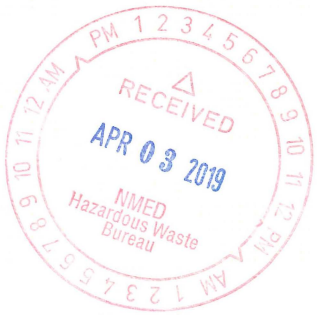
EMID-700381

DEPARTMENT OF ENERGY
Environmental Management Los Alamos Field Office (EM-LA)
Los Alamos, New Mexico 87544

APR 0 3 2019



Mr. John E. Kieling
Bureau Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

Dear Mr. Kieling:

Subject: Response to Comment for the Letter Report: Fieldwork Completion and Status for the Known Cleanup Sites Campaign at Solid Waste Management Units 50-006(d), 03-049(a), and 46-004(q)

This letter is in response to the New Mexico Environment Department (NMED) comment regarding the letter report for the fieldwork completion and status for the Known Cleanup Sites Campaign at Solid Waste Management Units (SWMUs) 50-006(d), 03-049(a), and 46-004(q), provided in the NMED letter dated January 28, 2019 (HWB-LANL-18-049). NMED's specific comment regarding SWMU 03-049(a) requested information for how the new exposure point concentration (EPC) value for 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) equivalent was calculated, and requested corrections to Tables H-2.3-13 and H-2.3-14.

The information included in the letter report did not include the dioxin/furan EPC calculation worksheet where the error occurred. The revised EPC calculations are included in Enclosure 1. The first set of tables shows the calculations that were included in the supplemental investigation report, and the second set of tables shows the revised EPC calculations by risk scenario. The error occurred by shifting the data for eight dioxin/furan congeners by one row. The numbers in red are the correct data for the individual dioxin/furan congeners.

The risk tables included in the letter report did not include the change to the maximum concentration based on the revised EPC calculation for 2,3,7,8-TCDD equivalent. Enclosure 2 includes the revised Tables H-2.3-13 and H-2.3-14 with the maximum concentration updated.

NMED also requested all units of measurement be included in all tables. Because the EPC tables include different units of measurement for inorganic/organic chemicals and radionuclides, the units are included in row headings instead of under column headings. No changes to units of measurements in the tables are required.

The revisions to the risk calculations and tables for SWMU 03-049(a) will be included in Revision 1 of the "Supplemental Investigation Report for Upper Mortandad Canyon Aggregate Area."

If you have any questions, please contact Brenda Bowlby at (505) 551-2957 (brenda.bowlby@em-la.doe.gov) or Cheryl Rodriguez at (505) 665-5330 (cheryl.rodriguez@em.doe.gov).

Sincerely,

Arturo Q. Duran
Compliance and Permitting Manager
Environmental Management
Los Alamos Field Office

Enclosures:
1. Dioxins/Furans Exposure Point Concentration Calculations (EM2019-0092)
2. Revised Tables H-2.3-13 and H-2.3-14 (EM2019-0092)

cc (letter and enclosure[s] emailed):
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R. Murphy, NMED-HWB
S. Yanicak, NMED-DOE-OB
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Public Reading Room (EPRR)
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EM-LA-40AD-00416

