA	NA	NA	NA	0%	0%
Molybdenum	NA	NA	NA	NA	0%	0%
Nickel	NA	NA	NA	NA	0%	0%
Selenium	NA	NA	NA	NA	0%	0%
Silver	NA	NA	NA	NA	0%	0%
Uranium	NA	NA	NA	NA	0%	0%
Vanadium	NA	NA	NA	NA	0%	0%
Zinc	NA	NA	NA	NA	0%	0%
Organic Compounds						
Fluoranthene	NA	NA	NA	NA	0%	0%
Pyrene	NA	NA	NA	NA	0%	0%
Total PCB (1)	NA	2.22E+00	NA	NA	0%	0%
Total PAH (2)	NA	2.35E+01	NA	NA	0%	0%
Radionuclides						
Americium-241	NA	2.17E-10	NA	NA	0%	0%
Cesium-137	NA	3.64E-13	NA	NA	0%	0%
Cobalt-60	NA	4.03E-11	NA	NA	0%	0%
Neptunium-237	NA	1.62E-10	NA	NA	0%	0%
Plutonium-239/240	NA	2.76E-10	NA	NA	0%	0%
Technetium-99	NA	7.66E-12	NA	NA	0%	0%
Thorium-228	NA	8.09E-10	NA	NA	0%	0%
Thorium-230	NA	2.02E-10	NA	NA	0%	0%
Thorium-232	NA	2.31E-10	NA	NA	0%	0%
Uranium-234	NA	1.58E-10	NA	NA	0%	0%
Uranium-235	NA	1.57E-10	NA	NA	0%	0%
Uranium-238	NA	1.43E-10	NA	NA	0%	0%
VOCs						
Trichloroethene	4.84E-07	2.67E+00	1.29E-06	1.29E-06	100%	100%
		Total ELCR =	**1.29E-06**	**1.29E-06**		

NA: Not applicable.
Units for radionuclides are pCi/L. All others are mg/L.
Toxicity units for dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$.
Dermal intake hazard units are [mg/(kg*day)].
This exposure route is not applicable for radionuclides.
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.173. Carcinogenic Risk Results-Current/Future Recreational User-Child for Game at the NSDD Hot Spot

COPC	Exposure Route - Chronic Daily Intake			Cancer Toxicity (SF)	ELCR			Chemical Total	Percent Risk by Pathway			Percent Total
	Ingestion Intake Hazard - Deer	Ingestion Intake Hazard - Quail	Ingestion Intake Hazard Rabbit	Ingestion	Ingestion - Deer	Ingestion - Quail	Ingestion - Rabbit		Ingestion - Deer	Ingestion - Quail	Ingestion - Rabbit	
Inorganic Chemicals (Metals)												
Aluminum	NA	3.21E-08	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Antimony	3.48E-11	2.18E-12	3.48E-10	NA	NA	NA	NA	NA	0%	0%	0%	0%
Arsenic	NA	3.48E-11	NA	1.50E+00	NA	5.21E-11	NA	5.21E-11	0%	100%	0%	0%
Barium	1.13E-09	2.36E-09	1.11E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Beryllium	NA	2.11E-12	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Cadmium	NA	NA	NA	NA	NA	NA	NA	ND	0%	0%	0%	0%
Chromium	4.59E-08	2.23E-09	4.60E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%
Copper	2.30E-07	5.12E-07	2.11E-06	NA	NA	NA	NA	NA	0%	0%	0%	0%
Iron	1.21E-05	3.01E-05	1.24E-04	NA	NA	NA	NA	NA	0%	0%	0%	0%
Lead	5.87E-10	2.76E-11	5.79E-09	NA	NA	NA	NA	NA	0%	0%	0%	0%
Manganese	3.85E-08	1.57E-07	3.54E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%
Mercury	NA	1.76E-10	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Molybdenum	1.08E-09	4.52E-08	1.01E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Nickel	4.11E-08	NA	3.96E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%
Selenium	NA	1.11E-06	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Silver	2.52E-09	6.65E-08	2.29E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Zinc	2.50E-06	6.95E-06	2.28E-05	NA	NA	NA	NA	NA	0%	0%	0%	0%
Organic Compounds												
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Total PCB (1)	NA	NA	NA	2.00E+00	NA	NA	NA	NA	0%	0%	0%	0%
Total PAH (2)	NA	4.58E-09	NA	7.30E+00	NA	3.34E-08	NA	3.34E-08	0%	100%	0%	78%
Radionuclides												
Americium-241	3.42E-03	7.40E-03	ND	2.17E-10	1.61E-12	1.61E-12	ND	3.21E-12	50%	50%	0%	0%
Cesium-137	5.68E+00	5.16E+01	5.58E+01	3.64E-13	2.07E-12	NA	2.03E-11	2.24E-11	9%	0%	91%	0%
Cobalt-60	ND	ND	ND	4.03E-11	ND	NA	ND	ND	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	1.62E-10	NA	NA	NA	NA	0%	0%	0%	0%
Plutonium-239/240	4.00E-03	1.14E-01	4.09E-02	2.76E-10	1.10E-12	3.14E-11	1.13E-11	4.38E-11	3%	72%	26%	0%
Technetium-99	NA	NA	NA	7.66E-12	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-228	NA	2.67E-04	NA	8.09E-10	NA	2.16E-13	NA	2.16E-13	0%	100%	0%	0%
Thorium-230	NA	6.63E-02	NA	2.02E-10	NA	1.34E-11	NA	1.34E-11	0%	100%	0%	0%
Thorium-232	NA	3.24E-04	NA	2.31E-10	NA	7.49E-14	NA	7.49E-14	0%	100%	0%	0%
Uranium-234	1.83E-01	3.02E+01	1.85E+00	1.58E-10	2.89E-11	4.77E-09	2.93E-10	5.09E-09	1%	94%	6%	12%
Uranium-235	NA	NA	NA	1.57E-10	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-238	1.64E-01	2.71E+01	1.66E+00	1.43E-10	2.35E-11	3.87E-09	2.38E-10	4.13E-09	1%	94%	6%	10%
				Total ELCR =	**5.72E-11**	**4.22E-08**	**5.62E-10**	**4.28E-08**				

NA: Not applicable.
ND: Not detected.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.