Enclosure 1

Dioxins/Furans Exposure Point Concentration Calculations

Original EPCs for SWMU 03-049(a) for the Industrial Scenario

0-1 Industrial												
COPCs	**CAMO-09-6006 (mg/kg)**	**Toxic Equivalency Factor (TEF)**	**Exposure Point Concentration (mg/kg)**	**CAMO-09-6008 (mg/kg)**	**Toxic Equivalency Factor (TEF)**	**Exposure Point Concentration (mg/kg)**	**CAMO-09-6009 (mg/kg)**	**Toxic Equivalency Factor (TEF)**	**Exposure Point Concentration (mg/kg)**	**CAMO-09-6047 (mg/kg)**	**Toxic Equivalency Factor (TEF)**	**Exposure Point Concentration (mg/kg)**
Dioxins												
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	0.00000915	0.01	9.15E-08	0.00234	0.01	2.34E-05	0.000935	0.01	9.35E-06	0.000834	0.01	8.34E-06
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	0.00000122	0.01	1.22E-08	0.00031	0.01	3.10E-06	0.00012	0.01	1.20E-06	0.0000873	0.01	8.73E-07
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]		0.01	0.00E+00	0.0000284	0.01	2.84E-07	0.0000113	0.01	1.13E-07	0.00000879	0.01	8.79E-08
Hexachlorodibenzodioxin[1,2,3,4,7,8-]		0.1	0.00E+00	0.000014	0.1	1.40E-06	0.00000572	0.1	5.72E-07	0.00000686	0.1	6.86E-07
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	0.000000402	0.1	4.02E-08	0.0000789	0.1	7.89E-06	0.0000319	0.1	3.19E-06	0.0000309	0.1	3.09E-06
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	0.000000445	0.1	4.45E-08	0.0000314	0.1	3.14E-06	0.0000126	0.1	1.26E-06	0.0000145	0.1	1.45E-06
Hexachlorodibenzofuran[1,2,3,4,7,8-]	0.000000139	0.1	1.39E-08	0.0000105	0.1	1.05E-06	0.0000043	0.1	4.30E-07	0.00000477	0.1	4.77E-07
Hexachlorodibenzofuran[1,2,3,6,7,8-]	0.000000147	0.1	1.47E-08	0.00000727	0.1	7.27E-07	0.00000286	0.1	2.86E-07	0.00000341	0.1	3.41E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]		0.1	0.00E+00	0.00000313	0.1	3.13E-07	0.00000124	0.1	1.24E-07	0.00000616	0.1	6.16E-07
Hexachlorodibenzofuran[2,3,4,6,7,8-]	0.000000148	0.1	1.48E-08	0.0000156	0.1	1.56E-06	0.00000641	0.1	6.41E-07	0.00778	0.1	7.78E-04
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	0.0000802	0.0003	2.41E-08	0.0294	0.0003	8.82E-06	0.0112	0.0003	3.36E-06	0.000173	0.0003	5.19E-08
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	0.00000198	0.0003	5.94E-10	0.00113	0.0003	3.39E-07	0.000437	0.0003	1.31E-07	0.00000314	0.0003	9.42E-10
Pentachlorodibenzodioxin[1,2,3,7,8-]		1	0.00E+00	0.0000078	1	7.80E-06	0.00000297	1	2.97E-06	5.37E-07	1	5.37E-07
Pentachlorodibenzofuran[1,2,3,7,8-]		0.03	0.00E+00	0.000000897	0.03	2.69E-08	3.37E-07	0.03	1.01E-08	0.00000135	0.03	4.05E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	0.00000022	0.3	6.60E-08	0.00000299	0.3	8.97E-07	0.00000123	0.3	3.69E-07	1.66E-07	0.3	4.98E-08
Tetrachlorodibenzodioxin[2,3,7,8-]		1	0.00E+00	0.00000114	1	1.14E-06	4.68E-07	1	4.68E-07	7.09E-07	1	7.09E-07
Tetrachlorodibenzofuran[2,3,7,8-]		0.1	0.00E+00	0.000000904	0.1	9.04E-08		0.1	0.00E+00		0.1	0.00E+00
			3.22E-07			**6.20E-05**			**2.45E-05**			**7.95E-04**

Revised EPCs for SWMU 03-049(a) for the Industrial Scenario

0-1 Industrial												
COPCs	CAMO-09-6006 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)	CAMO-09-6008 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)	CAMO-09-6009 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)	CAMO-09-6047 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)
Dioxins												
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	0.00000915	0.01	9.15E-08	0.00234	0.01	2.34E-05	0.000935	0.01	9.35E-06	0.000834	0.01	8.34E-06
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	0.00000122	0.01	1.22E-08	0.00031	0.01	3.10E-06	0.00012	0.01	1.20E-06	0.0000873	0.01	8.73E-07
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]		0.01	0.00E+00	0.0000284	0.01	2.84E-07	0.0000113	0.01	1.13E-07	0.00000879	0.01	8.79E-08
Hexachlorodibenzodioxin[1,2,3,4,7,8-]		0.1	0.00E+00	0.000014	0.1	1.40E-06	0.00000572	0.1	5.72E-07	0.00000686	0.1	6.86E-07
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	0.000000402	0.1	4.02E-08	0.0000789	0.1	7.89E-06	0.0000319	0.1	3.19E-06	0.0000309	0.1	3.09E-06
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	0.000000445	0.1	4.45E-08	0.0000314	0.1	3.14E-06	0.0000126	0.1	1.26E-06	0.0000145	0.1	1.45E-06
Hexachlorodibenzofuran[1,2,3,4,7,8-]	0.000000139	0.1	1.39E-08	0.0000105	0.1	1.05E-06	0.0000043	0.1	4.30E-07	0.00000477	0.1	4.77E-07
Hexachlorodibenzofuran[1,2,3,6,7,8-]	0.000000147	0.1	1.47E-08	0.00000727	0.1	7.27E-07	0.00000286	0.1	2.86E-07	0.00000341	0.1	3.41E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]		0.1	0.00E+00	0.00000313	0.1	3.13E-07	0.00000124	0.1	1.24E-07		0.1	0.00E+00
Hexachlorodibenzofuran[2,3,4,6,7,8-]	0.000000148	0.1	1.48E-08	0.0000156	0.1	1.56E-06	0.00000641	0.1	6.41E-07	0.00000616	0.1	6.16E-07
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	0.0000802	0.0003	2.41E-08	0.0294	0.0003	8.82E-06	0.0112	0.0003	3.36E-06	0.00778	0.0003	2.33E-06
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	0.00000198	0.0003	5.94E-10	0.00113	0.0003	3.39E-07	0.000437	0.0003	1.31E-07	0.000173	0.0003	5.19E-08
Pentachlorodibenzodioxin[1,2,3,7,8-]		1	0.00E+00	0.0000078	1	7.80E-06	0.00000297	1	2.97E-06	0.00000314	1	3.14E-06
Pentachlorodibenzofuran[1,2,3,7,8-]		0.03	0.00E+00	0.000000897	0.03	2.69E-08	3.37E-07	0.03	1.01E-08	5.37E-07	0.03	1.61E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	0.00000022	0.3	6.60E-08	0.00000299	0.3	8.97E-07	0.00000123	0.3	3.69E-07	0.00000135	0.3	4.05E-07
Tetrachlorodibenzodioxin[2,3,7,8-]		1	0.00E+00	0.00000114	1	1.14E-06	4.68E-07	1	4.68E-07	1.66E-07	1	1.66E-07
Tetrachlorodibenzofuran[2,3,7,8-]		0.1	0.00E+00	0.000000904	0.1	9.04E-08		0.1	0.00E+00	7.09E-07	0.1	7.09E-08
			3.22E-07			**6.20E-05**			**2.45E-05**			**2.21E-05**

Original EPCs for SWMU 03-049(a) for the Ecological Scenario

0-5 Ecological												
COPCs	**CAMO-09-6005 (mg/kg)**	**Toxic Equivalency Factor (TEF)**	**Exposure Point Concentration (mg/kg)**	**CAMO-09-6006 (mg/kg)**	**Toxic Equivalency Factor (TEF)**	**Exposure Point Concentration (mg/kg)**	**CAMO-09-6007 (mg/kg)**	**Toxic Equivalency Factor (TEF)**	**Exposure Point Concentration (mg/kg)**	**CAMO-09-6008 (mg/kg)**	**Toxic Equivalency Factor (TEF)**	**Exposure Point Concentration (mg/kg)**
Dioxins												
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	0.0000231	0.01	2.31E-07	0.00000915	0.01	9.15E-08	4.96E-07	0.01	4.96E-09	0.00234	0.01	2.34E-05
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	0.00000305	0.01	3.05E-08	0.00000122	0.01	1.22E-08		0.01	0.00E+00	0.00031	0.01	3.10E-06
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	0.000000615	0.01	6.15E-09		0.01	0.00E+00		0.01	0.00E+00	0.0000284	0.01	2.84E-07
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	0.000000209	0.1	2.09E-08		0.1	0.00E+00		0.1	0.00E+00	0.000014	0.1	1.40E-06
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	0.000000858	0.1	8.58E-08	0.000000402	0.1	4.02E-08		0.1	0.00E+00	0.0000789	0.1	7.89E-06
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	0.000000386	0.1	3.86E-08	0.000000445	0.1	4.45E-08		0.1	0.00E+00	0.0000314	0.1	3.14E-06
Hexachlorodibenzofuran[1,2,3,4,7,8-]	0.00000054	0.1	5.40E-08	0.000000139	0.1	1.39E-08		0.1	0.00E+00	0.0000105	0.1	1.05E-06
Hexachlorodibenzofuran[1,2,3,6,7,8-]		0.1	0.00E+00	0.000000147	0.1	1.47E-08		0.1	0.00E+00	0.00000727	0.1	7.27E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]		0.1	0.00E+00		0.1	0.00E+00		0.1	0.00E+00	0.00000313	0.1	3.13E-07
Hexachlorodibenzofuran[2,3,4,6,7,8-]		0.1	0.00E+00	0.000000148	0.1	1.48E-08		0.1	0.00E+00	0.0000156	0.1	1.56E-06
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	0.000274	0.0003	8.22E-08	0.0000802	0.0003	2.41E-08	0.00000455	0.0003	1.37E-09	0.0294	0.0003	8.82E-06
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	0.00000684	0.0003	2.05E-09	0.00000198	0.0003	5.94E-10		0.0003	0.00E+00	0.00113	0.0003	3.39E-07
Pentachlorodibenzodioxin[1,2,3,7,8-]		1	0.00E+00		1	0.00E+00		1	0.00E+00	0.0000078	1	7.80E-06
Pentachlorodibenzofuran[1,2,3,7,8-]		0.03	0.00E+00		0.03	0.00E+00		0.03	0.00E+00	8.97E-07	0.03	2.69E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	0.000000238	0.3	7.14E-08	0.00000022	0.3	6.60E-08		0.3	0.00E+00	0.00000299	0.3	8.97E-07
Tetrachlorodibenzodioxin[2,3,7,8-]		1	0.00E+00		1	0.00E+00		1	0.00E+00	0.00000114	1	1.14E-06
Tetrachlorodibenzofuran[2,3,7,8-]		0.1	0.00E+00		0.1	0.00E+00		0.1	0.00E+00	9.04E-07	0.1	9.04E-08
			6.23E-07			**3.22E-07**			**6.33E-09**			**6.20E-05**

Original EPCs for SWMU 03-049(a) for the Ecological Scenario (continued)