Attachment D5.174. Carcinogenic Risk Results-Current/Future Recreational User-Child for Game at the NSDD, Excluding the Hot Spot

COPC	Exposure Route - Chronic Daily Intake			Cancer Toxicity (SF)	ELCR				Percent Risk by Pathway			
	Ingestion Intake Hazard - Deer	Ingestion Intake Hazard - Quail	Ingestion Intake Hazard Rabbit	Ingestion	Ingestion - Deer	Ingestion - Quail	Ingestion - Rabbit	**Chemical Total**	Ingestion-Deer	Ingestion-Quail	Ingestion-Rabbit	**Percent Total**
Inorganic Chemicals (Metals)												
Aluminum	NA	2.55E-08	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Antimony	2.48E-11	1.56E-12	2.48E-10	NA	NA	NA	NA	NA	0%	0%	0%	0%
Arsenic	NA	3.60E-11	NA	1.50E+00	NA	5.39E-11	NA	5.39E-11	0%	100%	0%	0%
Barium	9.48E-10	1.98E-09	9.33E-09	NA	NA	NA	NA	NA	0%	0%	0%	0%
Beryllium	NA	1.88E-12	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Cadmium	1.34E-10	1.22E-08	1.24E-09	NA	NA	NA	NA	NA	0%	0%	0%	0%
Chromium	2.11E-08	1.03E-09	2.12E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%
Copper	6.55E-08	1.46E-07	6.00E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%
Iron	1.01E-05	2.51E-05	1.03E-04	NA	NA	NA	NA	NA	0%	0%	0%	0%
Lead	5.87E-10	2.76E-11	5.79E-09	NA	NA	NA	NA	NA	0%	0%	0%	0%
Manganese	4.21E-08	1.72E-07	3.87E-07	NA	NA	NA	NA	NA	0%	0%	0%	0%
Mercury	NA	3.23E-11	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Molybdenum	5.99E-10	2.51E-08	5.61E-09	NA	NA	NA	NA	NA	0%	0%	0%	0%
Nickel	6.99E-09	NA	6.75E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Selenium	NA	1.22E-06	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Silver	2.15E-09	5.67E-08	1.95E-08	NA	NA	NA	NA	NA	0%	0%	0%	0%
Uranium	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Zinc	9.30E-07	2.58E-06	8.47E-06	NA	NA	NA	NA	NA	0%	0%	0%	0%
Organic Compounds												
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	0%	0%	0%	0%
Total PCB (1)	NA	NA	NA	2.00E+00	NA	NA	NA	NA	0%	0%	0%	0%
Total PAH (2)	NA	5.50E-09	NA	7.30E+00	NA	4.01E-08	NA	4.01E-08	0%	100%	0%	100%
Radionuclides												
Americium-241	3.74E-04	2.74E-03	3.82E-03	2.17E-10	8.12E-14	NA	8.30E-13	9.11E-13	9%	0%	91%	0%
Cesium-137	1.04E+00	9.43E+00	1.02E+01	3.64E-13	3.78E-13	NA	3.71E-12	4.09E-12	9%	0%	91%	0%
Cobalt-60	NA	NA	NA	4.03E-11	NA	NA	NA	NA	0%	0%	0%	0%
Neptunium-237	NA	NA	NA	1.62E-10	NA	NA	NA	NA	0%	0%	0%	0%
Plutonium-239/240	9.32E-04	2.65E-02	9.53E-03	2.76E-10	2.57E-13	NA	2.63E-12	2.89E-12	9%	0%	91%	0%
Technetium-99	NA	NA	NA	7.66E-12	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-228	NA	6.27E-05	NA	8.09E-10	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-230	NA	8.93E-03	NA	2.02E-10	NA	NA	NA	NA	0%	0%	0%	0%
Thorium-232	NA	7.47E-05	NA	2.31E-10	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-234	1.89E-02	3.12E+00	1.92E-01	1.58E-10	2.99E-12	NA	3.03E-11	3.33E-11	9%	0%	91%	0%
Uranium-235	NA	NA	NA	1.57E-10	NA	NA	NA	NA	0%	0%	0%	0%
Uranium-238	2.72E-02	4.48E+00	2.75E-01	1.43E-10	3.88E-12	NA	3.93E-11	4.32E-11	9%	0%	91%	0%
				Total ELCR =	**7.59E-12**	**4.02E-08**	**7.67E-11**	**4.03E-08**				

NA: Not applicable.
Units for radionuclides are pCi/g. All others are mg/kg.
Toxicity units for radionuclide ingestion, dermal and inhalation exposure are risk/pCi, and for external exposure are risk/yr per pCi/g soil.
Toxicity units for ingestion and dermal exposure to all other chemicals are $(mg/kg\text{-}day)^{-1}$ and for inhalation exposure are $(mg/m^3)^{-1}$.
Ingestion, dermal and inhalation intake hazard units are [mg/(kg*day)].
(1) Chemical information for Aroclor 1254 was used to calculate risks and hazards.
(2) Chemical information for benzo(a)pyrene was used to calculate risks and hazards.