0-5 Ecological						
COPCs	**CAMO-09-6009 (mg/kg)**	**Toxic Equivalency Factor (TEF)**	**Exposure Point Concentration (mg/kg)**	**CAMO-09-6047 (mg/kg)**	**Toxic Equivalency Factor (TEF)**	**Exposure Point Concentration (mg/kg)**
Dioxins						
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	0.000935	0.01	9.35E-06	0.000834	0.01	8.34E-06
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	0.00012	0.01	1.20E-06	0.0000873	0.01	8.73E-07
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	0.0000113	0.01	1.13E-07	0.00000879	0.01	8.79E-08
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	0.00000572	0.1	5.72E-07	0.00000686	0.1	6.86E-07
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	0.0000319	0.1	3.19E-06	0.0000309	0.1	3.09E-06
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	0.0000126	0.1	1.26E-06	0.0000145	0.1	1.45E-06
Hexachlorodibenzofuran[1,2,3,4,7,8-]	0.0000043	0.1	4.30E-07	0.00000477	0.1	4.77E-07
Hexachlorodibenzofuran[1,2,3,6,7,8-]	0.00000286	0.1	2.86E-07	0.00000341	0.1	3.41E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]	0.00000124	0.1	1.24E-07	0.00000616	0.1	6.16E-07
Hexachlorodibenzofuran[2,3,4,6,7,8-]	0.00000641	0.1	6.41E-07	0.00778	0.1	7.78E-04
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	0.0112	0.0003	3.36E-06	0.000173	0.0003	5.19E-08
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	0.000437	0.0003	1.31E-07	0.00000314	0.0003	9.42E-10
Pentachlorodibenzodioxin[1,2,3,7,8-]	0.00000297	1	2.97E-06	5.37E-07	1	5.37E-07
Pentachlorodibenzofuran[1,2,3,7,8-]	3.37E-07	0.03	1.01E-08	0.00000135	0.03	4.05E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	0.00000123	0.3	3.69E-07	1.66E-07	0.3	4.98E-08
Tetrachlorodibenzodioxin[2,3,7,8-]	4.68E-07	1	4.68E-07	7.09E-07	1	7.09E-07
Tetrachlorodibenzofuran[2,3,7,8-]		0.1	0.00E+00		0.1	0.00E+00
			2.45E-05			**7.95E-04**

Revised EPCs for SWMU 03-049(a) for the Ecological Scenario

0-5 Ecological												
COPCs	CAMO-09-6005 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)	CAMO-09-6006 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)	CAMO-09-6007 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)	CAMO-09-6008 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)
Dioxins												
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	0.0000231	0.01	2.31E-07	0.00000915	0.01	9.15E-08	4.96E-07	0.01	4.96E-09	0.00234	0.01	2.34E-05
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	0.00000305	0.01	3.05E-08	0.00000122	0.01	1.22E-08		0.01	0.00E+00	0.00031	0.01	3.10E-06
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	0.000000615	0.01	6.15E-09		0.01	0.00E+00		0.01	0.00E+00	0.0000284	0.01	2.84E-07
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	0.000000209	0.1	2.09E-08		0.1	0.00E+00		0.1	0.00E+00	0.000014	0.1	1.40E-06
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	0.000000858	0.1	8.58E-08	0.000000402	0.1	4.02E-08		0.1	0.00E+00	0.0000789	0.1	7.89E-06
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	0.000000386	0.1	3.86E-08	0.000000445	0.1	4.45E-08		0.1	0.00E+00	0.0000314	0.1	3.14E-06
Hexachlorodibenzofuran[1,2,3,4,7,8-]	0.00000054	0.1	5.40E-08	0.000000139	0.1	1.39E-08		0.1	0.00E+00	0.0000105	0.1	1.05E-06
Hexachlorodibenzofuran[1,2,3,6,7,8-]		0.1	0.00E+00	0.000000147	0.1	1.47E-08		0.1	0.00E+00	0.00000727	0.1	7.27E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]		0.1	0.00E+00		0.1	0.00E+00		0.1	0.00E+00	0.00000313	0.1	3.13E-07
Hexachlorodibenzofuran[2,3,4,6,7,8-]		0.1	0.00E+00	0.000000148	0.1	1.48E-08		0.1	0.00E+00	0.0000156	0.1	1.56E-06
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	0.000274	0.0003	8.22E-08	0.0000802	0.0003	2.41E-08	0.00000455	0.0003	1.37E-09	0.0294	0.0003	8.82E-06
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	0.00000684	0.0003	2.05E-09	0.00000198	0.0003	5.94E-10		0.0003	0.00E+00	0.00113	0.0003	3.39E-07
Pentachlorodibenzodioxin[1,2,3,7,8-]		1	0.00E+00		1	0.00E+00		1	0.00E+00	0.0000078	1	7.80E-06
Pentachlorodibenzofuran[1,2,3,7,8-]		0.03	0.00E+00		0.03	0.00E+00		0.03	0.00E+00	8.97E-07	0.03	2.69E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	0.000000238	0.3	7.14E-08	0.00000022	0.3	6.60E-08		0.3	0.00E+00	0.00000299	0.3	8.97E-07
Tetrachlorodibenzodioxin[2,3,7,8-]		1	0.00E+00		1	0.00E+00		1	0.00E+00	0.00000114	1	1.14E-06
Tetrachlorodibenzofuran[2,3,7,8-]		0.1	0.00E+00		0.1	0.00E+00		0.1	0.00E+00	9.04E-07	0.1	9.04E-08
			6.23E-07			**3.22E-07**			**6.33E-09**			**6.20E-05**

Revised EPCs for SWMU 03-049(a) for the Ecological Scenario (continued)

0-5 Ecological						
COPCs	CAMO-09-6009 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)	CAMO-09-6047 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)
Dioxins						
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	0.000935	0.01	9.35E-06	0.000834	0.01	8.34E-06
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	0.00012	0.01	1.20E-06	0.0000873	0.01	8.73E-07
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	0.0000113	0.01	1.13E-07	0.00000879	0.01	8.79E-08
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	0.00000572	0.1	5.72E-07	0.00000686	0.1	6.86E-07
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	0.0000319	0.1	3.19E-06	0.0000309	0.1	3.09E-06
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	0.0000126	0.1	1.26E-06	0.0000145	0.1	1.45E-06
Hexachlorodibenzofuran[1,2,3,4,7,8-]	0.0000043	0.1	4.30E-07	0.00000477	0.1	4.77E-07
Hexachlorodibenzofuran[1,2,3,6,7,8-]	0.00000286	0.1	2.86E-07	0.00000341	0.1	3.41E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]	0.00000124	0.1	1.24E-07		0.1	0.00E+00
Hexachlorodibenzofuran[2,3,4,6,7,8-]	0.00000641	0.1	6.41E-07	0.00000616	0.1	6.16E-07
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	0.0112	0.0003	3.36E-06	0.00778	0.0003	2.33E-06
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	0.000437	0.0003	1.31E-07	0.000173	0.0003	5.19E-08
Pentachlorodibenzodioxin[1,2,3,7,8-]	0.00000297	1	2.97E-06	0.00000314	1	3.14E-06
Pentachlorodibenzofuran[1,2,3,7,8-]	3.37E-07	0.03	1.01E-08	5.37E-07	0.03	1.61E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	0.00000123	0.3	3.69E-07	0.00000135	0.3	4.05E-07
Tetrachlorodibenzodioxin[2,3,7,8-]	4.68E-07	1	4.68E-07	1.66E-07	1	1.66E-07
Tetrachlorodibenzofuran[2,3,7,8-]		0.1	0.00E+00	7.09E-07	0.1	7.09E-08
			2.45E-05			**2.21E-05**

Original EPCs for SWMU 03-049(a) for the Residential and Construction Worker Scenarios

0-10 Residential and Construction Worker												
COPCs	CAMO-09-6005 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)	CAMO-09-6006 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)	CAMO-09-6007 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)	CAMO-09-6008 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)
Dioxins												
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	0.0000231	0.01	2.31E-07	0.00000915	0.01	9.15E-08	4.96E-07	0.01	4.96E-09	0.00234	0.01	2.34E-05
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	0.00000305	0.01	3.05E-08	0.00000122	0.01	1.22E-08		0.01	0.00E+00	0.00031	0.01	3.10E-06
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	0.000000615	0.01	6.15E-09		0.01	0.00E+00		0.01	0.00E+00	0.0000284	0.01	2.84E-07
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	0.000000209	0.1	2.09E-08		0.1	0.00E+00		0.1	0.00E+00	0.000014	0.1	1.40E-06
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	0.000000858	0.1	8.58E-08	0.000000402	0.1	4.02E-08		0.1	0.00E+00	0.0000789	0.1	7.89E-06
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	0.000000386	0.1	3.86E-08	0.000000445	0.1	4.45E-08		0.1	0.00E+00	0.0000314	0.1	3.14E-06
Hexachlorodibenzofuran[1,2,3,4,7,8-]	0.00000054	0.1	5.40E-08	0.000000139	0.1	1.39E-08		0.1	0.00E+00	0.0000105	0.1	1.05E-06
Hexachlorodibenzofuran[1,2,3,6,7,8-]		0.1	0.00E+00	0.000000147	0.1	1.47E-08		0.1	0.00E+00	0.00000727	0.1	7.27E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]		0.1	0.00E+00		0.1	0.00E+00		0.1	0.00E+00	0.00000313	0.1	3.13E-07
Hexachlorodibenzofuran[2,3,4,6,7,8-]		0.1	0.00E+00	0.000000148	0.1	1.48E-08		0.1	0.00E+00	0.0000156	0.1	1.56E-06
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	0.000274	0.0003	8.22E-08	0.0000802	0.0003	2.41E-08	0.00000455	0.0003	1.37E-09	0.0294	0.0003	8.82E-06
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	0.00000684	0.0003	2.05E-09	0.00000198	0.0003	5.94E-10		0.0003	0.00E+00	0.00113	0.0003	3.39E-07
Pentachlorodibenzodioxin[1,2,3,7,8-]		1	0.00E+00		1	0.00E+00		1	0.00E+00	0.0000078	1	7.80E-06
Pentachlorodibenzofuran[1,2,3,7,8-]		0.03	0.00E+00		0.03	0.00E+00		0.03	0.00E+00	8.97E-07	0.03	2.69E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	0.000000238	0.3	7.14E-08	0.00000022	0.3	6.60E-08		0.3	0.00E+00	0.00000299	0.3	8.97E-07
Tetrachlorodibenzodioxin[2,3,7,8-]		1	0.00E+00		1	0.00E+00		1	0.00E+00	0.00000114	1	1.14E-06
Tetrachlorodibenzofuran[2,3,7,8-]		0.1	0.00E+00		0.1	0.00E+00		0.1	0.00E+00	9.04E-07	0.1	9.04E-08
			6.23E-07			**3.22E-07**			**6.33E-09**			**6.20E-05**

Original EPCs for SWMU 03-049(a) for the Residential and Construction Worker Scenarios (continued)

0-10 Residential and Construction Worker						
COPCs	**CAMO-09-6009 (mg/kg)**	**Toxic Equivalency Factor (TEF)**	**Exposure Point Concentration (mg/kg)**	**CAMO-09-6047 (mg/kg)**	**Toxic Equivalency Factor (TEF)**	**Exposure Point Concentration (mg/kg)**
Dioxins						
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	0.000935	0.01	9.35E-06	0.000834	0.01	8.34E-06
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	0.00012	0.01	1.20E-06	0.0000873	0.01	8.73E-07
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	0.0000113	0.01	1.13E-07	0.00000879	0.01	8.79E-08
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	0.00000572	0.1	5.72E-07	0.00000686	0.1	6.86E-07
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	0.0000319	0.1	3.19E-06	0.0000309	0.1	3.09E-06
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	0.0000126	0.1	1.26E-06	0.0000145	0.1	1.45E-06
Hexachlorodibenzofuran[1,2,3,4,7,8-]	0.0000043	0.1	4.30E-07	0.00000477	0.1	4.77E-07
Hexachlorodibenzofuran[1,2,3,6,7,8-]	0.00000286	0.1	2.86E-07	0.00000341	0.1	3.41E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]	0.00000124	0.1	1.24E-07	0.00000616	0.1	6.16E-07
Hexachlorodibenzofuran[2,3,4,6,7,8-]	0.00000641	0.1	6.41E-07	0.00778	0.1	7.78E-04
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	0.0112	0.0003	3.36E-06	0.000173	0.0003	5.19E-08
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	0.000437	0.0003	1.31E-07	0.00000314	0.0003	9.42E-10
Pentachlorodibenzodioxin[1,2,3,7,8-]	0.00000297	1	2.97E-06	5.37E-07	1	5.37E-07
Pentachlorodibenzofuran[1,2,3,7,8-]	3.37E-07	0.03	1.01E-08	0.00000135	0.03	4.05E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	0.00000123	0.3	3.69E-07	1.66E-07	0.3	4.98E-08
Tetrachlorodibenzodioxin[2,3,7,8-]	4.68E-07	1	4.68E-07	7.09E-07	1	7.09E-07
Tetrachlorodibenzofuran[2,3,7,8-]		0.1	0.00E+00		0.1	0.00E+00
			2.45E-05			**7.95E-04**

Revised EPCs for SWMU 03-049(a) for the Residential and Construction Worker Scenarios

0-10 Residential and Construction Worker												
COPCs	CAMO-09-6005 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)	CAMO-09-6006 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)	CAMO-09-6007 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)	CAMO-09-6008 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)
Dioxins												
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	0.0000231	0.01	2.31E-07	0.00000915	0.01	9.15E-08	4.96E-07	0.01	4.96E-09	0.00234	0.01	2.34E-05
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	0.00000305	0.01	3.05E-08	0.00000122	0.01	1.22E-08		0.01	0.00E+00	0.00031	0.01	3.10E-06
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	0.000000615	0.01	6.15E-09		0.01	0.00E+00		0.01	0.00E+00	0.0000284	0.01	2.84E-07
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	0.000000209	0.1	2.09E-08		0.1	0.00E+00		0.1	0.00E+00	0.000014	0.1	1.40E-06
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	0.000000858	0.1	8.58E-08	0.000000402	0.1	4.02E-08		0.1	0.00E+00	0.0000789	0.1	7.89E-06
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	0.000000386	0.1	3.86E-08	0.000000445	0.1	4.45E-08		0.1	0.00E+00	0.0000314	0.1	3.14E-06
Hexachlorodibenzofuran[1,2,3,4,7,8-]	0.00000054	0.1	5.40E-08	0.000000139	0.1	1.39E-08		0.1	0.00E+00	0.0000105	0.1	1.05E-06
Hexachlorodibenzofuran[1,2,3,6,7,8-]		0.1	0.00E+00	0.000000147	0.1	1.47E-08		0.1	0.00E+00	0.00000727	0.1	7.27E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]		0.1	0.00E+00		0.1	0.00E+00		0.1	0.00E+00	0.00000313	0.1	3.13E-07
Hexachlorodibenzofuran[2,3,4,6,7,8-]		0.1	0.00E+00	0.000000148	0.1	1.48E-08		0.1	0.00E+00	0.0000156	0.1	1.56E-06
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	0.000274	0.0003	8.22E-08	0.0000802	0.0003	2.41E-08	0.00000455	0.0003	1.37E-09	0.0294	0.0003	8.82E-06
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	0.00000684	0.0003	2.05E-09	0.00000198	0.0003	5.94E-10		0.0003	0.00E+00	0.00113	0.0003	3.39E-07
Pentachlorodibenzodioxin[1,2,3,7,8-]		1	0.00E+00		1	0.00E+00		1	0.00E+00	0.0000078	1	7.80E-06
Pentachlorodibenzofuran[1,2,3,7,8-]		0.03	0.00E+00		0.03	0.00E+00		0.03	0.00E+00	8.97E-07	0.03	2.69E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	0.000000238	0.3	7.14E-08	0.00000022	0.3	6.60E-08		0.3	0.00E+00	0.00000299	0.3	8.97E-07
Tetrachlorodibenzodioxin[2,3,7,8-]		1	0.00E+00		1	0.00E+00		1	0.00E+00	0.00000114	1	1.14E-06
Tetrachlorodibenzofuran[2,3,7,8-]		0.1	0.00E+00		0.1	0.00E+00		0.1	0.00E+00	9.04E-07	0.1	9.04E-08
			6.23E-07			**3.22E-07**			**6.33E-09**			**6.20E-05**

Revised EPCs for SWMU 03-049(a) for the Residential and Construction Worker Scenarios (continued)

0-10 Residential and Construction Worker						
COPCs	CAMO-09-6009 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)	CAMO-09-6047 (mg/kg)	Toxic Equivalency Factor (TEF)	Exposure Point Concentration (mg/kg)
Dioxins						
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	0.000935	0.01	9.35E-06	0.000834	0.01	8.34E-06
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	0.00012	0.01	1.20E-06	0.0000873	0.01	8.73E-07
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	0.0000113	0.01	1.13E-07	0.00000879	0.01	8.79E-08
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	0.00000572	0.1	5.72E-07	0.00000686	0.1	6.86E-07
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	0.0000319	0.1	3.19E-06	0.0000309	0.1	3.09E-06
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	0.0000126	0.1	1.26E-06	0.0000145	0.1	1.45E-06
Hexachlorodibenzofuran[1,2,3,4,7,8-]	0.0000043	0.1	4.30E-07	0.00000477	0.1	4.77E-07
Hexachlorodibenzofuran[1,2,3,6,7,8-]	0.00000286	0.1	2.86E-07	0.00000341	0.1	3.41E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]	0.00000124	0.1	1.24E-07		0.1	0.00E+00
Hexachlorodibenzofuran[2,3,4,6,7,8-]	0.00000641	0.1	6.41E-07	0.00000616	0.1	6.16E-07
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	0.0112	0.0003	3.36E-06	0.00778	0.0003	2.33E-06
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	0.000437	0.0003	1.31E-07	0.000173	0.0003	5.19E-08
Pentachlorodibenzodioxin[1,2,3,7,8-]	0.00000297	1	2.97E-06	0.00000314	1	3.14E-06
Pentachlorodibenzofuran[1,2,3,7,8-]	3.37E-07	0.03	1.01E-08	5.37E-07	0.03	1.61E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	0.00000123	0.3	3.69E-07	0.00000135	0.3	4.05E-07
Tetrachlorodibenzodioxin[2,3,7,8-]	4.68E-07	1	4.68E-07	1.66E-07	1	1.66E-07
Tetrachlorodibenzofuran[2,3,7,8-]		0.1	0.00E+00	7.09E-07	0.1	7.09E-08
			2.45E-05			**2.21E-05**

Enclosure 2

Revised Tables H-2.3-13 and H-2.3-14

Table H-2.3-13
EPCs for SWMU 03-049(a) for the Industrial Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	28	0	0.381(U)	4.18(U)	n/a[a]	4.18(U)	Maximum detection limit
Cadmium	28	11	0.11(U)	1.1	Approximate Normal	0.32	95% KM (t)
Chromium (Total)	28	20	4.2	465	Gamma	189.8	95% Adjusted Gamma
Chromium hexavalent	28	4	0.156	20(U)	n/a	2.8[b]	Maximum detected concentration
Copper	28	20	2.36	663	Approximate Gamma	163.2	95% Adjusted Gamma
Iron	28	28	5980	19,200	Gamma	11,271	95% Adjusted Gamma
Lead	28	28	4.13	156	Gamma	41.4	95% Adjusted Gamma
Nickel	28	28	1.79	58.4	Gamma	22.9	95% Adjusted Gamma
Perchlorate	20	4	0.000626	0.00267(U)	n/a	0.0016[b]	Maximum detected concentration
Selenium	28	1	0.75(U)	2.6(U)	n/a	0.862[b]	Maximum detected concentration
Zinc	28	28	20.6	564	Approximate Gamma	239.7	95% Adjusted Gamma
Organic Chemicals (mg/kg)							
Acetone	10	1	0.00444	0.03(U)	n/a	0.00444[b]	Maximum detected concentration
Aroclor-1254	5	4	0.00409(U)	0.0432	n/a	0.0432	Maximum detected concentration
Aroclor-1260	5	5	0.0053	0.129	n/a	0.129	Maximum detected concentration
Bis(2-ethylhexyl)phthalate	20	10	0.085	0.439(U)	Approximate Lognormal	0.17	95% KM (t)
Butanone[2-]	10	1	0.00521(UJ)	0.042(U)	n/a	0.013[b]	Maximum detected concentration
Methylene chloride	10	2	0.00521(UJ)	0.012	n/a	0.012	Maximum detected concentration
TCDD[2,3,7,8-] equivalent	4	4	3.22E-07	~~7.95E-04~~ 6.20E-05	n/a	~~7.95E-04~~ 6.20E-05	Maximum detected concentration

Table H-2.3-13 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Radionuclides (pCi/g)							
Cesium-137	18	14	-0.0425(U)	3.09	Approximate Gamma	1.19	95% KM (Chebyshev)
Tritium	20	6	-0.0133(U)	0.121	Normal	0.028	95% KM (t)
Uranium-234	28	28	0.53	3.84	Approximate Lognormal	2.15	95% Chebyshev (Mean, Sd)
Uranium-235/236	28	8	0.0133(U)	0.233	Normal	0.073	95% KM (t)
Uranium-238	28	28	0.561	5.69	Approximate Gamma	2.24	95% Adjusted Gamma

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.3-14
EPCs for SWMU 03-049(a) for Ecological Risk and Construction Worker and Residential Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	32	0	0.381(U)	4.18(U)	n/a[a]	4.18(U)	Maximum detection limit
Cadmium	32	13	0.11(U)	1.1	Approximate Normal	0.32	95% KM (t)
Chromium (Total)	32	32	4.2	465	Approximate Lognormal	208.6	95% Chebyshev (Mean, Sd)
Chromium hexavalent	32	6	0.156	20(U)	Normal	0.73[b]	95% KM (t)
Copper	32	32	2.36	663	Lognormal	201.3	95% Chebyshev (Mean, Sd)
Iron	32	32	5980	19,200	Gamma	11,046	95% Adjusted Gamma
Lead	32	32	4.13	156	Gamma	36.9	95% Adjusted Gamma
Nickel	32	32	1.79	58.4	Nonparametric	26.4	95% Chebyshev (Mean, Sd)
Perchlorate	24	4	0.000626	0.00267(U)	n/a	0.0016[b]	Maximum detected concentration
Selenium	32	1	0.75(U)	2.6(U)	n/a	0.862[b]	Maximum detected concentration
Zinc	32	32	20.6	564	Approximate Lognormal	274.8	95% Chebyshev (MVUE)
Organic Chemicals (mg/kg)							
Acetone	14	1	0.00444	0.03(U)	n/a	0.00444[b]	Maximum detected concentration
Aroclor-1254	7	4	0.00348(U)	0.0432	n/a	0.0432	Maximum detected concentration
Aroclor-1260	7	6	0.00348(U)	0.129	n/a	0.129	Maximum detected concentration
Bis(2-ethylhexyl)phthalate	24	10	0.085	0.439(U)	Approximate Lognormal	0.17	95% KM (t)
Butanone[2-]	14	1	0.00521(UJ)	0.042(U)	n/a	0.013[b]	Maximum detected concentration
Methylene chloride	14	2	0.00521(UJ)	0.012	n/a	0.012	Maximum detected concentration
TCDD[2,3,7,8-] equivalent	6	6	6.33E-09	~~7.95E-04~~ 6.20E-05	n/a	~~7.95E-04~~ 6.20E-05	Maximum detected concentration
Toluene	14	3	0.00347	0.018(U)	n/a	0.000586	Maximum detected concentration

Table H-2.3-14 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Radionuclides (pCi/g)							
Cesium-137	22	14	-0.0425(U)	3.09	Approximate Gamma	0.62	95% KM (BCA)
Tritium	24	7	-0.0197(U)	0.121	Normal	0.019	95% KM (t)
Uranium-234	32	32	0.338	3.84	Lognormal	1.91	95% Chebyshev (MVUE)
Uranium-235/236	32	8	-0.00597(U)	0.233	Normal	0.054	95% KM (t)
Uranium-238	32	32	0.343	5.69	Lognormal	2.51	95% Chebyshev (MVUE)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.